

**TECHNICAL SPECIFICATIONS  
PACKAGE FOR  
WATER SUPPLY PROGRAM  
RIVER INTAKE PUMP STATION**

**VOLUME 1  
GENERAL REQUIREMENTS**



**Atlanta, Georgia**

**Keisha Lance Bottoms  
Mayor  
City of Atlanta**

**Kishia L. Powell  
Commissioner  
Department of Watershed Management**

**David L. Wilson II  
Chief Procurement Officer  
Department of Procurement**

**ISSUED FOR BIDDING  
NOVEMBER 26, 2019**



# **WATER SUPPLY PROGRAM RIVER INTAKE PUMP STATION**

## **CITY OF ATLANTA, GEORGIA**

**Keisha Lance Bottoms**

Mayor

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Department of Watershed Management

**David I. Wilson II**

Chief Procurement Officer

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**FC-1190004**

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## **PROJECT NO. FC-1190004**

### **PROJECT TITLE: WATER SUPPLY PROGRAM RIVER INTAKE PUMP STATION**

#### **GENERAL CONDITIONS**

##### **GC-1 AGREEMENT AND AGREEMENT DOCUMENTS**

The General Conditions, Special Conditions, Technical Provisions, Drawings, Changes, and all other parts of the Agreement Documents are complementary, and a requirement occurring in one shall be as binding as though occurring in all. The parts of the Agreement are complementary and describe and provide for completion of the Work. The table of contents, titles, headings, running headlines and marginal notes contained herein and in said documents are solely to facilitate reference to various provisions of the Agreement Documents and in no way affect, and shall not be considered in the interpretation of the provisions to which they refer.

Execution of the Agreement by Contractor is a representation that Contractor has visited the Site, become familiar with the local conditions under which the Work is to be performed, and has correlated personal observations with the requirements of the Agreement Documents.

The intent of the Agreement Documents is to include all items necessary for the proper execution and completion of the Work. Work not specifically covered in the Agreement Documents shall be required if it is consistent therewith and reasonably inferable therefrom as being necessary to produce the intended results. Words and abbreviations that have well-known technical or trade meanings are used in the Agreement Documents in accordance with such recognized meanings.

If and to the extent of any inconsistency, ambiguity, conflict, discrepancy or error in the Agreement Documents (a "discrepancy"), Contractor shall immediately notify the Owner in writing and seek clarification from the Owner (within 24 hours of discovery). In the event that the Owner fails to clarify such discrepancy within a reasonable time under the circumstances, Contractor shall proceed with the Work and give precedence to the Agreement Documents in the following order of priority:

- (1) Written modifications (including without limitation Change Orders and Change Directives) issued after execution of the Agreement;
- (2) Addenda issued in writing prior to the execution of the Agreement;

- (3) the Agreement;
- (4) Addendum, if any, to the General Conditions and Special Conditions;
- (5) Special Conditions;
- (6) the General Conditions;
- (7) the Specifications; and
- (8) the Plans and Drawings.

If the application of the foregoing procedure fails to resolve the discrepancy, then unless Contractor sought and obtained the clarification of the discrepancy prior to entering into this Agreement, then the discrepancy shall be resolved by construing the provision in favor of the Owner and in such a manner as will further the Owner's best interests and which may impose the more expensive or greater obligation upon Contractor. When Contractor fails to provide this notice and seek clarification, Contractor assumes full responsibility to correct or adjust work performed pursuant to Agreement Documents known, or which should have been known, to contain such a discrepancy.

### **GC-2 ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS**

During the progress of the Work, the Engineer may issue additional instructions and Drawings supplemental to those listed in the Special Conditions showing additional details required for the performance of the Work, and may issue revised Drawings pursuant to Change Orders or Change Directives, or for correction of errors in the Plans. The additional instructions and Drawings thus supplied will become a part of the Agreement Documents. Contractor shall carry out the Work in accordance with the additional instructions and Drawings.

### **GC-3 DEFINITIONS**

The following terms as used in this Agreement are respectively defined, as follows:

Abandonment - Shall mean the permanent termination of the use of, or of service from in or on, a facility.

Approved, Directed, Ordered, Or Their Derivatives - Approved, as directed, or ordered by the Engineer or the City, unless otherwise clearly indicated.

Acceptance - The formal written acceptance by the City of the fully and finally completed Work.

Addenda - Revisions to the Proposal Documents issued by the City prior to opening of the Bid.

Agreement - The written agreement for the performance of and payment for the Work, which includes by reference and is a part of the Agreement Documents, executed on behalf of the City and the Contactor, also called City-Contractor Agreement.

Agreement Documents - The Agreement Documents are defined in other portions of the Agreement, but include, at least, the following, if applicable to this Project:

- This City-Contractor Agreement;
- General Conditions (Part I);
- Special Conditions (Part II);
- Scope of Service (Part III);
- Equal Business Opportunity Program (Appendix A);
- Insurance and Bonding Requirements (Appendix B);
- LOCAL Bidder Preference Program (Appendix C);
- Georgia Security and Immigration Compliance Act of 2006 (Appendix D);
- Bid Form (Exhibit A);
- Required Submittals (Exhibit B);

- Addendum (Exhibit C);
- Legislation (Exhibit D); and
- Performance and Payment Bonds

The Agreement Documents may also be referred to from time to time as the "Contract Documents."

Agreement Price - The price or prices for the Work or items of Work set forth in the Bid.

Agreement Time - The number of calendar days stated in the Agreement Documents for the Substantial Completion of the Work or Final Completion of the Work, or the achievement of a specific interim milestone, as the context may require.

Applicant - Shall mean any person, company or corporation who intends or plans to request for water services for a new development.

Application for Payment - The form approved by the City that is to be used by Contractor in requesting progress payments or final payment, together with such supporting documentation as is required in the Agreement Documents. The Application for Payment may also be called Payment Application or Progress Payment.

Bid - The offer or bid of the Bidder submitted in the prescribed manner on the prescribed form setting forth the prices for the Work to be performed together with supplemental information as required by the Agreement Documents.

Bidder - Any person, firm, partnership, corporation or any combination thereof submitting a Bid for the Work.

Bonds - Bid, Performance Bonds, Payment Bonds, and other instruments of security furnished by Contractor and its surety in accordance with the Agreement Documents.

Bond means a written instrument of surety approved by the City with a valid Certificate of Authority issued by the United States Department of Treasury under Sections 9304 to 9308 of Title One of the United States Code as security to the City, on behalf of a Bidder or the Contractor, to guaranty faithful performance of acts, duties or obligations under the Contract Documents and includes the following.

- Bid Bond means the security instrument furnished with a Bid to guaranty that, if the Bidder is awarded the Contract, the Bidder will execute the Agreement within the time specified in the Bidding Documents.
- Maintenance Bond, if required on the Project, means the security instrument furnished by the Contractor and its surety on the approved form as a guaranty, in addition to other warranties and guaranties, to remedy any defects in the Work of the Contractor which may develop during the warranty period after Completion of the Contract.
- Payment Bond means the security instrument furnished by the Contractor and its surety on the Payment Bond Form as a guaranty that Contractor will pay in full all bills and accounts for materials and labor used in the Work.
- Performance Bond means the security instrument furnished by the Contractor and its surety on the Performance Bond Form as a guaranty that the Contractor will complete the Work in accordance with the terms of the Contract.

Change - Any change in the Work authorized by the Engineer, including Field Changes, Work Authorizations or Change Orders.

Change Directive – A written order prepared by the Owner and signed by the Owner directing a Change in the Work prior to or absent an agreement or adjustment, if any, in the Agreement Price or Agreement Time, or both.

Change Order - A written agreement signed by the Owner and Contractor, stating their agreement upon all of the following: (1) change in the Work that includes the addition or reduction of Work; (2) the amount of the adjustment, if any, in the Agreement Price; and

(3) the extent of the adjustment, if any, in the Agreement Time and includes at least one of the above Changes. A Change Order does not include a Field Change, Work Authorization or Change Directive.

City - Shall mean the City of Atlanta, Georgia, and shall include all agencies, establishments or officials of the government of the City. The City may also be referred to from time to time as the "Owner."

City-Contractor Agreement - The written agreement for the performance of and payment for the Work executed on behalf of the City and the Contractor, which is both a part of the Agreement Documents and includes all Agreement Documents by reference. The City-Contractor Agreement may also be called "Agreement."

City's Contractor - Shall mean the legally authorized representative of the City, a private contractor, or other concerned agency performing Work under a direct Agreement with the City.

Construction - Shall mean the actual site preparation, building and all related Work, including facility relocation and adjustments.

Construction Easement/Temporary Easement - Any space or area dedicated to the City or other entity for the purpose of utilities or location of utilities for a specific period of time.

Construction Equipment - Equipment used in the performance of the Work but not incorporated therein.

Contract Documents - The Agreement Documents referenced above.

Contractor - Any firm, partnership, corporation, joint venture, LLC or any combination thereof who enters into a contractual Agreement with the City. This excludes Subcontractors/Sub-consultants.

CPM Schedule - A logic tied computerized network schedule incorporating all elements of the Work, prepared and updated in accordance with the requirements of the Special Conditions, subject to approval of the City.

Day - A calendar day of twenty-four (24) hours lasting from midnight one day to midnight the next day.

Department - Shall mean the Department of Watershed Management.

Designer - Shall refer to the firm licensed to practice engineering in the State of Georgia that seals the plans and specifications prior to bid.

Drawings - That part of the Agreement Documents which show the shape, outlines, dimensions, characteristics, scope of and other similar requirements governing the Work, or portions thereof, prepared by the Designer and including revisions thereto. The term is used interchangeably with the word "Plans" and includes without limitation Standard Details and Drawings.

Engineer - City of Atlanta or duly authorized representative assigned to administer the technical aspects of the Agreement. The terms Resident Engineer, Contract Administrator, or Contract Manager may be used interchangeably to denote the person designated expressly by the City with authority to administer the Agreement.

Equipment - Equipment incorporated or to be incorporated in the Work.

Field Change – A Change in Work that includes changes or adjustments to quantities or budget items but does not include a Change in the overall Agreement Price, overall Agreement Time or use of allowance items, which is required as a result of field conditions that require such adjustments. A Field Change does not include a Work Authorization, a Change Order or a Change Directive and is agreed upon and executed by an authorized City representative and the Contractor.

Force Account - A method of payment, other than lump sum or unit price, for Work ordered by Change Order and paid for in accordance with force account procedures indicated in "Force Account" Section of the General Conditions.

General Conditions - The General Conditions of the Agreement for construction that govern the rights, duties, and obligations of the parties.

GDOT - The Georgia Department of Transportation.

Inspector - The authorized representative of the Engineer or the City assigned to make detailed inspection of any or all portions of the Work or Materials thereof.

MARTA - Shall mean the Metropolitan Atlanta Rapid Transit Authority, or its designated legal representatives.

Materials - Materials incorporated or to be incorporated in the Work unless otherwise clearly indicated.

Modifications – Binding changes, addenda, revisions, or the like, to the Work or the Agreement Documents, including Changes to Work made by Change Order, Work Authorization, Field Change or Change Directive as required by GC-41.

Notice of Intent or Letter of Intent to Award - The written notice of the acceptance of the Bid from the City to a Bidder.



Notice to Proceed - ("NTP") Written communication issued by the City to Contractor authorizing it to proceed with the Work and establishing the date of commencement of the Agreement time and on which Contractor shall start to perform its obligations in accordance with the Agreement Documents.

Owner - Same as "City" above.

Permanent Easement - Any space or area dedicated to the City or other entity for the purpose of constructing and/or maintain existing or future utilities.

Plans - That portion of the Agreement Documents describing in drawings, the shapes, outlines, dimensions, characteristics, scope and other similar requirements governing the Work, or portions thereof, prepared by the Designer and including revisions thereto. The term is used interchangeably with the word "Drawings" and includes without limitation Standard Details and Drawings.

Project - The Project is identified in the City-Contractor Agreement and is the total construction of which the Work performed under the Agreement Documents is a part.

Public Space/Public Right-of-Way - Shall mean the area between private property lines under the jurisdiction of the City, county, state or federal government, including, but not limited to, an alley, roadway, median, sidewalk, public way, or any combination thereof.

Punch List - Shall mean the lists prepared by the City's Representative or Design Consultant prior to Substantial Completion and through Final Completion indicating items of Work not in accordance with the requirements of the Contract Documents and which must be performed, corrected and accomplished prior to acceptance of the Work.

Replacement Facility - Shall mean that facility, meeting the Department's current standards, which will be constructed or provided, as a consequence of the rearrangement of an existing facility or portion thereof.

Resident Engineer - The City's Engineer who is assigned to the Site or any part thereof.

Responsive Bid - A Bid which is accurate and complete with respect to Bid schedules and information submitted relative to the technical qualifications and financial responsibility and is able to comply with Equal Opportunity and other requirements of the Agreement Documents.

Samples - Shall mean physical examples furnished by Contractor, which illustrate materials, equipment or workmanship. Approved Samples in conformance with the Contract Documents establish the standards of the Work.

Shop Drawings - Shall mean drawings, diagrams, illustrations, schedules or other data illustrating the Work, and all illustrations, brochures, standard schedules, performance charts, specifications, instructions, diagrams, and other information prepared by a

Subcontractor, Supplier, vendor or manufacturer and submitted by Contractor as required in the Contract Documents.

Scope of Services - See "Work."

Sidewalk Area - Shall mean that portion of a street between the curb lines and the adjacent property lines intended primarily for the use of pedestrians whether paved or in use.

Site - The areas required for the performance of the Work.

Special Conditions - Terms which supplement items covered in General Conditions.

Specifications, Technical Specifications - Shall mean those portions of the Contract Documents consisting of written technical descriptions, provisions or requirements of the Work to be performed under the Contract Documents, including, but not limited to, the quantities or quality of materials, equipment, construction systems or applications. Standards for specifying materials or testing that are cited in the Specifications are part of the Contract Documents.

Standards - Shall mean those current Standards of Engineering analysis and design, including Installation and Material Specifications, which the City utilizes in the design and construction of its own projects.

State - The State of Georgia.

Subcontractor - An individual, firm, corporation or any combination thereof having a direct contract with Contractor for the performance of a part of the Work at the site.

Substantial Completion - The date certified by the Engineer when all or a part of the Work, identified in the Engineer's certification, is sufficiently completed in accordance with the requirements of the Agreement Documents so that the identified portion of the Work can be utilized for the purposes for which it is intended.

Supplier - Any individual, firm, or corporation who supplies Material or Equipment for the Work (including that fabricated to a special design) but who does not perform or provide significant labor at the Site.

Temporary Facility - Shall mean a facility constructed for whatever purpose and not intended to be permanent.

Utility - Shall mean and include all public, private, or cooperatively owned lines, facilities and systems for producing, transmitting or distributing communications, power, electricity, heat, gas, oil, crude products, water, steam, waste, storm water, and other similar commodities, such as public owned fire and police signal systems, which directly or indirectly serve the public or any part thereof.

Work - All the services specified, indicated, shown, or contemplated by the Agreement Documents and the furnishing by Contractor of all Materials, Equipment, labor, methods, processes, construction and manufacturing materials and equipment, tools, plants, supplies, power, water, transportation and other things necessary to complete such services in accordance with the Agreement Documents and that will ensure a functional and complete facility.

Work Authorization – A Change in Work that adds, changes or removes scope of work from the Agreement but does not include a change in Agreement Time or Agreement Price; or the utilization of an allowance or contingency item, as permitted and defined by the Agreement documents. A Work Authorization does not include a Change Order, a Field Change or a Change Directive and is agreed upon and executed by an authorized City representative and the Contractor.

Working Days - Generally, Monday, Tuesday, Wednesday, Thursday, and Friday; however, on some projects, Saturday and/or Sunday may be considered working days, if specified as working days by the City or Engineer. Holidays are not considered Working Days.

Written Notice - A written statement transmitted from one party to an authorized representative of another party.

## **GC-4 APPLICABLE CODES, SPECIFICATIONS, AND STANDARDS**

### **GC-4.1 General**

All codes, Specifications, regulations, laws, ordinances, and standards referred to in the Agreement Documents shall mean, and are intended to be, the latest editions, amendment, and revisions of such reference standard in effect as of the date of the Invitation to bid for this Agreement, and as may be updated or amended to be applicable to the Project.

### **GC-4.2 Standards**

Reference to a technical society, institution, association, or governmental authority, or pronoun in place of them, is made in the Agreement Documents in accordance with the following abbreviations:

ANSI	American National Standards Institute;
ASTM	American Society for Testing and Materials;
AWS	American Welding Society;
AASHTO	American Association of State Highway and Transportation Officials;
ACI	American Concrete Institute;

AFBMA	Anti-Friction Bearing Manufacturer's Association;
AI	Asphalt Institute;
AISI	American Iron and Steel Institute;
AISC	American Institute of Steel Construction;
AMCA	Air Moving and Conditioning Association;
API	American Petroleum Institute;
ASME	American Society of Mechanical Engineers;
ASTM	American Society for Testing and Materials;
AWG	American (Brown and Sharpe) Wire Gauge;
AWS	American Welding Society;
AWWA	American Water Works Association;
CRSI	Concrete Reinforcing Steel Institute;
EPA	Environmental Protection Agency (Federal);
EPD	Environmental Protection Division (Georgia State);
GDOT	Georgia Department of Transportation (“GDOT”);
MARTA	Metropolitan Atlanta Rapid Transit Authority;
NACE	National Association of Corrosion Engineers;
NFPA	National Fire Protection Association;
NSF	National Sanitary Foundation;
OSHA	Occupational Safety and Health Administration; and
UL	Underwriter’s Laboratories Incorporated.

#### **GC-5 ADEQUACY OF DESIGN**

Before placing its Bid to the City, and continuously after the execution of the Agreement, Contractor shall carefully study and compare the Agreement Documents and shall at once report any error, ambiguity, inconsistency or omission that may be discovered, including any requirement which may be contrary to any law, ordinance, rule, regulation, or order of any public authority bearing on the performance of the Work. By submitting its Bid for the Agreement and the Work under it, Contractor agrees that the Agreement Documents, along with any supplementary written instructions issued by or through the Engineer that have become a part of the Agreement Documents, appear accurate, consistent, and complete. Contractor shall perform no portion of the Work at any time without Agreement Documents or, where required, approved shop Drawings, product data, or samples for such portion of the Work.

No claims shall be made by Contractor based on claims of defects, errors, omissions, ambiguities or inconsistencies in the Agreement Documents which were reasonably discoverable by a review of the Agreement Documents and correlation thereof with the actual conditions at the Project Site. No observation of the Engineer or City, and no inspections, tests or approval shall relieve Contractor from its obligation to perform the Work in strict conformity with the Agreement Documents.

Contractor has determined, by its own investigation and research, all the conditions affecting the work to be done and materials to be furnished and does not rely upon any representation by the City in connection therewith.

THE CITY, ITS AGENTS AND EMPLOYEES MAKE NO REPRESENTATION OR WARRANTY OF ANY NATURE WHATSOEVER TO CONTRACTOR CONCERNING THE AGREEMENT DOCUMENTS. By the execution hereof, Contractor acknowledges and represents that it has received, reviewed and carefully examined such documents, has found them to be complete, accurate, adequate, consistent, coordinated and sufficient for construction, and that Contractor has not, does not, and will not rely upon any representations or warranties by the City concerning such documents as no such representations or warranties have been or are hereby made.

Prior to execution of the Contract, Contractor has evaluated and satisfied itself as to the condition and limitations under which the Work is to be performed, including, without limitation, (i) the location, condition, layout, and nature of the Project Site and surrounding areas, (ii) generally prevailing climatic conditions, (iii) anticipated labor supply and costs, (iv) availability and cost of materials, tools and equipment, and (v) other similar issues. With the exception of any differing site conditions clause, if any, that may be included in the Agreement Documents, the City assumes no responsibility or liability for the physical condition of the Project Site, or any improvements located on the Project Site. Contractor shall be solely responsible for providing a safe place for the performance of the Work.

Contractor acknowledges and agrees that its obligation to construct the Work in accordance with the Agreement Documents is not in any way altered or affected by the observations or inspections of the City or the Designer. Further, Contractor acknowledges and agrees that any warranty periods included herein merely set forth the time period during which Contractor is contractually required to specifically perform corrective work and that these warranty periods are not and shall not be construed to be exclusive remedies of the City. Instead, Contractor acknowledges and agrees that it shall be liable to the City for the cost of correcting Work not performed in accordance with the Agreement Documents for the full period of the applicable statute of limitations.

#### **GC-6 CITY OF ATLANTA ORDINANCES**

Contractor shall be bound by the provisions of all City of Atlanta Ordinances. It is Contractor's responsibility to be aware of and adhere to all existing or future ordinances that are in effect during the performance of the Agreement.

#### **GC-7 PERMITS AND REGULATIONS**

All applicable federal laws, state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Agreement throughout to the extent that such requirements do not conflict with federal laws or regulations and in the event of a conflict, federal laws shall govern. All Work performed within the right of way of GDOT shall be in accordance with GDOT regulations, policies, and procedures.

Except as expressly stated in the Contract Documents, Contractor shall secure and will provide all building permits, licenses, and other applicable legal documents required for Contractor's performance of the Project.

Contractor shall give all notices and comply with all permits, laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn and specified.

If any permit, license or certificate expires or is revoked, terminated or suspended as a result of any action on the part of Contractor or any person or entity for which Contractor is responsible, it shall neither be entitled to any additional compensation, nor to an extension of Agreement Time.

#### **GC-8 TAXES**

Contractor shall pay all sales, retail, occupational, service, excise, old age benefit and unemployment compensation taxes, consumer, use and other similar taxes as well as any other taxes or duties on the Material, Equipment and labor for the Work or portions thereof provided by Contractor which are legally enacted by any municipal, county, federal or state authority or department or agency thereof at the time Bids are received, whether or not yet effective.

All records maintained by Contractor pertaining to such taxes and levies and payment thereof shall be made available to the City at reasonable times for inspection, audit and copying.

#### **GC-9 ARREARS TO OFFSET DEBT AGAINST CITY**

No money shall be paid by the City upon any claim, debt, demand or account whatsoever, to any person, firm, or corporation who is in arrears to the City for taxes, or any other debt or claim, and the City shall be entitled to counterclaim and/or offset any such debt, claim, demand or account in the amount of taxes so in arrears or other debts or claims of the City, and no assignment or transfer of such debt, claim, demand, or account after the said taxes are due or after any such debt or claim is asserted by the City, shall affect the right of the City to so offset the said taxes, debts, or other obligations against the same.

Contractor agrees that the City shall be allowed to setoff and recoup any claim or demand that it may have against Contractor (or any of its constituent members if Contractor is a joint venture) whether such claim or demand is liquidated or unliquidated. Contractor further agrees that in the event it assigns or sells any amounts due or to become due under this Agreement, notice to the City of such assignment or sale shall not affect the City's rights of setoff or recoupment against Contractor for claims subsequently arising on this or any other project. Any assignee or purchaser of any amounts due Contractor under this Agreement shall be bound to these provisions and shall assume the risk of subsequently arising claims of setoff or recoupment.

### **GC-10 LIENS**

Contractor acknowledges that neither it nor any of its Subcontractors or Suppliers have lien rights on public property. Contractor will furnish the City with evidence, satisfactory to the City that all persons who have done Work or furnished materials in performance of this Agreement have been fully paid before it shall demand final payment due or unpaid under this Agreement. In case such evidence is not furnished, an amount necessary to meet the lawful claims of the persons aforesaid may be retained from any monies due or that may become due the said Contractor under this Agreement until the lawful claims aforesaid shall be fully discharged, and it is understood and agreed that the City assumes no obligation nor in any way undertakes to pay such lawful claim out of any funds due or that may become due the said Contractor out of the City's own funds.

If, in its sole discretion, the City wishes to make joint payment to Contractor and any of its Subcontractors or Suppliers, Contractor agrees that the City may do so, and Contractor agrees to cooperate with the City in identifying the amounts due Subcontractors and Suppliers to facilitate the making of said joint payment.

### **GC-11 ASSIGNMENTS**

Contractor shall retain personal control and shall give personal attention to the fulfillment of this Agreement. Contractor shall not assign the whole or any part of this Agreement or any monies due or to become due hereunder without the written consent of the City. In case Contractor assigns all or any part of any monies due or to become due under this Agreement, the instrument of assignment shall contain, or shall be deemed to contain, a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to Contractor shall be subject to claims of all persons, firms, and corporations for services rendered or materials supplied for the performance of the Work called for in this Agreement and to setoffs and recoupments by the City as set forth in GC-9 above. Any assignment of this Agreement in whole or in part or any assignment of monies due or to become due hereunder must bind the assignee to all terms and conditions of this Agreement and protect and preserve all rights and remedies of the City as against Contractor and extend to the City

the same rights and remedies against assignee. In the event that any person or entity should claim entitlement to all or any part of any monies due or to become due under this Agreement under the doctrine of subrogation, it further agrees that its rights shall be subject to claims of all persons, firms, and corporations for services rendered or materials supplied for the performance of the Work called for in this Agreement and to setoffs and recoupments by the City as set forth in GC-9 above.

## **GC-12 PATENTS AND ROYALTIES**

Contractor shall indemnify and hold harmless the City and its officers, agents, servants, and employees from liability or all claims of any nature or kind, including costs, attorneys' fees, and expenses for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Agreement, including its use by the City, unless otherwise specifically stipulated in the Agreement Documents.

If Contractor uses any design, device or Materials covered by letters, trademarks, patent or copyright, it shall provide for such use by suitable agreement between the City and the holder of such design, device or Material. It is mutually agreed and understood that, without exception, the Agreement Price shall include all royalties or costs arising from the use of such design, device, or Materials in any way involved in the Work. Contractor or its sureties or both shall indemnify and hold harmless the City, its officers and employees from any and all claims for infringement by reason of the use of such patented or copyrighted design, device or Materials or any trademark or copyright in connection with Work agreed to be performed under this Agreement and Contractor shall indemnify the City for any cost, expense or damage which it may be obliged to pay by reason of such infringement at any time during the prosecution of the Work or after completion of the Work, including any costs or expenses for experts and attorneys' fees.

## **GC-13 OUT-OF-STATE CONTRACTORS**

If the lowest responsive Bidder is a foreign corporation, partnership, or sole proprietorship, the Bidder hereby irrevocably appoints the Secretary of State of Georgia as its agent for services of all legal process for the purpose of this Agreement only and shall obtain all required certificates and licenses required by the Georgia Law.

## **GC-14 CONTRACTOR'S OBLIGATIONS**

### **GC-14.1 Supervision and Construction Procedures**

#### **GC-14.1.1**



Contractor shall supervise and direct the Work, using Contractor's best skill and attention. Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures and shall coordinate all portions of the Work under the Agreement. All Work under the Agreement shall be performed in a skillful and workmanlike manner. Contractor shall exercise its control over all means, methods, techniques, and procedures so as to carefully and diligently coordinate the work of all Subcontractors and Suppliers or anyone working by, through, or under Contractor or a Subcontractor or Supplier.

GC-14.1.2

Contractor shall be responsible to the City for the acts and omissions of Contractor's employees, Subcontractors, Suppliers, and their agents and employees, and any other persons performing any of the Work under a contract with Contractor or a Subcontractor or Supplier.

GC-14.1.3

Contractor shall not be relieved from Contractor's obligations to perform the Work in accordance with the Agreement Documents by the activities or duties of the Engineer in the administration of the Agreement or by inspections, tests, or approvals required or performed by persons other than Contractor.

GC-14.1.4

Contractor shall carefully study and compare the Agreement Documents with each other and with the site conditions and other information furnished by the Owner and shall at once report in writing to the Owner alleged errors, inconsistencies or omissions. If Contractor performs any construction activity involving an error, inconsistency or omission in the Agreement Documents that Contractor recognized or reasonably should have recognized and without having given written notice to the Owner, Contractor shall assume complete responsibility for such performance and shall bear the full amount of the attributable costs for correction.

GC-14.1.5

Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information available to Contractor with the Agreement Documents before commencing activities. Errors, inconsistencies, or omissions discovered shall be reported in writing to the Owner at once and shall be subject to the provisions of the last sentence of GC-14.1.4 above.

## GC-14.2 Labor and Materials

### GC-14.2.1

Unless otherwise provided in the Agreement Documents, Contractor shall provide and pay for all labor, Materials, Equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work, whether temporary or permanent, and whether or not incorporated or to be incorporated in the Work.

### GC-14.2.2

Contractor shall, at all times, enforce strict discipline and good order among Contractor's employees and Subcontractors, and shall not employ on the Work any Subcontractor, unfit person or anyone not skilled in the task assigned them. The City may, after Written Notice, require Contractor to remove from the Work any employee the City deems incompetent, careless, or otherwise objectionable, including any employee of a Subcontractor or Supplier.

### GC-14.2.3

All Work at the site shall be performed during regular working hours, except upon the City's written consent given after prior Written Notice.

## GC-14.3 Contractor's Construction Schedule

Contractor shall comply with all scheduling requirements set forth in the Agreement Documents, including but not limited to the Special Conditions requirements for a CPM Schedule for performance of the Work.

## GC-14.4 Conditions Affecting the Work

Contractor shall be responsible for having taken all steps necessary to ascertain the nature and location of the Work and the general and local conditions that can affect the Work or the cost thereof. Failure by Contractor to fully acquaint itself with conditions that may affect the Work, including but not limited to conditions relating to transportation, handling, storage of Materials, availability of labor, water, roads, weather, topographic and subsurface conditions, as-built conditions, other separate contracts to be entered into by the City relating to this Project that may affect the Work of Contractor, applicable provisions of law, and the character and availability of equipment and facilities needed prior to and during the prosecution of the Work, shall not relieve Contractor of its responsibilities under the Agreement Documents and shall not constitute a basis for an equitable adjustment or additional compensation under any circumstances. The City assumes no responsibility for any understanding or representations concerning conditions made by any of its officers, agents, or employees

prior to the execution of the Agreement, unless such understanding or representations are expressly stated in the Agreement Documents.

### **GC-15 RIGHT OF ENTRY**

The City reserves the right to enter the Site of the Work herein contracted for, by such agent or agents as they may elect, for the purpose of inspecting the Work, or for the purpose of installing such collateral Work as the City may desire. Contractor shall cooperate and coordinate with other contractors prosecuting other phases of the construction. Furthermore, if deemed necessary by the Engineer, Contractor will incorporate work activities of other City contractors directly into the schedule such that no phase of the Project(s) is delayed or impacted.

### **GC-16 NOTICES**

Any notice, consent, approval, or other communication which is provided for or required by the Agreement Documents must be in writing and may be delivered in person to any party or may be sent by a facsimile transmission or by registered or certified U.S. mail, with postage prepaid, return receipt requested. Copies of all facsimiles shall also be sent via first class mail. Any such notice or other written communication shall be deemed received by the party to whom it is sent (i) in the case of delivery by hand or delivery by reputable national or local courier (such as United Parcel Service or Federal Express), on the date of delivery to the party to whom such notice is addressed, (ii) in the case of facsimile transmission, one working day after the date of successful transmission (provided that an additional first class mail copy of such notice is subsequently received within five (5) days of the facsimile transmission), and (iii) in the case of registered or certified mail, the date receipt is acknowledged on the return receipt for such notice. All such notices and other written communications shall be sent to the persons and addresses listed below

If to Owner:

Contract Administrator  
Department of Watershed Management  
55 Trinity Avenue  
Suite 5400  
City Hall  
Atlanta, Georgia 30303

and

Chief Procurement Officer  
Department of Procurement  
Room 1790

55 Trinity Avenue  
Atlanta, Georgia 30303\_\_\_\_\_

If to Contractor:

Representative  
Contractor  
Address  
City, State, Zip\_\_\_\_\_

The addresses and persons listed may be changed at any time by giving Written Notice in accordance with this Article GC-16.

### **GC-17 SAFETY PRECAUTIONS AND PROGRAMS**

The City, the Engineer, or their agents, employees or representatives are not responsible for the means, methods, techniques, sequences or procedures utilized by Contractor, or for the safety precautions and programs in connection with the Work. Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work and for complying with all applicable rules, ordinances, state and federal laws and regulations.

### **GC-18 SAFETY OF PERSONS AND PROPERTY**

#### **GC-18.1 Damage, Injury, or Loss**

Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury, or loss to:

- (1) All employees on the Work and all other persons who may be affected thereby;
- (2) All the Work and all Materials and Equipment to be incorporated therein, whether in storage on or off the site, under the care, custody, or control of Contractor or any of Contractor's Subcontractors;
- (3) Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and
- (4) The Work of the City or other separate contractors.

#### **GC-18.2 Notice**

Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations, and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury, or loss.

#### GC-18.3 Warning, Signage

Contractor shall erect and maintain, as required by existing conditions and the progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.

#### GC-18.4 Hazardous Materials

When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

#### GC-18.5 Remedy

Contractor shall promptly remedy all damage or loss to any property caused in whole or in part by Contractor, any Subcontractor, Supplier or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, except damage or loss attributable solely to the acts or omissions of the City, the Engineer or anyone directly or indirectly employed by any of them in any way, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of Contractor. The foregoing obligations of Contractor are in addition to Contractor's obligations under the Insurance Section of the General Conditions or other provisions of the General Conditions.

#### GC-18.6 Project Safety Coordinator

Contractor shall provide a project safety coordinator who shall be devoted full time toward accident prevention during construction. The qualifications of the project safety coordinator shall be submitted to the Department of Watershed Management Office of Security and Safety (OSS) for approval. If the candidate meets the qualifications, the candidate will be interviewed by OSS to confirm the candidate's experience. Individuals must meet the requirements outlined below to be qualified for the position.

- (1) (a) Four (4) year Bachelor's degree and Five (5) years of construction loss control or construction safety experience; OR  
(b) Ten (10) years of construction loss control or construction safety experience, AND
- (2) Current certifications as listed below in a, b, and c:

(a) OSHA 510 or equivalent 30 hours of construction safety training.

- Trenching and Excavation (Standards- 29 CFR- 1926.651)
- Confined Space Entry (Standards- 29 CFR- 1910.146 App. E),  
AND

(b) Traffic Control/flagging (Certified GDOT flagger), AND

(c) First Aide/CPR/AED (Standards- 29 CFR- 1910.266 (App. B)).

### GC-18.7 Loads

Contractor shall not load or permit any part of the Work to be loaded so as to endanger its safety.

### GC-18.8 Emergencies

In any emergency affecting the safety of persons or property, Contractor shall act, at Contractor's discretion, to prevent threatened damage, injury or loss. Any additional compensation or extension of time claimed by Contractor on account of emergency Work shall be determined as provided in the Agreement Documents, including GC-26 and GC-41.

### GC-18.9 Miscellaneous

#### GC-18.9.1

Contractor acknowledges that it is fully aware of appropriate and safe procedures regarding blasting, including the contents and requirements of Official Code of Georgia Annotated § 25-9-1 through § 25-9-12, Blasting or Excavating Near Underground Gas Pipes and Facilities, any amendments thereto and rules and regulations issued pursuant thereto, and Contractor shall fully comply therewith. Contractor agrees and acknowledges that any failure on its part to adhere to appropriate procedures and said laws, rules and regulations shall not only be a violation of law but shall also be a breach of Agreement.

#### GC-18.9.2

Contractor acknowledges that it is fully aware of appropriate and safe procedures regarding high voltage lines, including the contents and requirements of Official Code of Georgia Annotated § 46-3-30 through § 46-3-39, Safeguards Against Contact with High Voltage Lines, any amendments thereto and rules and regulations issued pursuant thereto, and Contractor shall fully comply therewith. Contractor also confirms that representatives of Contractor have visited the site of the Work and have taken into consideration the location of all electric power

lines on and adjacent to all areas onto which the Agreement Documents require or permit Contractor to Work, to store materials or to stage operations, and that Contractor has obtained from the owner or owners of the aforesaid electric power lines advice in writing as to the amount of voltage carried by the aforesaid lines. Contractor agrees that any failure on its part to adhere to appropriate procedures and said laws, rules and regulations shall not only be a violation of the law but shall also be a breach of Agreement.

### GC-18.9.3

Contractor acknowledges and agrees that he is the person responsible under the law and that he is the person employing or directing others to perform labor within the meaning of Official Code of Georgia Annotated § 34-1-1, Labor and Industrial Relations. He acknowledges and agrees likewise that he will comply with said law.

### GC-18.9.4

Contractor shall protect all Work, including but not limited to, excavations and trenches, from rain water, surface water, and backup of drains and sewers. Contractor shall furnish all labor, pumps, shoring, enclosures, and Equipment necessary to protect and keep the Work free of water.

### GC-18.9.5

The provisions, terms and conditions of this Section, although very specific, are in no way intended to limit the general requirements hereof or the applicability of laws relating to Work conditions, safety or accident prevention and no specific provision or combination of specific provisions in any of said subsections or in any other parts or sections of the Agreement Documents shall be deemed to limit the obligations or responsibility of Contractor contained in general provisions with respect thereto or in laws, statutes, acts, rules or regulations which are applicable thereto but which are not specifically referred to in any part of the Agreement Documents.

## **GC-19 USE OF PREMISES AND CLEAN UP**

### GC-19.1 Storage, Cleanup and Cutting

Contractor expressly undertakes at no additional cost to the City:

- (1) To store its Materials, Supplies and Equipment at the Site of the Work in such orderly fashion and in such locations as approved by the Engineer that will not unduly interfere with the progress of the Work, or the Work of any other contractors or the activities of City personnel.

- (2) To clean up all refuse, rubbish, scrap materials, and debris caused by its operations to the end that at all times the Site of the Work shall present a neat orderly and workmanlike appearance. No items shall be left or discarded elsewhere on the Site, or any other City sites. Items that are to be discarded shall be removed to approved dump areas.
- (3) To remove all surplus material, false work, temporary structures, including foundations thereof, temporary plants of any description and debris of every nature resulting from its operations, and to put the Site in a neat, orderly condition before final payment. Such final cleanup Work shall be performed within the time specified for completion of Work, with such exceptions as may be approved in writing by the City. Unless otherwise provided in the Specifications, Contractor shall clean any portion of Work for which a separate time for completion is specified and the Site thereof to the above standards within the specified time, with such exceptions as may be approved in writing by the City.
- (4) To effect all cutting, fitting or patching of its Work required to make the same to conform to the Plans and Specifications and except with the consent of the City, not to cut or otherwise alter the Work of any other contractor.

#### GC-19.2 Protection and Use of Site

Contractor shall, at no additional cost to the City:

- (1) Coordinate all of Contractor's operations with, and secure approval from, the City before using any portion of the Site. Contractor shall assume full responsibility for any damage to any such land or area, or to the City or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work.
- (2) Cause its agents and employees to park their vehicles only at locations directed by the City. Contractor's agents and employees shall clean vehicles leaving the Site so as not to muddy roads in the vicinity of the Site. Vehicles shall be brought to the Site only in connection with necessary Work on the Project. In no event shall vehicles be brought to the Site outside normal working hours unless the City gives specific written permission in advance.
- (3) In connection with Contractor's operations, provide for the free flow of traffic over roads or streets in or adjacent to the Site. Contractor shall keep roads and streets free from obstructions of any character that might present a hazard or interference with traffic and in such condition that traffic can be adequately accommodated. When operations in connection



with the Work necessitates the closing of traffic lanes, Contractor shall arrange in advance with the City, any adjacent property owners affected, and appropriate local authorities for such closing and shall provide as necessary appropriate barricades, signs, markers, flares and other devices and flagmen as may be required by the Engineer or the local authorities for traffic guides and public safety.

- (4) Provide facilities for its use and only at locations approved or directed by the City. Unless otherwise specified in the Agreement Documents, Contractor shall provide all power and lighting necessary for its Work, complying in all cases with local and national electrical codes, OSHA regulations, and any other applicable laws. The City shall direct the point or points to be used for service connection. Contractor shall provide telephone facilities for its own use and only at locations approved or directed by the City.
- (5) Unless otherwise specifically provided in the Agreement Documents, Contractor shall provide its own temporary facilities, including an office and a watertight, closed area for storage and protection of Materials and Equipment to be used for, or incorporated in, the Work, except as specifically agreed in the Agreement Documents. Contractor's shanties, material storage rooms, field offices and the like will be approved by the City and placed in locations designated by the City. If it becomes necessary during the course of the Work for Contractor to relocate its field operations, it will do so in an expeditious manner and at no additional cost.
- (6) Contractor shall take measures to control the blowing or spreading of dust, smoke, dirt, mud and refuse from its Work to avoid nuisance and inconvenience to others whether on or off the Site. These measures shall be in compliance with, without being limited to, all applicable laws, and shall be subject to the City's approval. Contractor shall furnish all necessary labor and Materials such as water, approved chemicals, and Equipment.
- (7) Contractor shall be responsible for the removal or drainage of all water interfering with the proper prosecution of its Work. It shall, at all times, assure such drainage and shall not be a nuisance or inconvenience to the City, other contractors or their Work, or the occupants or users of any other public or private area on or off the Site. This Article supplements, and does not supersede, any drainage or dewatering called for elsewhere in the Agreement Documents.
- (8) Contractor shall not use permanent installed systems or equipment without permission of the City. If such permission is granted prior to completion of the Work, Contractor shall restore all parts of the system or equipment used by replacing materials, traps, valves, filters, motors,

lamps, and the like to the extent that the City considers them to have been damaged or if their usefulness has been impaired or diminished by their temporary use by Contractor.

- (9) No part of any surface shall be loaded during construction with more weight than it can safely bear at the time. Should damage occur through violation of this requirement by Contractor, it shall be solely liable for such damage and any consequence.
- (10) It shall be Contractor's responsibility to receive and unload its Materials and pay all charges therefor, including, without limitation, demurrage or charges for delays in loading. Contractor shall instruct vendors or Suppliers making such deliveries exactly where they shall go. Contractor shall constantly keep the City advised of its Material delivery schedule and shall update it as required by the City so that Materials will be available to complete the Work on time. Contractor shall schedule Material deliveries so as to interfere as little as possible with anyone else's Work on the Project but within the normal Work hours. Contractor shall require that Materials and Equipment delivered shall be identified with Contractor's name, purchase order, and identification numbers. Contractor shall sign for all Materials delivered and shall be responsible for their safekeeping.

## **GC-20 PROTECTION OF AGREEMENT WORK**

Contractor shall be responsible for:

- (1) Maintenance and protection of Work until final completion and acceptance, including, but not limited to, the storage of Materials and Equipment, erection of temporary structures and provisions for drainage as necessary to protect Work from injury, damage or loss;
- (2) Any injury, damage, or loss to Work resulting from the action of the elements or any other cause, irrespective of fault or negligence, excepting only such injury, damage, or loss as is caused solely by the negligence or willful misconduct of the City;
- (3) Protection of its Work and materials and the Work and materials of its Subcontractors or Suppliers from damage or injury from the weather; and
- (4) Exercising due care to avoid injury or damage to the Work of other contractors on site.

Any portion of Work suffering injury, damage, or loss for which Contractor is responsible under 1, 2, 3 or 4, above, will be considered defective and shall be corrected or replaced without additional cost to City.

## **GC-21 DEFECTS IN THE WORK AND UNAUTHORIZED WORK**

Contractor shall promptly remove from the premises all Work rejected by the City for failure to comply with Agreement Documents, whether incorporated in the construction or not, and Contractor shall promptly replace and re-execute the Work in accordance with the Agreement Documents and without expense to City and shall bear the expense of making good all Work of other contractors destroyed or damaged by such removal, or replacement. All removal and replacement Work shall be done at Contractor's expense.

If Contractor defaults or neglects to carry out all or any part of the Work in accordance with the Agreement Documents, and fails within three (3) working days after receipt of Written Notice from the City to commence and continue correction and cure of such default, noncompliance, or neglect with diligence and promptness, the City may, after twenty-four (24) hours following receipt by Contractor of an additional Written Notice and without prejudice to any other remedy the City may have, make good such deficiencies and may further elect to perform and to complete all or any part of Work thereafter through such means as the City may select, including the use of a new or supplemental contractor. In such case an appropriate Change Order shall be issued deducting from the payments then or thereafter due Contractor, the cost of correcting such deficiencies. If the payments then or thereafter due Contractor are not sufficient to cover such amount, Contractor shall pay the difference to the City on demand.

Minor, inconsequential defects may be waived in writing by the City, but the City's failure or refusal to exercise such authority shall not be subject to claim by Contractor. If a waiver (whether minor or major, consequential or inconsequential) will result in an appreciable saving of costs to Contractor, including costs of Work in place and savings when compared to potential costs of rejection and replacement under this clause, it will be made only upon an equivalent adjustment in compensation.

## **GC-22 GUARANTEE OF WORK AND MATERIALS**

### **GC-22.1 Warranty of Materials, Equipment and Work**

Contractor warrants to the City and the Engineer that all Materials and Equipment furnished under this Agreement will be new and of workmanlike quality unless otherwise specified, and that all Work will be of good quality, free from faults and defects and in conformance with the Agreement Documents. All Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the Engineer, Contractor shall furnish satisfactory evidence as to the kind and quality of Materials and Equipment. This warranty is not limited by any other provision of the Agreement Documents. The Warranties set forth in this Article and elsewhere in the Agreement Documents shall survive final acceptance of the Work. All warranties are in addition to the rights, remedies, and redress that the

City has at law or in equity, and none of Contractor's warranties shall be deemed a sole or exclusive remedy to the City.

#### GC-22.2 Warranty of Continued Liability of Electronics

Contractor shall warrant to Owner that all goods or equipment which Contractor is required to purchase under the Agreement and which contain embedded codes, chips, microprocessors, microcontrollers, clock circuits (including integrated circuits), computer operating systems, computer software, custom application programming, or other similar systems/technologies that calculate date or time data shall correctly and without failure, malfunction, or need for operator intervention, display, calculate, compute, and process date or time data before, during, and beyond any changes in the date, including leap year, and including changes at year end, decade end, and century end, as needed.

#### GC-22.3 Guarantee and Repair

If within one (1) year after the Date of Final Completion and Final Acceptance of the Work by the City, or within such longer period of time as may be prescribed by law or by the term of any applicable special warranty required by the Contract Documents, any of the Work is found to be defective or not in accordance with the Agreement Documents, Contractor shall correct it promptly after receipt of a Written Notice from the City to do so. This obligation shall survive both final payment for the Work or designated portion thereof and termination of the Agreement. The City shall give such notice promptly after discovery of the condition. Contractor acknowledges that this one (1) year period provides a period during which Contractor has a duty to repair and does not in any way limit Contractor's liability for Work that is not in accordance with the Agreement Documents, including any that may be discovered more than one (1) year after the Date of Final Completion and Final Acceptance.

#### GC-22.4 Manufacturer Warranties

Without limiting the responsibility or liability of Contractor under the Agreement, all warranties given by manufacturers on Materials or Equipment incorporated in the Work are hereby assigned by Contractor to the City at no additional cost to the City. If requested, Contractor shall execute enforceable formal assignments of said manufacturer's warranties to the City at no additional cost to the City. Contractor shall not obtain any Materials or Equipment under warranties, which do not run directly to the benefit of the City, and all such warranties shall be directly enforceable by the City, but Contractor understands and agrees that it is jointly and severally liable with the manufacturers for any warranties provided.

#### GC-22.5 Non-Exclusive Nature of Warranties

The foregoing warranties, and those contained elsewhere in the Agreement Documents or implied by law, shall be deemed cumulative and not alternative or exclusive. No one or more of them shall be deemed to alter or limit any other.

## **GC-23 TERMINATION OF AGREEMENT**

### GC-23.1 Termination for Contractor Default

If Contractor becomes insolvent, or makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of Contractor's insolvency, or if Contractor refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper Materials, or fails to make prompt payment to Subcontractors or for Materials or labor, or disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, or otherwise is guilty of a material violation of a provision of the Agreement Documents so as to be in material breach and default of the Agreement, then City may terminate the Agreement for default, either in whole or in part, without prejudice to any other right or remedy the City may have after giving Contractor and its surety seven (7) days to cure the default. For purposes of this Article, a material violation shall include, without limitation, any violation of or failure to comply with any obligation of the Agreement which the City, in its sole discretion, determines is likely to result in any damage to the City, the Work, or any public or private interest.

If the surety and/or Contractor does not cure the default within seven (7) days from the date of the mailing to Contractor and the surety of notice of default, City may, without further notice, terminate for default and may take over Work and prosecute the same to completion by contract or by Force Account or by whatever means it deems appropriate for the account and the expense of Contractor and Contractor and its surety shall be liable to City for any excess cost incurred thereby, and in such event City may take possession of and utilize in completing Work, such materials, appliances, and plant as may be on the Site of Work and necessary therefore. Upon such termination Contractor shall:

- (1) Preserve all Materials, Drawings and records and Plans at Site of the Work until notified in writing of those items that will be used in completing Work.
- (2) Remove from Site of the Work all construction materials, equipment and plant not designated for use in such notice.
- (3) Assist the City in making an inventory of all Materials and Equipment in storage at the Site of Work, in route to the Site of Work, in storage or manufactured at other locations, and on order from Suppliers.

The City shall further have the right to declare a default without terminating the Agreement for default in whole or in part. In such event, the City shall have the right, at its sole discretion, to supplement Contractor's forces if the City so chooses and deduct the cost of same from the amounts otherwise due Contractor. The City's failure to

declare a default or terminate the Agreement in whole or in part shall not determine whether Contractor is, in fact, in material breach of the Agreement because the City shall also have the option to allow Contractor's defective performance to continue and collect such damages as the City may incur from Contractor and its surety.

In the event that the City incurs costs or expenses in performing or completing any portion of Contractor's scope of Work, the City's actual damages shall, at the City's discretion, include a fee up to 15% of such actual costs for performing such work. Such fee shall be computed on the actual costs incurred by the City for labor, materials, equipment, services, administrative and personnel costs and additional design and professional consulting fees, incurred as a result of Contractor's default.

Contractor acknowledges and agrees that an appropriate termination for default is adequate grounds for Contractor's disqualification from future City contracts. This provision shall survive the expiration or termination of this Agreement and any amendments to this Agreement.

In the event any termination for default is found to be wrongful or improper, Contractor agrees that its sole and exclusive remedy is to have the termination treated as a termination for convenience in accordance with the provisions of this Agreement.

#### GC-23.2 City's Right to Stop the Work

If Contractor fails to correct defective Work as required by the Agreement Documents, or fails to carry out the Work or supply labor or Materials in accordance with the Agreement Documents, or otherwise fails to meet or satisfactorily complete any of its obligations under this Agreement, the City, in writing, may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the City and the Engineer to stop the Work shall not give rise to any duty on the part of the City to exercise this right for the benefit of Contractor or any other person or entity. Contractor shall not be entitled to any extension of time or for compensation of any sort in the event that the City stops work pursuant to this provision.

#### GC-23.3 Intentionally Omitted

#### GC-23.4 Termination for Convenience of City

##### GC-23.4.1

The City may, at any time upon ten (10) days Written Notice to Contractor, terminate (without prejudice to any right or remedy of the City) the whole or any portion of the Work for the convenience of the City.

GC-23.4.2

If, after Contractor has been terminated for default, it is determined that Contractor was not in default or that the termination for default was improper for any reason, then such termination shall be considered a termination for convenience.

GC-23.4.3

If the City terminates the whole or any portion of the Work for convenience, then the City shall only be liable to Contractor for those costs reimbursable to Contractor in accordance with Article 23.4.4; provided, however, that if it reasonably appears to the City that Contractor would have sustained a loss on the entire Agreement had it been completed, no profit shall be included or allowed hereunder and an appropriate adjustment shall be made reducing the amount of settlement so that Contractor's loss on the portion of the Agreement it did perform is proportioned, from a percentage completion basis, to the loss Contractor would have sustained on the entire Agreement. In no event shall Contractor be entitled to anticipated profit on work not performed. Contractor shall, however, be entitled to any profit earned on the work performed to date, but Contractor acknowledges (1) that unit rates may be subject to adjustment, either upward or downward, based upon the variation in estimated quantity provisions of this Agreement, and (2) if the City determines that Contractor's schedule of values was materially unbalanced (or "front-end loaded"), payments previously made to Contractor shall be refunded to the City or withheld from amounts otherwise due Contractor. The intent of this Article is to avoid any Contractor windfall at the City's expense while at the same time preserving the benefit of the bargain, either positive or negative, for Contractor.

GC-23.4.4

If the City terminates the whole or any portion of the Work for convenience, the City shall pay Contractor the amounts determined by the Engineer as follows:

- (1) To the extent not previously paid for, Contractor shall be paid on a percentage completion basis in accordance with any approved schedule of values for the value of the work completed to date, including items such as mobilization and general conditions costs (based on percent complete).
- (2) To the extent not previously paid for and to the extent that the Agreement Documents call for payment on the basis of unit rates, Contractor shall be paid for all work actually performed at the unit rate established in the Agreement Documents, with such adjustment, if any, as may be required either upward or downward by the variation in estimated quantity provisions applicable to unit rates under the Agreement.

- (3) The reasonable costs of settlement, including accounting, clerical, and other expenses reasonably necessary for the preparation of settlement claims and supporting data with respect to the terminated portion of the Agreement and for the termination and settlement of subcontracts thereunder, together with reasonable storage, transportation, and other costs incurred in connection with the protection or disposition of property allocable to this Agreement. This amount shall not include any attorneys' fees or other legal costs or claim preparation costs or expert or consulting fees, and Contractor shall not be entitled to recovery or compensation of any such costs or fees under any circumstances.

#### GC-23.4.5

Contractor shall specifically require its Subcontractors and suppliers and those with whom they contract to agree to the provisions of this Article governing termination for convenience. In no event shall the City be responsible for anticipated profit on work not performed or "restocking charges." The City's potential liability for convenience termination costs shall be based on work actually performed and costs actually incurred, provided that the termination shall not in any event transform a Contractor or Subcontractor's probable net loss position into a profitable or "cost plus" recovery.

### GC-23.5 General Termination Provisions

#### GC-23.5.1

If the City terminates the whole or any part of the Work for default, then the City may procure, upon such terms and in such manner as the City may deem appropriate, supplies or services similar to those so terminated, and Contractor shall be liable to the City for any excess costs for such similar supplies or services. Contractor shall continue the performance of this Agreement to the extent not terminated hereunder.

#### GC-23.5.2

In the event of a Contractor default under any of the provisions of the Agreement, after written notice and a failure to cure within seven (7) days of that notice, Contractor and its surety shall be responsible to pay to the City such reasonable attorneys' fees as the City may expend as a result of the default, including all costs, expenses and filing fees incidental thereto, including, without limitation, expert fees, consultants' fees, arbitrator fees (if any), and prejudgment interest at the commercial account rate on all sums due, whether liquidated or unliquidated. Any judgment or arbitration award entered in favor of the City against Contractor or its surety shall bear interest from the time of entry of the judgment or the date of the arbitration award at the commercial account rate.



GC-23.5.3

After receipt of a notice of termination from the City, whether for default or for convenience, and except as otherwise directed by the City, Contractor shall:

- (1) Stop Work under the Agreement on the date and to the extent specified in the notice of termination;
- (2) Place no further orders or subcontracts for Materials, services, or facilities, except as may be necessary for completion of such portion of the Work under the Agreement as is not terminated;
- (3) Terminate all orders and subcontracts to the extent that they relate to the performance of Work terminated by the notice of termination and are not assigned as set forth below;
- (4) If so requested by the City, assign to the City in the manner, at the times and to the extent directed by the City, all of the rights, title, and interest of Contractor under the orders and subcontracts so selected and requested for assignment;
- (5) Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the City to the extent the Engineer may require, in accordance with the provisions of this Agreement;
- (6) Transfer title and deliver to the entity or entities designated by the City, in the manner, at the times and to the extent, if any, directed by the City, and to the extent specifically produced or specifically acquired by Contractor for the performance of such portion of the Work as has been terminated:
  - (a) The fabricated or unfabricated parts, Work in progress, partially completed supplies, and Equipment, Materials, parts, tools, dies, jigs, and other fixtures, completed Work, supplies and other material produced as part of, or acquired in connection with the performance of the Work terminated by the notice of termination; and
  - (b) The completed or partially completed Plans, Drawings, information, and other property related to the Work, including as-built information;
- (7) If so requested by the City, use best efforts to sell for the benefit of the City, in the manner, at the times, to the extent, and at the price or prices directed or authorized by the City, any property of the types referred to in Article GC-23.5.3(6); provided, however, that Contractor:

- (a) Shall not be required to extend credit to any buyer; and
  - (b) May re-acquire any such property under the conditions prescribed by and at a price or prices approved by the City; and, provided, further that the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the City to Contractor under this Agreement or shall otherwise be credited to the price or cost of the Work covered by this Agreement or paid in such other manner as the City may direct;
- (8) Complete performance of such part of the Work as shall not have been terminated by the notice of termination; and
- (9) Take such action as may be necessary, or as the City may direct, for the protection and preservation of the property related to the Agreement, which is in the possession of Contractor and in which the City has or may acquire an interest.

#### GC-23.5.4

Contractor shall preserve and make available to the City, at all reasonable times at the office of Contractor, but without direct charge to the City, all its books, records, documents and other evidence bearing on the costs and expenses of Contractor and any Subcontractor or Supplier under the Agreement, and any photographs, microphotographs, or other authentic reproductions thereof and Owner shall have the right at any time to audit the same.

#### GC-23.5.5

In arriving at any amount due Contractor for any termination for default or convenience, there shall be deducted:

- (1) All unliquidated advance or other payments on account theretofore made to Contractor applicable to the termination portion of this Agreement;
- (2) Any claim which the City may have against Contractor;
- (3) Such claim as the Engineer determines to be necessary to protect the City against loss because of outstanding or potential claims of any type or nature; and
- (4) The agreed price for, or the proceeds of sale of, any Materials, supplies, or other things acquired by Contractor or sold, pursuant to the provisions of Article GC-23.5.3(7) and not otherwise recovered by or credited to the City.

GC-23.5.6

Contractor shall refund to the City any amounts paid by the City to Contractor in excess of Contractor's entitlement specified hereunder.

GC-23.5.7

The City may, at its option, have costs audited and certified by independent certified public accountants selected by the City.

GC-23.5.8

Contractor shall be entitled to only those damages and that relief from termination by the City as specifically provided hereunder.

**GC-24 SUSPENSION OF WORK**

GC-24.1 Right to Suspend Work

The City may order Contractor, in writing, to suspend, delay, or interrupt all or any part of the Work for such period of time as the City may determine to be appropriate for the convenience of the City.

GC-24.2 Rights Upon Certain Unreasonable Suspensions

If the performance of the Work is, for an unreasonable period of time, suspended, delayed, or interrupted by an act of the City or Engineer in the administration of the Agreement, or by failure of any one of them to act within the time specified in the Agreement (or if no time is specified, within a reasonable time), or by any act of either of them which is attributable to their fault or neglect, adjustment shall be made in the Agreement Time only for any extension in the time required for performance of the Work necessarily caused by such unreasonable suspension, delay, or interruption and the Agreement modified in writing accordingly. However, no adjustment shall be made under this Article for any suspension, delay, or interruption for which an adjustment is provided or excluded under any other provision of the Agreement Documents, and no adjustment shall be made to the extent that performance would have been so suspended, delayed or interrupted by any other cause, including the fault or negligence of Contractor or excusable delays that are unforeseeable and not attributable to the fault or neglect of the City or Contractor and beyond the control of each of them. No claim for a time adjustment under this Article shall be allowed unless it is presented in accordance with the provisions of the Agreement governing Claims and compliance with the claims provision shall be a condition precedent to the right to a time adjustment.

GC-24.3 Damages Upon Suspension

Nothing contained in this Article authorizes the recovery of delay or impact damages, except as expressly authorized in this Agreement; and compliance by Contractor with the claims provision shall be a condition precedent to the right to any Contract adjustment on account of a suspension of the Work. Contractor expressly agrees that it shall not be entitled to any increase in the Agreement Price or to any monetary damages on account of a suspension, delay, interruption, interference or impact, unless the notice, documentation, and pricing requirements of this Agreement have been met.

#### GC-24.4 Time Extension Upon Suspension

Under the terms of this Agreement, in order for Contractor to receive extensions of time for excusable delays, the delays must (i) be on the critical path, (ii) be beyond the reasonable control of Contractor and those for whom it is responsible including its Subcontractors and Suppliers and others working by or through them, (iii) not be attributable to any factor for which Contractor has assumed the risk of performance (such as labor availability), (iv) not be attributable in whole or in part to Contractor's fault or neglect or the fault or neglect of those for whom Contractor is responsible, including Subcontractors and Suppliers and others working by or through them, and (v) not be concurrent with non-excusable delays that are on the critical path. If Contractor meets these five (5) requirements, then Contractor's sole remedy for such delay shall be an extension of the Agreement Time for the period of time during which all five (5) elements continue to be met, which shall be implemented by Change Order; provided, however, Contractor shall not be entitled to any extension of the Agreement Time (i) if Contractor fails to comply with notice requirements in the Contract, (ii) if such delays do not cause Contractor to achieve Substantial Completion of the entire Work later than the then current Substantial Completion Date, or (iii) if Contractor fails to work around such delay where such work around was available to Contractor. In all events, Contractor must comply with the notice and claim provisions set forth in this and other provisions of the Agreement in order to be entitled to any extension of the Agreement Time.

#### GC-24.5 Damages for Non-Excusable Delays

Under the terms of this Agreement, liquidated or actual damages (as specified in the Agreement and as appropriate) shall be assessed for all non-excusable delays. Unless and until Contractor satisfies its obligations under and satisfies all criteria set forth in GC-24.4, delays shall be deemed non-excusable. The burden of proof shall be upon Contractor to establish that delays and untimely completion are attributable to excusable delays.

#### GC-24.6 Abnormal Weather

Abnormal weather may constitute an excusable delay if other requirements for excusable delays are met (for example, weather-sensitive work must be on the critical path.) The Agreement Time will not, however, be extended due to normal inclement weather. Unless Contractor can substantiate that there was greater than normal

inclement weather using a ten (10) year average of accumulated record mean values from climatological data compiled by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration for Atlanta, Georgia, and that such alleged greater than normal inclement weather qualifies as excusable delay as set forth above, Contractor shall not be entitled to an extension of time. In no event will "dry-out" delay days be allowed. Any time extension shall be based on the number of additional days of adverse weather and not upon the time required to recover from said weather.

#### GC-24.7 Impacts From Adjacent Property

Contractor acknowledges and agrees that it will be interacting with numerous citizens and residents of the City and will be working in close proximity to their homes, businesses, and private property. Contractor warrants that it has made due allowance for dealing with the concerns and complaints of these citizens and residents and any delays, interruptions, interferences, disruptions, or other impacts resulting therefrom. Contractor further warrants and agrees that it will fully cooperate with the City to minimize the adverse affects of the Project on the City's residents by resequencing work or adjusting its means, methods, techniques, and procedures to minimize and mitigate the effect upon the City's residents and that the cost of these mitigation efforts has been included in Contractor's price to the City.

### **GC-25 COMMENCEMENT AND PROSECUTION OF THE WORK**

Contractor shall, within ten (10) days after receipt from the City of a written Notice to Proceed, commence Work to be done under this Agreement. Contractor shall diligently prosecute Work and all portions thereof to completion within the times specified therefor. The capacity of Contractor's construction and manufacturing equipment and plans, sequence and methods of operations, and forces employed, including management and supervisory personnel, shall be such as to ensure completion of Work within the specified time.

It is expressly understood and agreed by and between Contractor and City that Agreement Time for the completion of Work described herein is a reasonable time, taking into consideration the unique requirements of the Work (including performance of the Work in close proximity to the private property of the citizens and residents of the City), the average climate and economic conditions in the area, and other factors prevailing in the locality of the Work (such as, without limitation, the availability of labor, equipment and materials).

### **GC-26 TIME**

#### GC-26.1 Progress and Completion

##### GC-26.1.1

All time limits stated in the Agreement Documents are of the essence of the Agreement.

#### GC-26.1.2

Contractor shall begin the Work within ten (10) days after the issuance of written Notice to Proceed. Contractor shall carry the Work forward expeditiously with adequate forces and shall achieve Substantial Completion of the Work and Final Completion within the times stated in the Agreement Documents.

### GC-26.2 Delay, Damages, and Extensions of Time

#### GC-26.2.1

Contractor shall not be entitled to payment or compensation of any kind from the City for direct, indirect, impact, or delay damages, including but not limited to costs of delay, disruption, interference, impact or hindrance from any cause whatsoever, whether such delay, disruption, interference, impact or hindrance be reasonable or unreasonable, foreseeable or unforeseeable, or avoidable or unavoidable, except as expressly provided in this Agreement.

In any and all events, the City's liability for damages for delay, disruption, interference, impact or hindrance shall be limited to the following actual direct job site related costs that are solely incurred as a function of time: (1) costs of job site supervision, (2) direct cost of general conditions items, including job site office expenses for trailer rental, telephone, electricity, heat, and water, and (3) a markup for profit and overhead on actual direct costs, in accordance with the Force Account rates specified in the provisions of this Agreement governing changes.

#### GC-26.2.2

The Agreement Time shall be adjusted only for excusable delays. In the event Contractor requests an extension of the Agreement Time, it shall furnish such justification and supporting evidence as the City may deem necessary for a determination as to whether Contractor is entitled to an extension of time under the provisions of the Agreement. The City, after receipt of such justification and supporting evidence, shall make a decision thereon and shall advise Contractor in writing thereof. If the City finds that Contractor is entitled to any extension of the Agreement Time, the City's determination as to the total number of days' extension shall be based upon the current CPM and on all data relevant to the extension as described in the Agreement Documents. Contractor acknowledges and agrees that delays in activities that according to the approved and current CPM Schedule do not affect the critical path do not have any effect upon the Agreement Time and therefore will not be the basis for a change thereof.

GC-26.2.3 [Intentionally Omitted]

GC-26.2.4 [Intentionally Omitted]

GC-26.2.5 [Intentionally Omitted]

GC-26.2.6 [Intentionally Omitted]

GC-26.2.7

In order for Contractor to be entitled to any extension of the Agreement Time, Contractor must comply with the Claim provisions of GC-41 and GC-26. Such statement of the claim, in addition to complying with all other provisions of the Agreement relating to Claims and delays, must provide all information required by the scheduling requirements of the Agreement Documents and further provide the following specific information:

- (1) Nature of the delay;
- (2) Date (or anticipated date) of commencement of delay;
- (3) Activities on the approved current CPM Schedule affected by the delay, and/or new activities created by the delay and their relationship with existing activities;
- (4) Identification of person(s) or organization(s) or event(s) responsible for the delay;
- (5) Anticipated extent of delay; and
- (6) Recommended action to avoid or minimize the delay.

GC-26.2.8

The City shall receive and process such claims for extensions of time in accordance with the procedures set forth in Article GC-41, except that any Change Order issued shall only amend the time for completion.

GC-26.2.9

The failure of Contractor to file any claims for extension of time within the time limits prescribed and in the form and manner required shall be deemed a material prejudice to the interests of the City in canceling and mitigating such impacts, and shall constitute an absolute waiver of the claim and the right to file or thereafter prosecute the same. The purpose of the time limits, notice and form and manner requirements are, in part, to eliminate disputes over the existence, scope, and nature of events giving rise to claims, and the failure to abide by same will result in material prejudices to the City, even if the City were otherwise on notice of facts giving rise to the claim because, in part of the impact to the City's ability to document, dispute, or resolve issues as they arise, and also because of the impact to the City's efforts to entirely avoid disputes over claims not asserted in accordance with the Agreement Documents.

#### GC-26.2.10

If no schedule or agreement is made stating the date upon which written interpretations as set forth in the Agreement Documents shall be furnished, then no claim for delay shall be allowed on account of failure to furnish such interpretations until fifteen (15) days after demand is made for them, and not then unless such claim is reasonable.

### **GC-27 RESPONSIBILITY FOR COMPLETION**

#### GC-27.1 Duty to Accelerate

Subject to the other provisions of the Agreement Documents, Contractor shall furnish such manpower, Materials, facilities, and Equipment and shall work such hours, including night shifts, overtime operations and Sundays and holidays, as may be necessary to ensure the prosecution and completion of the Work in accordance with the approved and currently-updated CPM Schedule. If Work actually in place falls behind the currently updated and approved CPM Schedule, and it becomes apparent from the current approved CPM Schedule that the Work will not be completed within the Agreement Time, Contractor agrees that it will, as necessary or as directed by the City, take some or all of the following actions at no additional cost to the City to improve its progress:

- (1) Increase manpower in such quantities and crafts as will eliminate, in the judgment of the City, the delay and backlog of Work;
- (2) Increase the number of working hours per shift, shifts per working day, working days per week, the amount of equipment or any combination of the foregoing, sufficiently to eliminate in the judgment of the City, the delay and backlog of Work;



- (3) Reschedule activities as necessary to eliminate in the judgment of the City the delay and backlog of Work; and
- (4) Any other measure required by the schedule requirements of the Special Conditions.

In addition, the City may require Contractor to submit a proposed revised CPM Schedule Recovery Plan demonstrating its program and proposed plan to make up lag in scheduled progress and to ensure completion of the Work within the Agreement Time. If the City finds the proposed plan not acceptable, the City may require Contractor to submit a new and/or revised plan with direction and other input from the City and Engineer.

#### GC-27.2 Recoverable Acceleration Expenses

In the limited and exclusive event that (1) the City directs Contractor to accelerate, and (2) it is subsequently determined that Contractor was entitled to time extensions for excusable delays which the City failed or refused to grant, and (3) Contractor in fact succeeds in accelerating substantial completion of the Project by substantially completing the Project significantly and materially sooner than what would have been the case had the City granted all time extensions to which Contractor was entitled, then, and only then, Contractor may be entitled to recoverable acceleration expenses as defined below if Contractor properly and timely complies with the provisions related to time, notice and form and substance of claims of the Agreement (including, without limitation, Articles GC-24, GC-26, and GC-41) Recoverable acceleration expenses shall be limited to the following without any markup for overhead and profit:

- (1) the premium portion only of overtime costs for hours worked in a single week that exceed 40 hours per week
- (2) if the overtime continues for more than 65% of the skilled labor on the site (including subcontractor personnel) for a continuous period of 8 weeks or more, then beginning in the 9<sup>th</sup> week, a multiplier of 10% of the premium portion of the overtime costs may be added as recoverable acceleration expenses to cover the cost of any loss or damage or additional expense resulting from the acceleration.

No expenses other than the two items noted above shall be allowed as recoverable acceleration expenses. No claims for acceleration for work that is not on the critical path shall be permitted.

#### GC-27.3 Acceleration by City's Forces

Failure of Contractor to substantially comply with the requirements of Article GC-27.1 may be considered grounds for a determination by the City and/or the Engineer that Contractor is failing to prosecute the Work with such diligence as will ensure its

completion within the time specified. In such case, upon forty-eight (48) hours prior Written Notice to Contractor, City shall have the right to furnish such additional labor and Materials as may be required to comply with the schedule, and Contractor shall be liable for such costs incurred by City as provided elsewhere in this Agreement.

#### GC-27.4 Set-Off of Acceleration Costs

Any monies due to the City under this Article may be set-off by the City against monies due from the City to Contractor.

#### GC-27.5 Acceleration Remedies Cumulative

The remedies of the City set out in this Section are in addition to, and without prejudice to, all other rights and remedies of the City including those stated elsewhere in the Agreement Documents. The remedies of Contractor, however, are sole and exclusive and contingent upon compliance with the Agreement provisions as to time, notice, form, and substance of Claims, including, without limitation, Articles GC-24, GC-26, and GC-41.

### **GC-28 WORKING DRAWINGS, SHOP DRAWINGS, DATA ON MATERIAL AND EQUIPMENT, SAMPLES, AND LICENSES**

#### GC-28.1 General

##### GC-28.1.1

Contractor shall submit to the Engineer for review and exception, if any, such working Drawings, Shop Drawings, test reports and data on Materials, licenses, and Equipment (hereinafter in this article called data), and material samples (hereinafter in this article called samples) as are required for the proper control of Work, including but not limited to, those working Drawings, Shop Drawings, data and samples specifically required elsewhere in the Specifications and Agreement Documents. Submittals are required for any product that becomes a part of, or affects, the permanent Work.

##### GC-28.1.2

Data on Materials and Equipment include, without limitation, Materials and Equipment lists, catalog data sheets, cuts, diagrams and similar descriptive material. Materials and Equipment lists shall give, for each item thereon, the name and location of the Supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent data.

##### GC-28.1.3

It is the duty of Contractor to check all Drawings, data and samples prepared by or for it before submitting them for review. Drawings and schedules shall also be checked and coordinated with the Work of all trades involved. Drawings and other submittals originating from Subcontractors will be reviewed and checked similarly by Contractor. Pursuant to this required review, Contractor shall indicate its approval, before they are submitted for review by the City, by affixing its stamp of approval, properly initialed and dated. All submittals shall be referenced to the applicable item, section or division of the Specifications.

GC-28.1.4

The Engineer's review of Drawings, data and samples submitted by Contractor will cover only general conformity to the Specifications, external connections, and dimensions which affect the installation. The Engineer's review and exception, if any, will not constitute an approval of dimensions, quantities, and details of the Material, Equipment, device, or item shown.

GC-28.1.5

Contractor shall not begin any of the Work covered by a Drawing, data, or a sample returned for correction until a revision or correction thereof has been reviewed and returned to it.

GC-28.1.6

The CPM Schedule shall include respective dates for the submission of shop and work Drawings, the beginning of manufacture, testing, and installation of Materials, Supplies, and Equipment.

GC-28.1.7

Acceptable submittals will be marked "No Exceptions Taken." Submittals requiring minor corrections before the Material or Equipment is acceptable will be marked "Make Corrections Noted." Contractor may order, fabricate, or ship the items included in the submittal, provided the indicated corrections are made. Drawings must be resubmitted for review prior to installation of Equipment or use of Materials, unless otherwise directed in writing by the Engineer.

GC-28.1.8

Submittals marked "Amend and Resubmit" must be revised to reflect required changes, and the initial review procedure repeated.

GC-28.1.9

The "Rejected - See Remarks" notation is used to indicate Materials or Equipment that are not acceptable. Upon return of a submittal so marked, Contractor shall repeat the initial review procedure utilizing acceptable Materials or Equipment.

#### GC-28.1.10

Drawings on other submittals not bearing the Engineer's "No Exceptions Taken" notation shall not be issued to Subcontractors or utilized for construction purposes. No Work shall be done or equipment installed without a drawing or submittal bearing the "No Exceptions Taken" notation. Contractor shall maintain at the job site a complete set of Drawings and other submittals bearing the Engineer's stamp.

#### GC-28.1.11

In the event Contractor obtains the City's approval for the use of equipment other than that which is called for in the Agreement Documents, Contractor shall, at its own expense and using methods approved by the City, make any changes to structures, piping and electrical work that may be necessary to accommodate this equipment. If Contractor substitutes any specified item of Material or Equipment with another item of Contractor's choosing as an "or equal" item, Contractor warrants the accuracy and adequacy of the design and performance of the substituted item and further warrants that it has exercised due diligence to ensure that the substituted item will function properly as a component into the integrated Project of which it is a part.

#### GC-28.1.12

Contractor shall submit all Drawings and schedules sufficiently in advance of construction requirements to provide no less than thirty (30) calendar days for checking and appropriate action.

#### GC-28.1.13

The review of Drawings and schedules will be general, but approval shall not be construed: (a) as permitting any departure from the Agreement requirements; (b) as relieving Contractor of responsibility for any errors, including details, dimensions, and Materials; and (c) as approving departures from details furnished by the City, except as otherwise provided herein.

### GC-28.2 Shop Drawings

#### GC-28.2.1

When used in the Agreement Documents, the term "Shop Drawings" shall be considered to mean fabrication drawings, wiring and control diagrams, cuts, or entire catalogs, pamphlets, descriptive literature, and performance and test data. The Drawings shall be submitted using standard transmittal forms in accordance with detailed instructions furnished by the City. A separate transmittal sheet shall be used for reference to each item, section or division of the Specifications.

GC-28.2.2

Contractor shall submit six (6) sets of each Shop Drawing for review. On electrical and instrumentation and control submittals Contractor shall submit seven (7) copies of each for review.

GC-28.2.3

Each Shop Drawing shall include the following:

- (1) Number and title of the submittal;
- (2) Date of Drawing or revision;
- (3) Name of Project;
- (4) Name of Contractor and/or Subcontractor submitting Drawing and with its seal of approval;
- (5) Specification title and number; and
- (6) Clear identification of contents and location of the Work.

GC-28.2.4

Drawings for Work on utility facilities, streets and other facilities, which are constructed for owners other than the City, shall be coordinated so that information required by these owners is included on the Shop Drawings for their facilities.

GC-28.2.5

If Drawings show variations from Agreement requirements, Contractor shall describe such variations in its letter of transmittal. If acceptable, proper adjustment in the Agreement shall be implemented where appropriate. If Contractor fails to describe such variations, it shall not be relieved of the responsibility for executing the Work in accordance with Agreement, even though such Drawings have been reviewed.

GC-28.2.6

If the Drawings or schedules as submitted describe variations and show a departure from the Agreement requirements which the City finds to be in the interest of the City and to be so minor as not to involve a change in Agreement

Price or Time, the City may return the reviewed Drawings without noting an exception.

#### GC-28.2.7

If no exceptions are taken by the City, each of the Shop Drawings will be identified by being so stamped and dated. Shop Drawings stamped "Rejected - See Remarks" and with required corrections shown, will be returned to Contractor for correction and re-submittal. On re-submittals, Contractor shall direct specific attention, in writing or on resubmitted Drawings, to revisions other than the corrections requested by the City on previous submissions. Contractor shall make any corrections required by the City. If Contractor considers any correction indicated on the drawings to constitute a change to the Agreement Drawings or Specifications, Contractor shall give Written Notice thereof to the City in accordance with GC-41. At least two (2) copies of Drawings or data submittals will be returned to Contractor.

#### GC-28.2.8

When the Drawings or data submittals have been completed to the satisfaction of the City, Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the City.

#### GC-28.2.9

After final review in which there are no exceptions noted or referenced, and before final payment is made, Contractor shall furnish to the City two (2) sets of record Shop Drawings, all clearly revised and completed and brought up to date, showing the permanent construction as actually made and marked FINAL/AS-BUILTS. One (1) set of such Shop Drawings shall be either drawn in ink on tracing cloth, or reproduced on mylar from which clear prints can be made. The other set could be a complete paper print.

#### GC-28.2.10

Contractor shall be responsible for and bear all cost of damages which may result from the ordering of any Material or from proceeding with any part of Work prior to the review, without exception, by the City of the necessary Shop Drawings.

### GC-28.3 Working Drawings

#### GC-28.3.1

When used in the Agreement Documents, the term "Working Drawings" shall be considered to mean Contractor's plans, including a detailed narrative, for temporary structures such as temporary bulkheads, support of open cut excavation, support of utilities, ground water control systems, forming and false work; for underpinning; and for such other work as may be required for construction but does not become an integral part of the Project.

#### GC-28.3.2

Copies of Working Drawings shall be submitted to the City where required by the Agreement Documents or requested by the City and shall be submitted at least thirty (30) calendar days in advance of their being required for Work.

#### GC-28.3.3

Working Drawings shall be signed and sealed by an engineer licensed to practice in the State of Georgia and shall convey, or be accompanied by, calculation of other sufficient information to completely explain the structure, machine, or system described and its intended manner of use. Prior to commencing such Work, Working Drawings must have been reviewed to the satisfaction of the City, and each Working Drawing identified by the City with the Engineer's stamp of "No Exception Taken." Review of the Working Drawings by the Engineer will not relieve Contractor in any way from its responsibility with regard to the fulfillment of the terms of Agreement. All risks of error are assumed by Contractor. The City and the Engineer shall have no responsibility therefor.

#### GC-28.4 Record Agreement Drawings

Contractor shall keep at least one (1) record copy of all Agreement Documents, reference documents, and all technical submittals at the Site in good order and annotated to show all changes made during the construction process. Record drawings shall be updated and kept current on a monthly basis by Contractor. The record drawings will be reviewed monthly by the Engineer prior to approval of Contractor's monthly Payment Application. Final "as-built" plans of the Work, shall be satisfactory to the Engineer, and will be provided at Contractor's expense within thirty (30) days following Substantial Completion of the Work or any portion thereof. The provision of such as-built documents satisfactory to the Engineer shall be an express condition precedent to final payment. Upon request, the Engineer will provide one (1) set of reproducibles of the original Agreement Drawings, at no cost, to Contractor within two weeks subsequent to the execution of this Agreement.

## GC-28.5 Samples

### GC-28.5.1

Contractor shall furnish at no additional cost, for the approval of the City, samples required by the Agreement Documents or requested by the City. Samples shall be delivered to the City as specified or directed. Contractor shall prepay all shipping charges on samples. Materials or Equipment for which samples are required shall not be used in Work until approved by the City.

### GC-28.5.2

Each sample shall have a label indicating:

- (1) Name of Project;
- (2) Name of Contractor and Subcontractor;
- (3) Material or Equipment Represented;
- (4) Place of Origin;
- (5) Name of Producer and Brand (if any); and
- (6) Location in Project.

### GC-28.5.3

Contractor shall prepare a transmittal letter for each shipment of samples containing the information required in Article B above. It shall enclose a copy of this letter with the shipment and send a copy of this letter to the City. Approval of a sample shall be only for the characteristics or use named in such approval and shall not be construed to change or modify any Agreement requirement. Substitutions will not be permitted unless they are considered to be to the City's best interest.

### GC-28.5.4

Approved samples not destroyed in testing shall be sent to the City or stored at the Site of the Work. Approved samples of the hardware in good condition will be marked for identification and may be used in the Work. Materials and Equipment incorporated in the Work shall match the approved samples. Samples which failed testing or were not approved will be returned to Contractor at its expense if so requested at time of submission.

### GC-28.5.5

Contractor will provide architectural samples to the City in a composite color board format for review and color coordination. These samples shall be of the precise Material and color specified and of sufficient size for comparison to other material samples.



### GC-28.5.6

Custom colors and coatings may be required to complete the Project within acceptable architectural standards. Contractor shall comply with the Architect's selection and provide Materials that precisely match the approved samples.

## GC-28.6 Operation and Maintenance Manuals

### GC-28.6.1

Operation and maintenance manuals are operator and shop maintenance instructions that enable an average journeyman mechanic without prior knowledge of the specific type, make, or model to maintain and repair the Equipment. The manuals shall include repair parts data that provides positive identification for an item of the complete Equipment with reference to the manufacturer or dealer facilities to identify ordering part numbers in support of procured Equipment.

### GC-28.6.2 Preparation Instructions

An operation and maintenance manual set is required to cover each specific make, model, year and serial numbered piece of Equipment scheduled for delivery under terms of this Agreement. It is the intent of these requirements to use standard commercial manuals modified to meet the minimum Specification set forth herein. The manuals shall provide instructions, illustrations, and other associated data for operations, preventive and corrective maintenance and repair, including a complete catalog of parts used in the assembly of the end item. The manuals provided shall contain complete instructions and information as set forth below for all Equipment components, assemblies, subassemblies, attachments, and accessories manufactured by the prime Supplier or those purchased by the prime Supplier from other sources and assembled in the finished end item.

### GC-28.6.3 Contents of Operation and Maintenance Manuals

The contents of complete set of manuals shall include, at a minimum, the following:

- (1) Table of Contents;
- (2) Operating instructions;
- (3) Preventive maintenance, service, and corrective maintenance or repair instructions;
- (4) Parts list with recommended quantity; and
- (5) Approved Shop Drawing(s).

#### GC-28.6.4 Binding and Delivery

The manual(s) shall be bound or otherwise securely enclosed in an oil and moisture resistant binder(s). Each binder cover shall indicate in bold type the manufacturer's name, contract number, model number, and serial number of the unit or equipment. Five (5) copies of the manual(s) shall be delivered with the Shop Drawings and must be approved with the Shop Drawings.

### **GC-29 CONTRACTOR'S TITLE TO MATERIALS**

No Materials or supplies for the Work shall be purchased by Contractor or by any Subcontractor subject to any chattel mortgage, security agreement, or under a conditional sales contract or other agreement by which any security interest is retained by the seller. Contractor warrants that it has good title to all Materials and supplies used in the Work, free from all liens, claims or encumbrances.

### **GC-30 INSPECTION AND TESTING OF MATERIALS**

All Materials and Equipment used in the construction of the Project shall be subject to adequate inspection and testing in accordance with accepted standards and the requirements of the Agreement Documents. The laboratory and inspection agency shall be provided as outlined in Section 01400 Quality Requirements. Additional tests performed after rejection of Materials or Equipment shall be charged to the Contractor

Materials of construction, particularly those upon which the strength and durability of the structure may depend, shall be subject to inspection and testing to establish conformance with Specifications and suitability for uses intended, but failure to inspect Materials will in no way waive the City's right to reject defective Materials or to condemn Work in which they are used. Contractor will provide for travel expenses, factory performed testing and set up costs for the factory inspection and testing of all major architectural elements, mechanical, electrical or process equipment. A factory visit for both designers' representative and a City representative may be required. No funds for stored materials or fabrication items will be released until the factory inspection is completed and a certified Payment Application is submitted.

All tests performed by Contractor shall be witnessed by the City unless the requirement therefor is waived in writing. Contractor shall give the City reasonable advance notice of all such tests. The City may perform additional tests on materials tested by Contractor, and Contractor shall furnish samples for this purpose as requested.

In the event that the City directs additional testing or inspection of the Work and the testing or inspection reveals that the Work is not in accordance with the Agreement Documents, Contractor shall pay for all costs of correction of the Work and will be charged for all costs of testing and inspection. In the event that any portion of Contractor's Work depends upon the Work of the City or any of its separate contractors,

the Contractor agrees that the City's Work or that of its separate contractor is adequate and installed such that it is ready and sufficient in all respects to accept Contractor's Work, unless written notice of any defect or deficiency is provided by the Contractor to the City prior to the Contractor beginning performance of the Work.

### **GC-31 MATERIALS AND EQUIPMENT**

Contractor shall furnish all Materials and Equipment to be incorporated into the Work. Only Materials and Equipment conforming to the requirements of the Drawings and Specifications shall be incorporated into the Work. Except as otherwise specified or approved in specific instances, all such Materials and Equipment shall be new and unused and of the highest quality available. Materials and Equipment for which no specific requirements are given in the Drawings or specifications shall be those best suited for the specified use, considering function, strength, durability and resistance to corrosion. Manufactured Materials and Equipment shall be obtained from sources which are currently manufacturing such Materials or Equipment, except as otherwise approved in writing.

If so ordered by the Engineer, sources of Materials shall be approved by him before delivery from those sources is commenced. Approval of a source of Materials may be withdrawn by the Engineer at any time that the Materials delivered from that source are found to be defective, and Contractor shall thereupon cease all deliveries from that source.

Manufacturer's warranties, certifications, guarantees, manuals, instruction sheets and parts lists provided with Materials and Equipment shall be furnished to the Engineer before final payment is made and receipt of same is a condition precedent to any obligation to make final payment.

### **GC-32 STORAGE OF MATERIALS AND EQUIPMENT**

Materials and Equipment to be incorporated in the Work shall be stored in such a manner as to preserve their quality and fitness for incorporation in the final project. They shall be stored in a manner acceptable to the Designer and Owner and in an accessible facility that allows inspection. If at any time the City determines that any Materials or Equipment are not being properly stored, they may issue a directive to correct the storage or reject the Material for incorporation in the Project. No additional payment will be made for storage requirements. No payment will be made on Materials stored improperly or replaced due to improper storage.

No Equipment may be stored outside without the express written permission of the City on that specific piece of equipment stating that unit's unique I.D. numbers.

For any Equipment or units that have rotating parts or bearing assemblies and must be stored for more than sixty (60) days, Contractor shall set up a schedule to manually

rotate the units every fifteen (15) days and maintain a certification log to preserve the service life and warranties.

### **GC-33 REPORTS, RECORDS, AND DATA**

#### **GC-33.1 General**

Contractor shall submit to the City schedules of quantities and costs, progress schedules, reports, estimates, records, certificates, and other data as the City may request concerning Work performed or to be performed under this Agreement.

#### **GC-33.2 Payroll Reports**

Contractor shall be required to furnish weekly payroll reports to the City, certifying conformance with the wage rates listed in the Specifications. The requirement applies to Contractor, its Subcontractors, and any lower-tier Subcontractor providing labor at the site. These reports shall show completed payroll information, and such certificates and statements of compliance as required in the Federal Labor Standards and by the City relative to payrolls. The schedule of wage rates shall be posted on a bulletin board available to the workers.

#### **GC-33.3 Contractor's Daily Reports**

As soon as Contractor has started Work on the Project, it shall compile written daily reports of the Work performed the previous day by its employees, including the employees of Subcontractors.

The reports shall be prepared by Contractor's representative and shall bear his signature. Each report shall contain at least the following information:

- (1) Description of Work items and references to payment items;
- (2) Work forces and construction Equipment employed;
- (3) Materials and Equipment installed;
- (4) Work performed by Subcontractors; and
- (5) Description of any accidents, interruptions, impacts, delays, problems, visitors, impediments, etc. encountered or continued.

Contractor shall require similar reports from Subcontractors for each day on Site and shall attach copies to Contractor's Daily Report when submitted.

### **GC-34 CONTRACTOR'S SUPERVISION OF THE WORK**

#### **GC-34.1 General**

Contractor shall provide competent, efficient supervision of the Work. All Work shall be performed in a skillful, workmanlike and orderly manner, and Contractor and its supervisory personnel shall enforce this requirement at all times.

#### GC-34.2 Contractor's Representative

Before beginning Work, Contractor shall notify the City in writing of one (1) person within its organization, satisfactory to the City, who shall have complete authority to supervise Work, to receive orders from the City, and to represent and act for Contractor in all matters arising under Agreement. Contractor shall not remove its representative without first designating, in writing, a new representative, who meets all of the foregoing requirements. Upon ten (10) days notice, the City or the Engineer may request replacement of Contractor's Representative if, in the City's opinion, it is necessary to ensure the timeliness or quality of the Work.

Contractor's representative shall normally be present at or about the Site of Work while the Work is in progress. Before leaving the Site of Work for any extended period, whether or not the Work is in progress, Contractor's representative shall notify the City, in writing, of the designation of an assistant, satisfactory to the City, with full authority to act for the representative in his absence, or shall make substitute arrangements satisfactory to the City. When neither Contractor, its representative, nor the representative's authorized assistant is present on a part of Work, the superintendent, foreman, or other employee or Contractor in charge of that part of the Work shall be an authorized representative of Contractor for the purposes set forth above.

#### GC-35 SUBCONTRACTORS AND SUPPLIERS

Contractor may utilize the services of specialty Subcontractors on those parts of Work that, under normal contracting practices, are performed by specialty Subcontractors, except as otherwise required by the Agreement Documents.

In addition to the designation of Subcontractors in the proposal documents, Contractor shall submit to the City a listing of the Subcontractor name, full address and telephone number, contact person, class or trade of work, list of similar past projects worked on, including reference names, telephone numbers, and other information as applicable to that Subcontractor and the provisions of the Agreement Documents. Contractor shall make Subcontractor submittals sufficiently in advance of construction requirements to provide the Engineer and City with no less than sixty (60) days for review and appropriate action.

Contractor shall be as fully responsible to the City for the acts and omissions of all Subcontractors and Suppliers, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it. Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to Work to bind Subcontractors and Suppliers to Contractor by the terms of the General Conditions and other Agreement Documents, insofar as applicable to the work of Subcontractors

and Suppliers, and to give Contractor the same power as regards terminating any subcontract that the City may exercise over Contractor under any provisions of the Agreement Documents.

Nothing contained in this Agreement shall create any contractual relation between any Subcontractor or Supplier and the City. The Contractor shall not award more than seventy-five percent (75%) of the Work to Subcontractors, provided that, to the extent that a more stringent standard is required in the Special Conditions, the more stringent standard shall control.

## **GC-36 INSPECTION OF WORK**

### **GC-36.1 General**

All of Work shall be subject to inspection by the City for conformity with the Drawings and Specifications, Working Drawings, Shop Drawings, data on Materials and Equipment, and material samples. Inspection of the balance of Work will be in accordance with this article, unless otherwise expressly indicated. Material tests and all other specified tests will be considered part of the inspection process and shall be subject to all of the provisions of this clause.

### **GC-36.2 Engineer's Access to Work**

The Engineer shall have access to, and may inspect Work at all times and places. He shall have access to, and may inspect, Materials and Equipment to be incorporated in Work at all times at the place of production or manufacture and at the shipping point, as well as at Site of Work.

The Engineer will designate the Materials and Equipment to be inspected at the place of production or manufacture. Contractor shall give the Engineer fourteen (14) days advance written notice of the start of manufacture or production of Materials and Equipment so designated. The Engineer's failure to so designate Materials and Equipment shall in no way limit his right to inspect them at the place of production of manufacture.

Contractor's Materials and Equipment contracts shall include a notice to the Supplier or Subcontractor of the inspection requirements of this clause.

### **GC-36.3 Cooperation And Safety**

The Engineer will perform inspections in such manner as not to delay Work unnecessarily, and Contractor shall perform the Work in such manner as not to delay inspection unnecessarily. Contractor shall give the Engineer reasonable advance notice of operations requiring special inspection of a portion of Work at any time by reasonable advance notice to the Engineer.

If requested by the Engineer, Contractor shall submit written certification, in a form approved by the Engineer, that he has inspected the Work prior to inspection by the Engineer, and that it complies with the Agreement Documents.

Contractor shall bear any additional inspection costs resulting from Contractor's failure to have a portion of Work ready for inspection at the time requested by Contractor for its inspection, or from reinspection of any previously rejected portion of Work where the defects requiring such rejection were due to Contractor's fault or negligence. Such costs may be deducted, in whole or in part, from any money due or that may become due Contractor under the Agreement.

Contractor shall furnish the Engineer all reasonable facilities for his safety and convenience in inspecting the Work, at all times and at all places where inspection may take place. If the Engineer finds that conditions are unsafe for inspection at a particular location, he may, upon notice to Contractor, refuse to inspect in that location until such conditions are corrected. Contractor shall bear any additional costs incurred to permit subsequent inspection of any portion of Work covered or completed at the location after correction of the conditions, whether or not such portion of Work is found to meet the requirements of the Agreement Documents.

#### GC-36.4 Inspection of Covered or Completed Portions of Work

If so ordered in writing by the Engineer, Contractor shall uncover, remove, tear out, or disassemble, in whole or in part, any covered or completed portion of Work to permit its inspection. If that portion of Work is found to be defective or unauthorized, Contractor shall bear all costs of uncovering, removal, tearing out, or disassembly. If such portion of the Work is found to conform with the Agreement Documents, including Agreement Drawings and Specifications, it shall be recovered, replaced, reassembled, or otherwise restored by Contractor to its original condition and, except as stated below, all Work required in connection with the inspection will be considered extra Work. If such portion of Work was covered or completed without the approval of the Engineer, where such approval was required by the Specifications or required in advance by the Engineer, Contractor shall bear all costs involved in the inspection, notwithstanding conformance of such portion of Work with the Agreement Documents including the Agreement Drawings and Specifications.

#### GC-36.5 Inspection Not a Waiver or Acceptance

Neither the inspection nor lack of inspection of any portion of the Work, nor the presence or absence of the Engineer during performance of any of the Work, nor acceptance of the whole or any part of the Work by the Engineer, nor any possession taken by the City or its employees shall operate as a waiver of any provision of this Agreement Documents or any power herein reserved to City or any rights to damages herein provided. Should an error in the estimate, or conclusive proofs of defective Work or materials used by or on the part of Contractor be discovered after the final payment has been made, the City reserves the right to claim and recover by process of law

such sums as may be sufficient to correct the error or to make good the defects in the Work and Materials.

#### **GC-36.6 Correction of Non-Compliant Work**

If Contractor is found to have Work that fails to meet the intent of the Plans and Specifications or other Agreement Documents, or is in other aspects unsuitable it may be issued a notice of non-compliance on that portion of the Project Work. Contractor shall remedy the defective or incorrect Work within twenty-four (24) hours unless a different schedule is agreed to in writing. This non-compliance status may be issued on temporary installations that fail to protect the Work or site conditions.

#### **GC-37 CITY'S AUTHORITY**

The City shall have authority to decide all questions as to interpretation and fulfillment of the requirements and obligations of the Agreement Documents, including, without limitation, all questions as to the prosecution, progress, quality, and acceptability of Work. The City may implement and enforce its decisions by orders, instructions, notices, and other appropriate means.

Any decision, order, instruction, or notice of the City will be confirmed in writing. Such confirmation shall state the specific subject of the decision, order, instruction, or notice and its date, time, place, author and recipient.

Inspectors may be appointed to inspect all Materials used and all Work performed. Such inspection may extend to all or any part of the Work and to the preparation or manufacture of the Materials to be used. Inspectors will not be authorized to approve or accept any portion of the completed Work or to issue instructions contrary to the Plans and Specifications or other Agreement Documents. Inspector will have authority to reject defective Material and to suspend Work that is being improperly performed, subject to the final decision of the City. Inspector shall, in no case, act as foreman or perform other duties for Contractor.

#### **GC-38 PROGRESS PAYMENTS**

##### **GC-38.1 Progress Estimates**

Within the time set forth in the Special Conditions or, if none, then prior to the submittal of the first Payment Application, Contractor shall submit to the Engineer for approval, in the form directed or acceptable to the Engineer, a complete schedule of values of the various portions of the Work, including quantities and unit prices, aggregating the Agreement Price (except in cases and to the extent that accepted unit prices form the basis of payment). The schedule shall subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction and to coordinate with the progress schedule required under the Special Conditions, and shall



be supported by such data to substantiate its correctness as the Engineer may require. Each item in the schedule of values shall include its proper share of overhead and profit. An unbalanced breakdown providing for overpayment to Contractor on items of Work which would be performed first will not be approved. The schedule of values, when approved by the Engineer, shall be used only as a basis for Contractor's monthly request for payment and shall not be used as the basis for computing additions to or deductions from the Agreement Price.

Subject to the provisions of this clause, Contractor shall prepare a written report for the Engineer's approval, on the form approved by the City, of the total amount of value of Work performed under the proposal items of Agreement to the time of such estimate and in accordance with the progress report based on the approved schedule.

No progress estimate or payment shall be considered an approval or acceptance of any Work performed, Material, or Equipment furnished. All estimates and payment will be subject to correction in subsequent estimates and the final estimate.

Progress payments will be made for all completed activities and for suitably stored Materials as herein provided.

#### GC-38.2 Progress Payments

Upon completion of each monthly estimate of Work performed and Materials furnished, the Engineer, subject to the provisions of the Agreement Documents, shall recommend payment to Contractor for the estimated value of such Work, Materials, and Equipment, less the amount of all prior payments and all liquidated damages and other amounts to be deducted or retained under the Agreement. Contractor will be paid one hundred (100%) percent, less retainage, of the cost of Materials received and properly stored but not incorporated into the Work. Payments for Materials or Equipment stored on the Site shall be conditioned upon submission by Contractor of bills of sale or such other procedures satisfactory to the Engineer to establish the City's title to such Materials or Equipment or otherwise protect the City's interest, including applicable insurance. No progress estimate or payment needs to be made when, in the Engineer's judgment, the increment in the estimated value of Work performed and Materials and Equipment furnished since the preceding estimate is less than Ten Thousand Dollars (\$10,000.00). Contractor will be paid on or before the twenty-fifth day following receipt of the approved estimate from the Engineer.

#### GC-38.3 Retention from Progress Payments

The amounts retained by the City from each progress payment shall be as follows:

- (1) Except as noted below, withholding ten percent (10%) of the estimated value of the Work performed until 50 percent of the Contract value, including change orders and other additions to the Contract value provided for by the Contract Documents, is due and the manner of

completion of the Contract Work and its progress are reasonably satisfactory to the City.

(2) At the discretion of the City and with the approval of Contractor, the retainage of each Subcontractor may be released separately as the subcontractor completes his or her work.

(3) Upon receipt of written request from Contractor, the City may, in its unilateral discretion, reduce retainage to Contractor for payment of retainage to Subcontractors who have completed their Work. If such retainage is released, Contractor shall furnish the City with an affidavit certifying that all monies due the Subcontractor have been paid. If the City determines that the released retainage has not been paid to the Subcontractor, the amount released shall be reinstated.

(4) The City may, in its unilateral discretion, elect to reduce Contractor's retainage and that of Subcontractors who have not completed all their work if the City believes it to be in its interest to do so.

(5) If reduced, the City may reinstate ten percent (10%) withholding if it believes it necessary or desirable to do so. Contractor agrees that the City is free to do so.

(6) If, after discontinuing the retention, the City determines that the Work is unsatisfactory or has fallen behind schedule, retention may be resumed at the previous level. If retention is resumed, Contractor and Subcontractors shall be entitled to resume withholding retainage accordingly.

#### GC-38.4 Additional Payment Conditions

##### GC-38.4.1

The submission and approval of the CPM Schedule and periodic updates thereof, as required by the Schedule requirements of the Special Conditions, shall be an integral part and basic element of the application upon which Progress Payments shall be made. Contractor shall be entitled to Progress Payments only as determined from the currently approved and updated CPM Schedule.

##### GC-38.4.2

Contractor shall promptly pay each Subcontractor upon receipt of payment from the City, out of the amount paid to Contractor on account of such Subcontractor's Work, the amount to which said Subcontractor is entitled, reflecting the percentage actually retained, if any, from payments to Contractor on account of

such Subcontractor's Work. Contractor shall, by an appropriate agreement with each Subcontractor, require each Subcontractor to make payments to their Subcontractors in similar manner.

GC-38.4.3

The City may, on request and at its discretion, furnish to any Subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for by Contractor and the action taken thereon by the City on account of Work done by such Subcontractor.

GC-38.4.4

Neither the City nor the Engineer shall have any obligation to pay or to see to the payment of any Subcontractor or Supplier, but may at its sole option, withhold payment from Contractor on account of claims of nonpayment by Subcontractors and Suppliers in accordance with GC-38.5.1.

GC-38.4.5

No certification of Progress Payment (any progress payment), or any partial or entire use or occupancy of the Project by the City, shall constitute an acceptance or approval of any Work not fully in accordance with the Agreement Documents.

GC-38.4.6

Any and all funds paid to Contractor pursuant to the City-Contractor Agreement are hereby declared to constitute trust funds in the hands of Contractor, to be applied first to the payment of claims of Subcontractors, laborers, and Suppliers arising out of the Work, to claims for utilities furnished and taxes imposed, and to the payment of premiums on surety and other bonds and on insurance, before application to any other purpose. Whenever required by the Engineer, it shall be the duty of Contractor to file with the Engineer a verified statement, in form satisfactory to the Engineer, certifying the amounts then due and owing from Contractor for labor and materials, setting forth therein the names of the person whose charges or claims for labor or materials are unpaid, and the undisputed amount due to each respectively. The City, at its option, may also require the Contractor to furnish evidence of payment of Subcontractors and Suppliers in any form satisfactory to the City in addition to the requirements of GC-38.6.

GC-38.4.7

No payments made hereunder by City to Contractor prior to Final Payment shall be deemed conclusive as to the actual value of the Work performed by Contractor or of Contractor's performance of the Agreement.

GC-38.4.8

City reserves the right to issue any Progress Payment and Final Payment by check jointly to Contractor and any Subcontractor or Supplier at City's option.

GC-38.4.9

Should the City fail to issue any Progress Payment within sixty (60) days of approval of an acceptable monthly estimate of Work performed and Materials furnished, annual interest on the payment amount may accrue at the Prime Rate, plus one percent. The Prime Rate shall be based on that published in the Wall Street Journal on the first business day of January or June, whichever has most recently passed, of the current year. Nothing stated herein shall invalidate any other conditions of Progress Payment approval.

GC-38.4.10

Contractor agrees to execute such payment application forms and release of claim forms as the City may require as a condition precedent to the City's obligation to make payment.

GC-38.4.11

This Article 38 shall completely supersede the Georgia Prompt Payment Act as it relates to Owner payments and any modifications or successors to it to the full extent allowed by law.

GC-38.5 Payments Withheld

GC-38.5.1

The City may decline to approve payment and may withhold any payment, in whole or in part, to the extent necessary to reasonably protect the City from loss because of:

- (1) Defective Work not remedied;
- (2) Third party claims filed or reasonable evidence indicating probable filing of such claims;
- (3) Failure of Contractor to make payments properly to Subcontractors, or for labor, Materials or Equipment;
- (4) Reasonable evidence that the Work cannot be completed for the unpaid balance of the Agreement Price;
- (5) Damage or the reasonable expectation of damage to the City or another contractor;
- (6) Reasonable evidence that the Work will not be completed within the Agreement Time;

- (7) Failure to carry out the Work in accordance with the Agreement Documents;
- (8) Failure of Contractor to fully comply with the Schedule requirements of the Special Conditions;
- (9) Failure to comply with insurance and safety requirements;
- (10) Failure to keep current "As-Built" Records; or
- (11) Failure of Contractor to comply with the requirements of the Agreement Documents in connection with the Payment Application process.

#### GC-38.5.2

When the grounds in Article GC-38.5.1., above are removed, payment shall be made for amounts withheld because of them.

#### GC-38.6 Waiver and Preservation of Claims In Periodic Application of Payments

Contractor has been employed by the City to furnish labor, Material, services, and other improvements. Upon receipt of the amounts requested in any monthly Application for Payment, Contractor waives and releases any and all claims it may have against the City or the Engineer through the date of that Payment Application, excepting those rights that Contractor may have in any retained amounts on account of labor or Materials, or both, furnished by Contractor and the unresolved claims, if any, enumerated in the Application for Payment. Contractor expressly warrants by submission of its periodic Application for Payment that all due and payable bills with respect to the Work have been paid to date or shall be paid from the proceeds of the Application for Payment, and waivers and releases from all Subcontractors and materialmen have been or will be obtained and delivered to the City in such form as to constitute effective waivers and releases of claims under all applicable laws. Upon receipt of payment of the amounts certified in the Application for Payment, Contractor does thereby waive, release, and relinquish any claims for additional compensation or an extension of time which Contractor has then or may have had arising out of the performance of the work or the furnishing of the labor or materials by Contractor through the date of the Application for Payment. This waiver and release applies to all facts, events, circumstances, changes, constructive or actual delays, acceleration, extra work, disruption, interferences, impacts and the like, which have occurred or may be claimed to have occurred prior to the date of the Application for Payment, excepting only claims which are then currently unresolved for which written notice has previously been provided to the City **and** which Contractor specifically enumerates in its Application for Payment. Failure to so enumerate claims shall be a final waiver and relinquishment of claim, whether or not such claims were previously submitted in accordance with GC-41.

#### GC-39 SUBSTANTIAL COMPLETION ("Substantial Completion")

### GC-39.1 Certificate of Substantial Completion

When Contractor considers that the Work, or a designated portion thereof which is acceptable to the City, is Substantially Complete, Contractor shall prepare for the Engineer a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of Contractor to complete all Work in accordance with the Agreement Documents. When the Engineer, on the basis of an inspection, determines that the Work or designated portion thereof is Substantially Complete, they will then prepare a Certificate of Substantial Completion of the Work which shall establish the Date of Substantial Completion of the Work, shall state the responsibilities of the City and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance and shall fix the time within which Contractor shall complete the items listed therein. The Certificate of Substantial Completion of the Work shall be submitted to the City and Contractor for their written acceptance of the responsibilities assigned to them in such Certificate.

### GC-39.2 Warranty Commencement

Warranties required by the Agreement Documents shall commence on the Date of Final Completion of the Project or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion of the Work or designated portion thereof.

### GC-39.3 Intentionally Omitted

## **GC-40 FINAL PAYMENT (“Final Payment”)**

### GC-40.1 Certificate for Final Payment

Following the Engineer's issuance of the certificate of Substantial Completion of the Work or designated portion thereof, and Contractor's Completion of the Work, Contractor shall forward to the Engineer a Written Notice that the Work is ready for final inspection and acceptance, and shall also forward to the Engineer a final Application for Payment. Upon receipt, the Engineer will make the necessary evaluations. When the Engineer finds the Work acceptable under the Agreement Documents and the Agreement fully performed, the Engineer will issue a certificate for Payment that will approve the final Payment due Contractor (“Final Payment”).

### GC-40.2 Final Payment Conditions

Neither the Final Payment nor the retainage shall become due until Contractor submits to the Engineer:

- (1) An affidavit that all payrolls, bills for Materials and Equipment, and other indebtedness connected with the Work have been paid or otherwise satisfied;

- (2) Consent of surety, if any, to Final Payment;
- (3) Clear title for all vehicles and/or trailers, if any, to remain as City property;
- (4) Complete set of as-built record Drawings;
- (5) Documentation for all state sales taxes paid by Contractor including completed State Department of Revenue Refund forms and all necessary back up documentation required by the Department of Revenue;
- (6) If required by the Engineer or City, other data establishing payment or satisfaction of all such obligations, such as receipts, releases, and waivers of liens arising out of the Agreement, to the extent and in such form as may be designated by the Engineer or City. If any Subcontractor refuses to furnish a release or waiver required by the Engineer or City, Contractor may furnish a bond satisfactory to the City to indemnify the City against any such loss. If any lien or indebtedness remains unsatisfied after all payments are made, Contractor shall refund to the City all monies that the latter may be compelled to pay in discharging such lien or other indebtedness, including, without limitation, all costs, expenses, arbitration fees, reasonable attorneys' fees, expert fees, or consultant fees incurred in connection with same; and
- (7) As a condition of Final Payment on the Project, Contractor shall, prior to final payment, complete and submit to the City, all of the invoice documentation and the State of Georgia Revenue Department forms required to obtain the sales tax refund on all applicable equipment expenditures. This submittal shall include the certified forms and auditable back-up necessary to substantiate the expenditures for State refund.

#### GC-40.3 Intentionally Omitted

#### GC-40.4 Waiver of Claims by Contractor Upon Final Payment

The acceptance of Final Payment shall constitute a waiver of all claims by Contractor except those previously made in writing and identified **and** enumerated by Contractor as unsettled at the time of the application for Final Payment. Failure to so enumerate unsettled claims shall be a final waiver and relinquishment of claim, whether or not such claims were previously submitted in accordance with GC-41.

### **GC-41 CLAIMS, CHANGES, AND EXTRA WORK**

Contractor acknowledges the extreme importance to Owner of identifying and resolving Claims on an “as-you-go” basis in order for Owner to maintain its relationship with all available funding sources, including local taxpayers as well as the state and federal governments. Contractor further acknowledges the extreme prejudice suffered by Owner as a result of any attempted assertion by Contractor of Claims except as specifically permitted herein in the precise manner and within the time limits established herein, which prejudice includes, but is not limited to that resulting from the trouble and expense of having to deal with disputes over claims, if any, that were not made in accordance with the precise manner and within the time established herein.

#### GC-41.1 Claims and Contractor’s Obligation to Proceed in the Face of Disputes

##### GC-41.1.1

A claim is any demand, contention, or assertion by Contractor seeking additional time or money under the Agreement Documents. Claims by Contractor must be made in writing as specified herein. Claims from Contractor must contain all of the following:

- (1) a narrative statement referencing and attaching the supporting documentation and specifically describing the legal, factual, and contractual basis of the claim;
- (2) if the claim alleges delay to the work or requests an extension time for excusable delay, the claim must include the precise number of days claimed, all alleged impacts on the work, as well as a detailed critical path as-built schedule analysis illustrating that the delays claimed were on the critical path of the Project, and that no concurrent delays were experienced during the critical path delay;
- (3) if the claim alleges improper acceleration of the work pursuant to GC-27.2, the claim must include the precise number of days' time extension Contractor contends it would have been entitled to receive, but for the acceleration, and the precise number of days by which the work has been accelerated. No claims for acceleration for work that is not on the critical path shall be permitted. Claims for acceleration must be accompanied by a detailed CPM analysis. Claims for acceleration shall be limited to the recoverable acceleration expenses referenced in Article GC-27 of this Agreement; and
- (4) if the claim is for additional compensation, the claim must include a detailed calculation of the precise amount claimed with all supporting documentation and shall also comply with Atlanta Procurement Code §2-1201 for claims expected to exceed \$20,000.00. All claims must reference the specific contract



provisions relied upon to support the claim. Claims that are not based upon a contractual provision or remedy shall be void as Contractor agrees that its entitlement is limited to the remedies offered by the terms of this Agreement. All claims must specifically reference, by name, this Article, and the fact that the claim is being submitted under this Article. Any writing or other form of notice, however designated, which fails to specifically reference this Article, by name, shall not be deemed to constitute a valid claim hereunder.

Items (1), (2), (3) and (4) above shall hereinafter be referred to as the "Final Accounting."

Initial written notice of Contractor's intent to assert a claim (the "Initial Notice") must be made in writing within seven (7) days after the occurrence of the event giving rise to the claim or the right to submit a claim is waived. Contractor shall submit all information reasonably available to it that is otherwise required in the Final Accounting at the time of the Initial Notice.

Except for Claim events that continue more than thirty (30) days, within thirty (30) days after the conclusion of the event giving rise to the Claim, Contractor shall provide the Final Accounting. Failure to timely provide the Final Accounting shall constitute a waiver of the Claim even if timely Initial Notice is provided. Any waiver by the City of the notice requirements for the Initial Notice or the Final Accounting for a single claim, event, or occurrence shall not constitute a waiver of these notice requirements for any other claim, event, or occurrence. Each request for time or money by Contractor shall be considered a separate claim. All information required in the Final Accounting must be submitted within the time limits established herein, and no supplementation of the information or claims shall be permitted. Any attempted reservation of the right to submit or supplement an earlier made claim shall be void.

For events giving rise to a claim that Contractor contends continues for more than thirty (30) days, including any alleged continuing claims or continuing impacts that Contractor contends continue to accrue beyond thirty (30) days, then Contractor shall give the Initial Notice as required herein, stating therein that the event or impact is continuing. Within thirty (30) days of the start of the event (as documented by the Initial Notice), Contractor shall provide all information available to it that is required in the Final Accounting, including without limitation a quantification of any costs incurred to date. Contractor shall supplement the required information, including without limitation any additional damages accrued during the period and any scheduling information required, every thirty (30) days thereafter until the event or impact ceases, culminating in the Final

Accounting within thirty (30) days thereafter. Failure to timely provide: (a) the Initial Notice; (b) the information due within thirty (30) days thereafter; (c) timely and complete supplements; or (d) the timely Final Accounting shall be deemed a waiver of any claim for time or money for events occurring after the date Contractor last timely and completely complied with the requirements hereof. Any attempt to reserve the right to supplement at a different time or to accrue costs or impacts beyond thirty (30) days shall be void and shall be deemed a waiver of any further claim relating thereto.

The Final Accounting shall be accompanied by a sworn statement from a representative of Contractor who is the person most knowledgeable of the facts and circumstances surrounding the Claim and personally familiar with such facts and circumstances certifying that (a) the claim is submitted in good faith, (b) the cost data and all backup information submitted are true, accurate, and complete, and (c) that the amount requested accurately reflects the amount for which Contractor and the Affiant believe the City is liable.

#### GC-41.1.2 Claim Review

Upon receiving a statement of claim, and with the advice and assistance of the Engineer as appropriate, the City may review the statement of claim submitted by Contractor. In conducting this review, the Engineer or other person designated by the City shall have the right to require Contractor to submit such additional or supporting documents, data and other information as the City and/or the Engineer may require, and the failure to submit such additional documents, data or other information within thirty (30) days following written request shall be deemed a waiver of the claim. Contractor agrees that it will produce any documents requested that would otherwise be produceable in a civil action under O.C.G.A. § 9-11-34. Upon completion of such review, to take place within such time as the City may designate following receipt of the additional documents, data or other information as may have been required by the City and/or the Engineer, the City in consultation with the Engineer may issue a written determination, and if it deems appropriate accept such parts of the claim as are found in good faith to be proper. If Contractor agrees, a Change Order shall be issued to amend the Agreement Price, the time for completion or either of them as may be found proper. If Contractor disputes the determination made by the City, Contractor as a condition precedent to any further action to resolve such dispute must notify the City and the Engineer in writing within ten (10) days following receipt of the decision of the factual basis of such dispute and permit the City fifteen (15) additional days to reconsider and, if it deems it appropriate, issue a modified decision.

#### GC-41.1.3 No Waiver

Nothing contained in this section shall operate to limit or extinguish any right or defense of the City contained elsewhere in the Agreement Documents or available at law or in equity or constitute a waiver by the City of any right or defense otherwise available. Nothing in this Article GC-41 shall alter Article GC-24 or GC-26 or give Contractor the right to recover additional compensation not authorized by other items of the Contract Documents or precluded thereby.

#### GC-41.1.4 Absolute Conditions Precedent

The failure of Contractor to file any claim within the time limits prescribed herein or in the form or manner precisely as required hereby shall be deemed a material prejudice to the interests of the City and shall constitute an absolute waiver of the claim and the right to file or thereafter prosecute the same.

#### GC-41.1.5

Claims by the Owner shall not be subject to the requirements of Section 41.1, Claims by the Owner shall be asserted within a reasonable time of discovery of the claim and shall include information necessary for Contractor to reasonably evaluate the claim. The Owner agrees to notify Contractor in writing of its claims within a reasonable time but not later than the close of discovery in any arbitration or litigation conducted hereunder.

#### GC-41.1.6

Pending final resolution of a Claim, except as otherwise agreed in writing, Contractor shall proceed diligently with performance of the Work and the Owner shall continue to make undisputed payments in accordance with the Agreement Documents. The making of any payment by Owner shall not constitute a waiver of any Claims by the Owner or an acknowledgement by Owner that Contractor is entitled to additional time or money.

#### GC-41.1.7

Contractor acknowledges the extreme importance to the City of completing the Work as expeditiously as possible and the prejudice the City may suffer if the Work is not completed as scheduled. Contractor further acknowledges the strong likelihood that disputes between the parties will arise and that Contractor will likely be required to perform disputed work which the City contends to be included within Contractor's scope of work, or that if acknowledged as changed or extra work, the likelihood that the City may dispute the amount of Contractor's alleged entitlement. Irrespective of whether it is within the general scope of the Work, Contractor agrees to perform all work, whether disputed or undisputed, that the City directs. No dispute or controversy shall interfere with the progress of construction, and Contractor shall proceed with the work without interruption, deficiency, or delay. Contractor warrants and represents that Contractor and its

Surety have sufficient capitalization and resources to complete the Work, including all disputed work whether or not it is within the general scope of the work, and resolve disputes in accordance with the terms of this Agreement. Contractor therefore agrees that any failure or refusal by Contractor to perform disputed work which the City directs Contractor to perform shall be a material and substantial breach of the Agreement for which Contractor and its surety are jointly and severally liable. Contractor acknowledges and agrees that its failure or refusal to perform disputed work will cause the City significant damage and that such damages may include increased costs to have another contractor complete the work at a premium over the costs Contractor would have incurred to perform the disputed work. Contractor acknowledges and agrees that should it refuse to proceed in the face of disputes, it is liable for all additional costs incurred in completing both Contractor's base Agreement scope of work and any changed, extra, or additional work.

## GC-41.2 Changes in the Work

### GC-41.2.1 General

#### GC-41.2.1.1

Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Agreement, by Change Order, Field Change, Work Authorization or Change Directive. For purposes of this Agreement, the terms "extra work" or "additional work" shall have the same meaning as "changed work" and be governed by the same Agreement provisions governing changes.

#### GC-41.2.1.2

Changes in the Work shall be performed under applicable provisions of the Agreement Documents, and Contractor shall proceed promptly, unless otherwise provided in the Change Order, Field Change, Work Authorization or Change Directive. A change in the Agreement Price or the Agreement Time shall be accomplished only by Change Order or Change Directive, and no other compensation shall be due to Contractor other than that permitted pursuant to a Change Order or a Change Directive. Accordingly, no course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that Owner has been unjustly enriched by any change to the Work, whether or not there is, in fact, any unjust enrichment, shall be the basis of any claim for an increase in any amounts due under the Agreement Documents or a change in any time period provided for the Agreement Documents. Any failure to comply with the notice and other claim procedure requirements included herein or any

other Agreement requirements shall be a waiver of the right to additional time or money.

#### GC-41.2.1.3

Any written directive which Contractor believes to constitute a Change hereunder must be accompanied by the notice required under Article GC-41 governing claims. ALL CONTRACTOR CLAIMS FOR CHANGES MUST BE ASSERTED IN ACCORDANCE WITH ARTICLE GC-41 OR THEY ARE WAIVED AND RELEASED.

### GC-41.2.2 Change Orders

#### GC-41.2.2.1 [Intentionally Omitted]

#### GC-41.2.2.2 [Intentionally Deleted]

#### GC-41.2.2.3

Methods used in determining adjustments to the Agreement Price for Change Orders shall be limited to those listed, below:

Any Change Order accepted by Owner and Contractor constitutes a full and final settlement and accord and satisfaction of all effects of the change, including but not limited to any and all impact, delay and/or disruption relating thereto upon any and all aspects of the Work or the Agreement Documents, and will compensate Contractor fully. In such case, Contractor expressly waives any and all right to make a Claim or to take any action or proceeding for any other consequences of any Change Order, whether the consequences result directly or indirectly from the Change Order. In addition, Contractor expressly waives and releases any Claim it may have against the Owner for any adjustment in the Substantial Completion Date or Final Completion Date resulting from, arising out of, or related to the change reflected in any such Change Order, including, but not limited to, any impact that such change may have on the unchanged portion of the Work or the Substantial or Final Completion Date. In addition, Contractor expressly waives and releases any Claim it may have against the Owner for any additional compensation or damages resulting from, arising out of, or related to, the change reflected in any such Change Order, including, but not limited to any Claim for damages due to delay, disruption, hindrance, impact, ripple effect, cumulative impact, interference, cardinal change, abandonment, inefficiencies or extra work arising out of, resulting from, or related to the change reflected in any such Change Order, including, but not limited to, any impact that such change

may have on the unchanged portion of the Work or the Substantial or Final Completion Date.

### GC-41.2.3 Change Directives

#### GC-41.2.3.1

The Owner may, by Change Directive, without invalidating the Contract, order Changes in the Work consisting of additions, deletions or other revisions, the Agreement Price and Agreement Time being adjusted accordingly to the extent necessary. Any Claim arising from a Change Directive must be made in accordance with the terms of this Contract.

#### GC-41.2.3.2

A Change Directive shall be used in the absence of total agreement on the terms of a Change Order, Field Change, or Work Authorization.

#### GC-41.2.3.3

If the Change Directive warrants an adjustment to the Agreement Price, the adjustment shall be based on one of the following methods:

- (1) mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- (2) unit prices stated in the Agreement Documents or subsequently agreed upon;
- (3) cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- (4) by Force Account as provided hereafter.

### GC-41.2.4 Force Account

When no agreement is reached for Changed Work to be done at Lump Sum or Unit Prices or another mutually agreed manner, such work may be authorized by the City to be done on a Force Account basis. A Force Account estimate that identifies all anticipated costs shall be prepared by Contractor. Work shall not begin until the Force Account is approved. Payment for Force Account work will be in accordance with the following:

#### GC-41.2.4.1 Labor

For all labor, equipment operators, and supervisors, excluding superintendents, in direct charge of the specific operations, Contractor shall receive the rate of wage agreed upon in writing before beginning work for each and every hour that said labor, equipment operators, and supervisors are actually engaged in such work.

Contractor shall receive the actual costs paid to, or in behalf of, workers by reason of subsistence and travel allowances, health and welfare benefits, pension fund benefits, or other benefits, when such amounts are required by collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on The Work.

An amount equal to 10% of the sum of the above items will also be paid Contractor. Said 10% shall be deemed to include 3% for Contractor's fee and 7% for Contractor's overhead.

#### GC-41.2.4.2 Bond, Insurance, and Tax

For bond premiums, property damage, liability, and worker's compensation insurance premiums, unemployment insurance contributions, and Social Security taxes on the Force Account work, Contractor shall receive the actual cost, to which cost no percentage will be added. Contractor shall furnish satisfactory evidence of the rate or rates paid for such bond, insurance, and tax.

#### GC-41.2.4.3 Materials

For materials accepted by the Engineer and used, Contractor shall receive the actual cost of such material incorporated into The Work, including Contractor paid transportation charges (exclusive of machinery rentals as hereinafter set forth), to which cost 10% will be added. Said 10% shall be deemed to include 3% for Contractor's fee and 7% for Contractor's overhead.

#### GC-41.2.4.4 Equipment

For any machinery or special equipment (other than small tools) including fuel and lubricant, plus transportation costs, the use of which has been authorized by the Engineer, Contractor shall receive the rental rates indicated below for the actual time that such equipment is in operation on the Work or the time, as indicated below, the equipment is directed to stand by.

Equipment rates shall be based on the edition in effect at the time of Contractor's original bid of the *Rental Rate Blue Book for Construction Equipment* or *Rental Rate Blue Book for Older Construction Equipment*, whichever applies, as published by EquipmentWatch using all instructions and adjustments contained therein and as modified below.

Allowable Equipment Rates shall be established as defined below:

- Allowable Hourly Equipment Rate = Monthly Rate/176 x Adjustment factors x 70%.
- Allowable Hourly Operating Cost = Hourly Operating Cost x 70%.
- Allowable Rate Per Hour = Allowable Hourly Equipment Rate + allowable Hourly Operating Cost.
- Standby Rate = Allowable Hourly Equipment Rate x 35%

NOTE: The monthly rate is the basic machine plus any attachments.

Standby rates shall apply when equipment is not in operation and is directed by the Engineer to standby for later use. In general, Standby rates shall apply when equipment is not in use, but will be needed again to complete The Work and the cost of moving the equipment will exceed the accumulated standby cost. Payment for standby time will not be made on any day the equipment operates for 8 or more hours. For equipment accumulating less than 8 hours operating time on any normal workday, standby payment will be limited to only that number of hours which, when added to the operating time for that day equals 8 hours. Standby payment will not be made on days that are not normally considered workdays.

The City will not approve any rates in excess of the rates as outlined above.

Payable time periods will not include:

- Time elapsed while equipment is broken down;
- Time spent in repairing equipment; or
- Time elapsed after the Engineer has advised Contractor the equipment is no longer needed.

If a piece of equipment is needed which is not included in the above *Blue Book* rental rates, reasonable rates shall be agreed upon in writing before the equipment is used. All equipment charges by persons or firms other than Contractor shall be supported by invoices.



Transportation charges for each piece of equipment to and from the site of the Work will be paid provided:

- The equipment is obtained from the nearest approved source;
- The return charges do not exceed the delivery charges;
- Haul rates do not exceed the established rates of licensed haulers; and
- Such charges are restricted to those units of equipment not already available and not on or near the Project.

No additional compensation will be made for equipment repair.

#### GC-41.2.4.5 Miscellaneous

No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

#### GC-41.2.4.6 Compensation

Contractor's representative and the Engineer shall compare records and agree on the cost of work done as ordered on a Force Account basis at the end of each day. Should Contractor fail or refuse to fulfill this daily record keeping function by meeting with the Engineer and agreeing upon the cost of Force Account Work, Contractor agrees that it forfeits and releases any right to payment or right to claim for the Force Account Work for that day.

#### GC-41.2.4.7 Subcontract Force Account Work

For work performed by an approved Subcontractor or lower-tier Subcontractor, all provisions of this Section that apply to Contractor in respect to labor, materials and equipment shall govern. Contractor shall coordinate the work of its Subcontractor. The prime Contractor will be allowed an amount to cover administrative cost equal to 5% of the Subcontractor's amount earned but not to exceed \$5,000.00 per Subcontractor for each Change in Work performed by Force Account. Markup for lower-tier Subcontract work will not be allowed. The 5% shall be for Contractor's overhead in administering the change.

Should it become necessary for Contractor or Subcontractor to hire a firm to perform a specialized type of work or service which Contractor or Subcontractor is not qualified to perform, payment will be made at reasonable invoice cost. To each invoice cost a markup to cover administrative cost equal to 5% of the total invoice but not to exceed \$5,000.00 will be allowed Contractor or Subcontractor but not both. If

paid to Contractor, the 5% shall be for Contractor's overhead in administering the change.

#### GC-41.2.4.8 Statements

No payment will be made for work performed on a Force Account basis until Contractor has furnished the Engineer with duplicate itemized statements of the cost of such Force Account work detailed as follows:

- (1) Name, classification, date, daily hours, total hours, rate, and extension for each laborer, equipment operator, and supervisor, excluding superintendents;
- (2) Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment;
- (3) Quantities of materials, prices, and extensions;
- (4) Transportation of materials; and
- (5) Cost of property damage, liability, and worker's compensation insurance premiums, unemployment insurance contributions, and Social Security tax.

Statements shall be accompanied and supported by invoices for all materials used and transportation charges. However, if materials used on the Force Account work are not purchased specifically for such work but are taken from Contractor's stock, then, in lieu of the invoices, Contractor shall furnish an affidavit certifying that such materials were taken from its stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to Contractor.

Payment based on Force Account records shall constitute full payment and settlement of all additional costs and expenses caused by, arising from, or associated with the Work performed, including any time related or impact costs in connection with the Force Account work or any unchanged work impacted thereby.

#### GC-41.2.5

If any change or Change Directive meets the requirements for excusable delay and a change in the Agreement Time is warranted as a direct result of the change or Change Directive, then the four items of delay damage compensation identified in Article GC-26.2.1 for the unenforceability exception to the recoverability of delay damages under the Agreement may be included as a part

of the adjustment in the Agreement Price for the change or change directive if Contractor has met all other requirements of the Agreement, including the notice and claim procedure requirements. Provided, however, Contractor shall, under no circumstances, be allowed to duplicate any costs included under this Article so as to receive a double recovery. In the event that Contractor is entitled to the four items of delay damage compensation referenced above, there shall be deducted from said entitlement all amounts paid or allowed Contractor for overhead pursuant to the percentage markups included herein.

#### GC-41.2.6

Upon receipt of a Change Directive, Contractor shall promptly proceed with the Change in the Work involved and advise the Owner of Contractor's agreement or disagreement with the method, if any, provided in the Change Directive for determining the proposed adjustment in the Agreement Price or Agreement Time utilizing the notice and claim procedures set forth herein.

#### GC-41.2.7

A Change Directive signed by Contractor indicates the agreement of Contractor therewith, including adjustment in Agreement Price and Agreement Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order, Field Change or Work Authorization, as applicable.

#### GC-41.2.8

If Contractor does not respond promptly or disagrees with the method for adjustment in the Agreement Price, the method and the adjustment shall be based upon the actual expenditures and savings attributable to the change, as determined in accordance with Article 41.2.4.

#### GC-41.2.9

The amount of credit to be allowed by Contractor to the Owner for a deletion or change which results in a net decrease in the Agreement Price shall be the actual cost, and that proportion of Contractor's Fee (including both profit and overhead) allocable to such actual cost.

#### GC-41.2.10

Pending final determination of the total cost of a Change Directive to the Owner, amounts not in dispute for such changes in the Work may be included in Applications for Payment accompanied by a Change Order, Field Change or Work Authorization (as applicable) indicating the parties' agreement with part or all of such costs. For any portion of such cost that remains in dispute, the Owner

may make an interim determination for purposes of monthly certification for payment for those costs. That interim determination of cost, if made, shall be subject to the right of the Owner to change or withdraw the same unless and until finalized by Change Order, Field Change or Work Authorization, as applicable.

#### GC-41.2.11

When Contractor agrees with the determination made by the Owner concerning the adjustments in the Agreement Price and Agreement Time, if any, or Owner and Contractor otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order, Field Change or Work Authorization, as applicable.

#### GC-41.3 No Oral Changes

It is expressly agreed that, except in an emergency endangering life or property, no modifications, additions or changes to the Work shall be made except upon written order of Contractor, and Contractor shall not be liable to Subcontractor for any extra labor, materials or equipment furnished without such written order. No officer, employee or agent of Contractor is authorized to direct any extra or Changed work by verbal order nor is Subcontractor authorized to proceed with any work upon verbal order.

No eliminations, additions, or alterations shall be made in the Work except upon written order of The City. No course of conduct or dealings between the parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that the City has been unjustly enriched by any alteration or addition to the Work, whether or not there is, in fact, any unjust enrichment to the Work, shall be the basis of any claim for an increase in any amounts due under the Agreement Documents or an increase in any time period provided for in the Agreement Documents. No action, conduct, omission, prior failure, or course of dealing by the City shall waive, modify, change, or alter the requirement that Change Orders, Field Changes, Work Authorizations and Change Directives must be in writing signed by the City and/or Contractor, and that written Change Orders are the exclusive methods for effecting any change to the Agreement Price or Agreement Time. Contractor understands and agrees that the Agreement Price and Agreement Time cannot be changed by implication, oral contracts, verbal directives, actions, inactions, course of conduct, or constructive change order. Contractor shall be under no obligation to perform pursuant to an oral directive to perform work in addition to the Project scope excepting the case of an emergency threatening personal injury or property damage. Contractor acknowledges and agrees that no one in the City's organization has the authority to order changes without a signed writing.

#### GC-42 WORK AUTHORIZATIONS

When directed by the City's Representative through a Work Authorization, the Contractor will perform Work that is expressly or generally contemplated under any allowance or contingency items designated by the Agreement Documents, which may include a Change for the addition of Work that does not result in an increase in the overall Agreement Price. Work Authorizations may include Work items that are not necessarily shown in the Agreement Documents, but may be necessary for the successful completion of the Project. The performance of the Work Authorization items must conform to the standards of the Agreement Documents. The funding for Work Authorizations is an allowance only and not a compensable pay item. The City is solely responsible for the appropriation of the funds. The Contractor shall have no claims to such funds. The City will retain ownership of any such funds not used after the completion of Work. The Work shall be assigned and directed by the City's Representative in written form. Measurement, Payment, Invoicing and Pricing of Adjustments for Work Authorizations will be in accordance with the Agreement Documents.

#### **GC-43 OWNERSHIP AND USE OF DOCUMENTS**

All Contract Documents furnished to the Contractor remain the property of the City. The Contract Documents are to be used only with respect to this Project and are not to be used on any other project. All Contract Documents are to be returned to the City upon request at the completion of the Work. The Contractor may maintain a record set of the Contract Documents for its records, but will maintain the confidentiality of the record set, except as required by law. The Contractor can use the Contract Documents for any purposes required for the Project that will not be considered publication in derogation of the common law copyright or other reserved rights of the holder.

Neither Contractor nor any Subcontractor, Sub-Subcontractor, Supplier, vendor or other person or organization performing or furnishing any of the Work under a direct or indirect contract with City acquires any title to or ownership rights in any of the Contract Documents. The Contractor may not reuse the Contract Documents for extensions of the Project or for any other project without written consent of the City.

#### **GC-44 CHANGED CONDITIONS**

Contractor shall notify the Engineer in writing of the following conditions, hereinafter called "changed conditions," promptly upon their discovery and before they are disturbed, in any event no later than seven (7) calendar days after their discovery:

- (1) Subsurface or latent physical conditions at the site of Work differing materially from those indicated in this Agreement; or
- (2) Unknown physical conditions at the site of the Work of an unusual nature differing materially from those ordinarily encountered and generally

recognized as inherent in Work of the character provided for in the Agreement.

The Engineer shall promptly investigate the conditions, and if he finds that such conditions do materially so differ and cause an increase or decrease in Contractor's cost of, or the time required for, performance of any part of the Work under this Agreement, whether or not changed as a result of such conditions, an equitable adjustment shall be made and the Agreement modified in writing in accordance with the provisions of this Agreement, subject to the provisions regarding Change Orders, Change Directives, notice and claims procedure and excusable delays. If the Engineer determines that conditions of which he has been notified by Contractor do not justify an adjustment in compensation, he will so advise Contractor in writing. Should Contractor disagree with such determination, it may submit a notice of claim to the Engineer as provided herein and follow the claims procedures of Article GC-41.

In computing any equitable adjustment sought by Contractor, the actual costs incurred by Contractor, computed in accordance with the Force Account provisions for changes shall be the standard for determining Contractor's entitlement. Provided, however, that if the City shows that conditions encountered by Contractor on the Project were more favorable and less costly than what Contractor reasonably should have expected to encounter, the net effect on Contractor from both the favorable and unfavorable conditions shall be considered in determining the amount of any equitable adjustment.

**GC-45 INTENTIONALLY OMITTED**

**GC-46 INTENTIONALLY OMITTED**

**GC-47 INTENTIONALLY OMITTED**

**GC-48 INTENTIONALLY OMITTED**

**GC-49 MEASUREMENT AND PAYMENT**

**GC-49.1 Measurement**

All items of Work to be paid for at Agreement Prices per unit of measurement will be measured or certified by the Engineer.

**GC-49.2 Payment at Agreement Prices**

The Agreement prices for items of Work shall include full compensation for all costs of items, including the costs for any Work, Materials and Equipment incidental to the items but not specifically shown or described in the Drawings and Specifications, subject only to such express limitations as may be stated in the Specifications defining the items or prescribing payment thereof.

## **GC-50 HISTORICAL, SCIENTIFIC, AND ARCHEOLOGICAL DISCOVERIES**

All articles of historical or scientific value, including, but not limited to, coins, fossils, articles of antiquity, which may be uncovered by Contractor during process of Work, shall become the property of City. Such findings shall be reported immediately to the Engineer who will determine the further operations of Contractor, the method of removal, where necessary, and the final disposition thereof.

## **GC-51 SEPARATE AGREEMENTS**

### **GC-51.1 Separate Contractors**

The City reserves the right to award other Agreements in connection with this Project. Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate its Work with theirs. If the proper execution of any part of Contractor's Work depends upon the work of another contractor, Contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable for such proper execution and results.

### **GC-51.2 Cooperation**

The City may perform additional work related to the Project by itself, or it may let other contracts containing provisions similar to these. Contractor shall afford the other contractors who are parties to such contracts and/or the City, if it is performing the additional work itself, reasonable opportunity for the introduction and storage of materials and equipment and the execution of work and shall properly connect and coordinate its work with theirs.

### **GC-51.3 Review of Separate Contractor's Work**

If any part of Contractor's Work depends for proper execution or results upon the work of the City or any separate contractor, Contractor shall, prior to proceeding with the Work, promptly report to the Engineer any apparent discrepancies or defects in such other work that render it unsuitable for such proper execution and results. Failure of Contractor so to report shall constitute an acceptance of the City's or separate contractor's work as fit and proper to receive the work, except as to defects which may subsequently become apparent in such work by others.

#### GC-51.4 Notice to Contractor

If the performance of additional work by other contractors of the City is not noted in the Agreement Documents prior to the execution of the Agreement, Written Notice thereof shall be given to Contractor prior to starting any such additional work.

#### GC-51.5 Damage to Separate Contractor

Should Contractor wrongfully delay, impact, or cause damage to the work or property of any separate contractor, Contractor shall, upon due notice, promptly attempt to settle with such other contractor by agreement, or otherwise to resolve the dispute. If such separate contractor sues or initiates a proceeding against the City or the Engineer on account of any delay or damage alleged to have been caused by Contractor, the City shall notify Contractor, who shall defend such proceedings at Contractor's expense, and if any judgment or award against the City or the Engineer arises therefrom, Contractor shall pay or satisfy it and shall reimburse the City for all costs and expenses, including without limitation, attorneys' fees, expert fees, consultant fees, court costs, and litigation or arbitration fees or expenses that the City has incurred.

#### GC-51.6 City's Right to Clean Up

If a dispute arises between Contractor and separate contractors as to their responsibility for cleaning up or for accomplishing coordination, the City may clean up and carry out such work and charge the cost thereof to Contractors responsible therefor as the Engineer shall determine to be just.

### **GC-52 OFFICIAL NOT TO BENEFIT**

No officer or employee of the City shall be permitted to participate in the performance of this Agreement or receive any benefit or compensation arising out of the performance of such Agreement, and any Agreement entered into by the City in which any officer or employee of the City shall be personally interested shall be void, and no payment shall be made thereon by the City or any officer thereof; but this provision shall not be construed to extend to the Agreement if made with a corporation for its general benefit.

A bribe or attempt to bribe any representative or officer of City by Contractor shall be considered as a breach of the Agreement in bad faith, and shall thus empower City to complete Work and deduct the entire cost thereof from any monies due or to become due Contractor under the Agreement.

### **GC-53 GRATUITIES AND KICKBACKS**



The Contractor's Contract may be terminated in accordance with the Clause titled "TERMINATION FOR DEFAULT" if, after notice and hearing, the City determines that the Contractor, its agent, or another representative offered or gave a gratuity or kick-back to an officer, official, or employee of the City and intended, by the gratuity, to obtain a contract or favorable treatment under a contract.

The rights and remedies of the City provided in this Clause are not exclusive and are in addition to any other rights and remedies provided by law or under this Contract.

The Contractor warrants that: (1) it has not employed nor retained any company or person, other than a bona fide employee working for the Contractor, to solicit or secure the contract; and that the Contractor has not paid or agreed to pay any person, company, association, corporation, individual or firm, other than a bona fide employee working for the Contractor, any fee, commission, percentage, gift or any other consideration contingent upon or resulting from the award or making of the contract. After Notice and hearing and upon a finding in contradictions to this Paragraph constituting a breach or violation of the above warranty, the City has the right to terminate the contract or take other appropriate actions.

#### **GC-54 PRECONSTRUCTION CONFERENCE**

Within twenty (20) days after delivery of the executed agreement by City to Contractor, but before issuance of Notice to Proceed, a conference will be held to review progress schedules, to review the insurance and safety program, to establish procedures for handling Shop Drawings and other submittals and for processing progress payments, and to establish a Working understanding between the parties as to the Project.

Contractor shall submit to the City for approval, prior to the preconstruction conference, a preliminary schedule of Shop Drawing submittals, and certification of insurance as required by Appendix B.

#### **GC-55 TIME OF COMPLETION AND LIQUIDATED DAMAGES**

##### **GC-55.1 Liquidated Damages**

It is understood and agreed that the City will sustain substantial monetary and other injury and damages, including, but not limited to, increased costs, expenses and liabilities in the event of failure by Contractor to perform its Work in accordance with the Completion and any Interim Milestone Date(s) set forth in the CPM Schedule prepared in accordance with the Special Conditions. Accordingly, should Contractor not complete the Work, or any such portion thereof, within the date(s) required by the CPM Schedule initially approved by the Engineer, as they may be adjusted pursuant to the Agreement Documents, then charges shall be assessed against any money due or that may become due Contractor in accordance with the following schedule:

For Each day of delay in Substantial Completion of the entire Work: \$1,500/ day

For Each day of delay in Final Completion of the entire Work: \$1,000/ day

The amount of such charges is hereby agreed upon as fixed liquidated damages due the City after the expiration of the Agreement Date(s) for completion specified in the CPM Schedule for the Work or portions thereof. Contractor and its surety shall be liable for any liquidated damages in excess of the amount due Contractor on the Final Payment.

If the CPM Schedule projects an untimely completion with unexcused delay and the City in good faith believes that retainage will be insufficient to cover the City's damages, Contractor agrees that the City may withhold additional funds to assure the payment of the liquidated damages owed by Contractor.

#### GC-55.2 No Penalty

The fixed liquidated damages are not established as a penalty but are calculated and agreed upon in advance by the City and Contractor due to the uncertainty and impossibility of making a determination as to the actual direct, incidental and consequential damages which are incurred by the City as a result of the failure on the part of Contractor to complete the Work within the Agreement Time and completion date(s) specified in the Agreement Documents. Liquidated damages shall start in accordance with the above schedule upon notification to Contractor in writing that all apparent Agreement Time allowed to achieve the relevant completion date has been consumed. Liquidated Damages as they accrue will be deducted from periodic partial payments to the extent they are sufficient to cover the liquidated damages owing; provided that any excess liquidated damages owing over the periodic partial payment amount may be deducted from retainage. Such deduction shall be in addition to the retainage provided for in the Agreement Documents. The remaining amount of liquidated damages owing upon completion will be deducted from any amounts owing as Final Payment to Contractor or its surety. Any excess amount owing as liquidated damages shall be paid upon demand.

#### GC-56 RIGHT TO AUDIT

Contractor shall keep and maintain accurate books and records, and supporting data, documentation, correspondence, reports, instructions, Drawings, receipts, vouchers, and memoranda regarding performance of Work hereunder and including specifically, but without limitation, such information as estimates (pre and post Bid), costs incurred, labor and Materials consumed, schedules and progress records and quality control. Such books and records shall be available for inspection, audit, and copying by the City or its authorized representative for any purpose during the Work and for a period of three (3) years after Final Payment.

## **GC-57 DISPUTES**

### **GC-57.1 Mediation**

In the event of any controversy, claim, dispute or other matter in question arising out of or relating to this Agreement of the breach thereof or otherwise in connection with the Project to which this Agreement pertains, at the City's sole and exclusive option the parties shall, if the City so elects and as an express condition precedent to any party to this Agreement commencing legal action against the other relating to or arising out of the dispute, mediate the dispute utilizing a mutually agreeable mediator. Prior to commencing any legal action against the City, Contractor must either mediate the dispute, at the City's election, or obtain a written waiver from the City of its right to mediate.

### **GC-57.2 Arbitration at the City's Election**

At the Owner's sole election, any Claim arising out of or related to the Agreement shall be subject either to binding arbitration or litigation at the City's option. Prior to arbitration or litigation, the parties shall endeavor to resolve Claims or disputes in accordance with the terms of this Contract.

#### **GC-57.2.1**

If Claims are not resolved by negotiation, mediation, or otherwise, and the Owner elects arbitration, the arbitration shall be held in Atlanta, Georgia and shall be in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently then in effect or such other similar rules and organization as the Owner may elect. The demand for arbitration shall be in writing and filed with the appropriate organization selected by the Owner and shall be served on the other party to the Contract. The agreement to arbitrate shall be specifically enforceable under applicable law in any court having jurisdiction thereof. In any arbitration or litigation, the arbitrators or the Court shall have the jurisdiction to award the City costs, arbitrator fees, expert fees, and attorneys' fees, and the arbitrators or the Court shall award all such fees to the City if it is the prevailing party.

#### **GC-57.2.2**

Except at Owner's sole discretion and with its consent, no arbitration arising out of or relating to the Agreement shall include, by consolidation or joinder or in any other manner, any other person or entity, including but not limited to the Designer and its employees and consultants, any of Contractor's subcontractors and suppliers, and any other separate contractors or suppliers. The Owner's consent or election to allow consolidation or joinder or shall not constitute consent to arbitration of any claim not subject to arbitration pursuant to this Contract.

### GC-57.2.3

Any award rendered by an arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

### GC-57.3 Litigation If Arbitration Not Elected

If the Owner does not elect arbitration, any Claims shall be resolved in Fulton County, Georgia Superior Court. Contractor hereby submits to jurisdiction and venue in Fulton County, Georgia, and waives all defenses based on a lack of jurisdiction and/or venue. Contractor acknowledges that this Agreement was negotiated, at least in part, in Fulton County, Georgia. In any arbitration or litigation, the arbitrators or the Court shall have the jurisdiction to award the City costs, arbitrator fees, expert fees, and attorneys' fees, and the arbitrators or the Court shall award all such fees to the City if it is the prevailing party.

## **GC-58 AGREEMENT ADMINISTRATION DOCUMENTS**

A substantial number of documents will be required for the administration of the Agreement. Some of these documents are identified in this document and elsewhere in the Agreement Documents (such as the Payment and Performance Bond forms) and others may not be. The Engineer shall have full power and authority to designate and prepare the documents to be used and Contractor and all Subcontractors and Material Suppliers shall utilize the documents so prepared and provided to them by the Engineer and shall follow the instructions of the Engineer with respect thereto in all regards save and excepting only those documents, if any, which Contractor reasonably determines contain terms or requirements contrary to or in addition to and not reasonably inferable from the terms of the Agreement Documents. If Contractor believes that any form or other document provided by the Engineer under the authority of this Section is subject to rejection by Contractor under the terms hereof, it shall notify the Engineer thereof within ten (10) days following its first receipt of the particular document or form giving specific reasons why the document or form is entitled to rejection. Thereafter, the form or document will be withdrawn, amended, or utilized as the Engineer finds in good faith to be appropriate after reviewing the notice provided by Contractor. All agreement administration documents may be revised at any time by the Engineer.

## **GC-59 MISCELLANEOUS PROVISIONS**

### GC-59.1 Governing Law

The Agreement shall be governed by the law of the State of Georgia.

### GC-59.2 Contingent Assignment

Effective as of any termination of the Agreement, Contractor hereby assigns to City all of Contractor's interest in those subcontracts and purchase orders entered into by Contractor prior to termination if the City specifically requests such an assignment by Written Notice. All Subcontractors and Purchase Orders shall provide that they are freely assignable by Contractor to the City and its assigns. City shall be at liberty to negotiate with and engage (for itself) any Subcontractors, Suppliers, or others that Contractor dealt with prior to termination.

### GC-59.3 Rights and Remedies

#### GC-59.3.1

The duties and obligations imposed by the Agreement Documents and the rights and remedies available thereunder shall be in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

#### GC-59.3.2

No action or failure to act or to require in any one or more instances upon the strict performance of any one or more of the provisions of the Agreement Documents, or to exercise any right herein contained or provided by law by the City or the Engineer, shall constitute a waiver of any right or duty afforded any of them under the Agreement Documents, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach hereunder, nor shall it be construed as a waiver of the right to subsequently demand strict performance or exercise such rights, and the rights shall continue unchanged and remain in full force and effect, except as may be specifically agreed in writing.

#### GC-59.3.3

Contractor agrees that it can be adequately compensated by money damages for any breach of this Agreement which may be committed by the City and hereby agrees that no default, act, or omission of the City, or the Engineer, shall constitute a material breach of the Agreement entitling Contractor to cancel or rescind the provisions of this Agreement or (unless the City shall so consent or direct in writing) to suspend or abandon performance of all or any part of the Work. Contractor hereby waives any and all rights and remedies to which it may otherwise be or become entitled, save only its right to money damages.

#### GC-59.4 Unenforceability of any Article

If any Article or term of the Agreement Documents is held as a matter of law to be unenforceable or unconscionable, the remainder of the Agreement shall be enforceable without such clause or term, and only the narrowest possible portion of the clause or term that is allowed by law shall be unenforceable.

#### GC-59.5 Obligation to Perform

Contractor shall carry on the Work and adhere to the approved current CPM Schedule during and notwithstanding all disputes or disagreements with City. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as Contractor and City may otherwise agree in writing.

#### GC-59.6 Labor Relations

Work on the Project may be performed by both union and nonunion separate contractors, Subcontractors, Suppliers, and other entities and persons. In the event of any strike, picket, sympathy strike, work stoppage, or other form of labor dispute at the Project whether directed at Contractor, other separate contractors, Subcontractors, Suppliers or other persons, Contractor shall continue to perform its Work required hereby without interruption or delay. In the event Contractor fails to continue its Work without interruption or delay, because of any or such events, the City, in addition to all other rights it has in the Agreement Documents and at law, may terminate the Agreement after giving Contractor forty-eight (48) hours written notice of its intent to do so for reason of Contractor's failure to perform. Additionally, if Contractor is party to one or more labor agreement, Contractor shall take all reasonable action to avoid any Work stoppage, and in the event of a work stoppage, Contractor shall within twenty-four (24) hours take all legal action permitted by such labor agreements or by law in order to expedite resumption of Work on this Project.

#### GC-59.7 Covenant Not to Sue

Should the City elect to terminate the employment of Contractor for default as provided herein, then Contractor covenants that it will not file any suit or proceeding of any kind against the City by reason thereof until the City shall have either abandoned the Project or completed the Work as defined under the Agreement Documents. If Contractor should breach this "Covenant Not To Sue," then Contractor shall be liable to the City for all costs resulting to the City therefrom, including, without limitation, all attorneys' fees expended by the City in defending said suit or proceeding, unless a positive determination is made therein that Contractor's termination by the City was motivated by fraud and bad faith and was without justification of any kind.

#### GC-59.8 Publicity and Advertising

The Contractor will not make any announcement, take any photographs, or release any information concerning the Work, this Contract, or the Project to any member of the public, press, business entity, or any official body, unless prior written consent is obtained from the City's Representative. The Contractor may not erect any signs without the written approval of the City's Representative.

### **GC-60 STATEMENT OF NON-DISCRIMINATION**

During the performance of this Agreement, Contractor agrees to comply with all provisions of Part 2, Chapter 2, Article X, Division 11, including Section 2-1414 of the Code of Ordinances, City of Atlanta, as may be hereafter amended.

### **GC-61 EQUAL BUSINESS OPPORTUNITY (EBO)**

During the performance of this Agreement, Contractor agrees to comply with all provisions of Part 2, Chapter 2, Article X, Division 11, including Section 2-1441 through 2-1460 of the Code of Ordinances of the City of Atlanta, the Equal Business Opportunity ("EBO") Program as may be hereafter amended.

### **GC-62 WAGE RATES AND REPORTING PROCEDURES**

#### **GC-62.1 Certified Payrolls**

Contractor shall maintain accurate payroll records and be prepared to submit certified copies for the prime contractor and all subcontractors. Payrolls reporting an employee for the first time must contain the complete name, address, and social security of the employee.

#### **GC-62.2 Submittals**

All required payrolls shall be submitted to the Office of Contract Compliance. Any questions concerning these submittals can be addressed:

Office of Contract Compliance  
55 Trinity Avenue, Suite 1700  
Atlanta, Georgia 30303  
(404) 330-6010

#### **GC-62.3 [Intentionally Omitted]**

## SPECIAL CONDITIONS

### SC-1 PRECONSTRUCTION VIDEO SURVEY AND INSPECTIONS

Contractor is expressly advised that the protection of buildings, structures, equipment, electrical systems, instrumentation and related work adjacent and in the vicinity of its operations, wherever they may be, is solely its responsibility. Conditional inspection of buildings, structures, equipment, electrical systems and instrumentation shall be performed by and be the responsibility of the Contractor.

Repairs or replacement of all conditions disturbed by the construction shall be made to the satisfaction of the Engineer. This does not preclude conforming to the requirements of the insurance underwriters. Two (2) copies of surveys, photographs, videos, reports, etc., shall be given to the Engineer.

The Contractor shall retain an independent Consultant, specializing in preconstruction surveys, to conduct the required inspections. The preconstruction survey will be performed by a firm specializing in performing such surveys. The qualifications and experience of the proposed consultant shall be submitted to the Engineer for approval prior to assignment of the Services.

Perform a preconstruction video survey and inspection in advance of construction to document the existing condition of buildings, facilities, structures, utilities, roads, driveways and related work.

The video surveys and inspections shall clearly document the existing conditions and be completed before any operations have begun and subject areas disturbed by any construction activities. The video surveys and inspection notes, reports, etc. shall be submitted to the Engineer. The video surveys and inspections shall make an examination of the interior and exterior of buildings, structures, facilities and utilities, and record by notes, measurements, photographs, videos, etc., conditions which might be aggravated by construction activities. Prior to any type of blasting, video surveys and inspections of residences and other private structures existing within the survey and inspection corridor shall have been completed.

The cost of all pre-construction video surveys and inspections shall be borne by the Contractor.

### SC-2 RIGHT OF WAY AND CONSTRUCTION ACCESS

The City will furnish all rights of way for the performance of Services included in this Agreement. Areas designated on the Agreement Drawings as the Contractor's Work Area will be provided to the Contractor for the duration of construction, without charge. The Contractor will be responsible for observing the limits of the right-of-way and shall prohibit any Services being done on or any damage to property outside the bounds of the right-of-way. Additional work and storage space, if required, shall be obtained by the Contractor at no additional costs to the City.



### SC-3 SAFETY AND HEALTH

The Contractor shall comply with all applicable health and safety standards and provisions required by the City of Atlanta, Fulton County, State of Georgia, and the Federal Government and its regulatory agencies. The Contractor shall maintain an accurate record of all cases of death, occupational diseases, and injury requiring medical attention or causing loss of time from work arising out of and in the course of employment on work under the Contract. This project involves work in and around operating combined and sanitary sewer systems. In these areas as well as in shafts and tunnels, the potential exists for toxic and/or explosive gases. The Contractor shall exercise caution when entering any confined space. The atmosphere shall be tested for oxygen levels, presence of chemicals, and explosivity before entry. Contractor alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods, and for any damage, which may result from their failure or their improper construction, maintenance, or operation.

- A. Emergency phone numbers (fire, medical, police) shall be posted at the Contractor's phone and its location known to all.
- B. Accidents shall be reported immediately to the Engineer by messenger or phone.
- C. All accidents shall be documented and a fully detailed written report submitted to the Engineer after each accident.

### SC-4 LAYOUT OF THE WORK AND SURVEYING

#### SC-4.1 General

- A. The Services required include providing field engineering services, which includes establishing and maintaining survey control points and baselines as necessary to control the alignment (vertical and horizontal) and all parts of the Services within the specified tolerances, and documentation of the results.
- B. The Contractor shall be responsible for the development and implementation of a surveying program capable of satisfying all Project survey and accuracy requirements. This program shall be subject to the review of the Engineer before commencement of the work. The review shall in no way release the Contractor of liabilities associated with or dependent on this part of the Services.
- C. Control datum for the survey has been established by the Engineer and is indicated on the Drawings.

#### SC-4.2 Quality Control

- A. Planning and execution of the field engineering services shall be supervised by engineers or land surveyors registered in the State of Georgia and shall be conducted by personnel with documented experience in the specific types of work required.
- B. The allowable combined errors of land surveys shall be compatible with excavation, and pipe placement tolerances.

#### SC-4.3 Submittals Related to Contractor's Field Engineering Services

- A. Submit qualifications of land surveyor supervisor(s) with detailed references made to projects requiring application of similar surveying procedures and techniques including name, address, and telephone number to the Engineer for review prior to commencement of any survey work.

- B. Submit detailed description of proposed survey method, network diagrams and equipment type, accompanied with manufacturer's literature specifying probable accessories, calibration procedures, requirements and frequencies.
- C. Submit shop drawings showing survey monument materials and methods of installation, preservation and recovery.
- D. Submit mathematical pre-analysis to demonstrate that the required accuracies can be achieved using the proposed methods.
- E. Submit, upon request, a complete and accurate log of control and survey work including documentation verifying accuracy of survey work as it progresses, and upon completion of the Work. Documentation shall include, but not be limited to, survey field books, sketches, drawings and layouts.

SC-4.4 General Requirements Related to Contractor's Field Engineering Services

- A. The Engineer has established basic survey control points as shown on the Drawings. The Contractor shall examine and verify locations of survey control points, and shall notify the Engineer of any discrepancies discovered, within forty-eight (48) hours of discovery and before starting the Services.
- B. Establish, verify and maintain a minimum of **three (3)** additional survey monuments for the work.. The monuments shall be permanent on site and referenced to the established survey control points. Record locations, with horizontal and vertical data, on Project Record Documents. Monuments will also be checked and verified by the construction verification surveyor. Survey notes relating to the monuments and primary control points shall be submitted to the Engineer.
- C. At all times, protect, preserve and maintain survey control points used for the Services. Report to the Engineer the loss, destruction or relocation of any survey control point and replace survey control points based on original survey control. Make no changes without prior written notice to the Engineer.
- D. Use equipment and implementation techniques such as forced centering techniques at survey control points as necessary to achieve required accuracies.
- E. Furnish information to adjust, move or relocate existing structures, utility poles, lines, services or other appurtenances located in, or affected by, construction. Through the Engineer, coordinate with local authorities having jurisdiction.
- F. Establish elevations, lines and levels. Locate and layout by instrumentation and similar appropriate means:
  - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes and invert elevations.
  - 2. Grid or axis for structures.
  - 3. Foundation and wall locations, sloping floor elevations, and embedment centerlines and elevations.

- G. Where the dimensions and locations of existing structures are of critical importance in the installation or connection of any part of the work, verify such dimensions and locations in the field before the fabrication of any material or embedment, which is dependent on the correctness of such information.

#### SC-4.5 Calibration and Data Processing

- A. Calibrate all procedures and instruments as required and as recommended by the instrument manufacturer. Maintain a log showing date and type of calibration performed indicating the name of the individual performing the calibration.
- B. Data reduction shall incorporate calibrations and meteorological corrections, and rigorous reduction of measurements to the ellipsoid and thence to the coordinate system. Correct distance measurements by electro-optical distance measurement instrument for scale, cyclic error, zero error, and meteorological effects. Correct azimuths using the Laplace correction and include the effect of the deflection of the vertical components on angles and azimuth measurements.
- C. Data processing shall include, as required, rigorous least squares adjustments. Employ data outlier detection. Determine horizontal and vertical confidence intervals.

#### SC-5 DISPOSAL OF WASTE MATERIAL

The disposal of all excavated material or spoil not required for use in the permanent work shall be the responsibility of the Contractor. He shall remove all excess excavated material or spoil from the site of the Work and dispose of the same in a legal manner at no additional cost to the City. Burning of debris on site will not be allowed.

#### SC-6 REMOVAL OF CONDEMNED MATERIAL

Material on the site, which has been determined by the Engineer to be unsuitable or not in conformity with the Contract documents shall be removed from the vicinity of the work without delay and disposed of in an approved area.

If the Contractor fails to do so within forty-eight (48) hours after the receipt of notice, the condemned materials may be removed by the City and the cost of said removal shall be borne by the Contractor.

#### SC-7 DETECTION OF MOVEMENT

In order to detect any movement of buildings or structures that may be affected by his work, Contractor shall, prior to excavation, establish a system of vertical and horizontal control points on or about such buildings or structures, tied to bench marks and indices sufficiently remote to not be moved by his operations. A plan of this system shall be submitted to the Engineer for review. Reading shall be taken of these points and permanently recorded prior to the start of excavation. The City will not assume any responsibility for alleged damages to any building or structure arising from the Services performed under this Agreement.

## SC-8 EXISTING UTILITIES

### SC-8.1 Verification of the Location of the Existing Utilities

Representations of existing utilities, facilities, and structures in the Contract Documents are based upon the best available information. The City and the Engineer will not be responsible for the completeness or accuracy thereof nor for any deductions, interpretations, or conclusions drawn therefrom. The Contractor shall verify to his own satisfaction by test pit or other means, the actual location of existing utilities prior to construction in their vicinity.

- A. Should the Contractor in the course of his operations encounter any underground utilities the presence of which was not previously known, or a different type than shown, he shall immediately notify the Engineer and take all necessary precautions to protect the utility and maintain continuance of service until said utilities can be adjusted by the appropriate owners.
- B. Contractor will notify all public utility corporations, jurisdictional agencies, or other owners to make all necessary adjustments to public utility fixtures and appurtenances within or adjacent to the limits of construction. Delays and additional cost resulting from a failure of the Contractor to notify the utility or to provide adequate notice to the utility shall be at no additional cost to the City, when such facilities are indicated in the Agreement Documents, and in such case, no extension of time will be granted for delays caused by utility adjustments.
- C. Damage caused to utilities either directly or indirectly by the Contractor shall be repaired and the facilities restored to their original condition to the satisfaction of the Engineer and the utility owner, at no additional cost to the City.

### SC-8.2 Work in Vicinity of Existing Utilities

At least three (3) working days prior to starting work in the vicinity of utility structures and appurtenances, Contractor shall notify Engineer and appropriate utility companies and jurisdictional agencies. Contractor shall support and protect all utility structures and appurtenances in accordance with the requirements of the Agreement Documents and the utility companies, and shall take any other steps necessary to protect the structures from disturbance or damage.

A substitute City of Atlanta Ordinance adopted March 13, 1978 requires Contractors to contact each gas company maintaining underground gas pipes or facilities within the city limits prior to the start of excavation work by blasting or mechanized excavating equipment.

### SC-8.3 Access to Utilities Facilities

The Contractor shall at all times permit free and clear access to the various affected facilities by personnel of the utility owners or operators who are working within the limits of work for the purpose of inspection, maintenance, or providing additional service requirements, and the construction of new facilities. When personnel of the utility owners or operators are working within the limits of work to be performed by Contractor, the Contractor will not be relieved of his responsibility for the maintenance and protection of such facilities.

## SC-9 WORK IN FLOOD PLAIN AREAS

The Contractor shall comply with all regulations of Section 16-26006 of the Zoning Ordinance of the City of Atlanta concerning work in Flood Hazard Districts, and Fulton County Zoning Resolutions regarding Flood Protection.

## SC-10 MAINTENANCE OF TRAFFIC

Contractor shall provide, erect, maintain, and finally remove all barricades, danger warning and detour signs necessary to properly protect and divert traffic. All barricades and signs, including detour signs, shall be illuminated at night or when visibility is reduced. The Contractor will be held responsible for all damage to the Services due to failure of the signs and barricades to properly protect the Services from traffic, pedestrians, animals, and from all other sources, and whenever evidence of any such traffic is found upon the Services the Engineer will order that the Work, if in his opinion it is damaged, be immediately removed and replaced by the Contractor at no additional cost to the City. The devices used will be in accordance with the manual of Uniform Traffic Control Devices for Streets and Highways compiled by the State Department of Transportation. Access to City streets and roads will be limited and will require the use of flagmen or the installation of traffic control signals, or both. The City must approve haul routes.

A City of Atlanta Substitute Ordinance adopted March 13, 1978 requires that Contractors obtain a permit for work involving blockage of a public street. Open pits, trenches, unpaved streets, debris, or other obstructions due to construction that will prevent the normal flow of traffic during an extended construction stoppage for any reason, will not be permitted. In the event an extended construction stoppage is found to be necessary, Contractor shall, at his own expense, provide normal traffic flow during extended construction stoppage. Extended stoppage will be defined by the City.

## SC-11 ENVIRONMENTAL PROTECTION

### SC-11.1 General

Contractor shall conduct his operation in a manner to prevent pollution of the environment surrounding the area of work by every means possible and shall be responsible for furnishing all necessary items for fulfilling the work described herein.

### SC-11.2 Material Transport

Contractor shall comply with Section 11-2021 of the Code of Ordinances of the City of Atlanta pertaining to the duties of the Contractor in hauling material over City owned rights-of-way. This includes but is not limited to, approval of proposed haul routes, prevention of dropping of materials or debris on the streets from trucks arriving and leaving the site, providing a suitable vehicle inspection and cleaning installation with permanent crew, and the removal of any material spilled in public areas at no additional cost to the local government agency.

### SC-11.3 Waste Materials

No waste or erosion materials shall be allowed to enter natural or manmade water or sewage removal systems. Erosion materials from excavations, borrow areas, or stockpiled fill shall be contained within the work area. Contractor shall develop methods for control of waste and erosion, which shall include such means as filtration, settlement, and manual removal to satisfy the above requirements.

SC-11.4 Burning

No burning of waste shall be allowed.

SC-11.5: Dust Control

The Contractor shall at all times control the generation of dust by his operations. Control of dust shall be accomplished by water sprinkling or by other methods approved by the Engineer.

SC-11.6 Noise Control

The Contractor shall take every action possible to minimize the noise caused by his operation.

When required by agencies having jurisdiction, noise-producing work shall be performed in less sensitive hours of the day or week as directed by the Engineer.

The Contractor shall provide equipment that operates with the least possible noise. The use of noisy equipment is prohibited. Hoists and compressor plants shall be electrically operated unless otherwise permitted. The air intake of compressors shall be equipped with silencers, and machinery operated by gearing shall be provided with a type of gearing designed to reduce noise to a minimum. Internal combustion engines shall be equipped with mufflers in good order.

Noise generated by mobile construction equipment, stationary construction equipment, and other equipment involved in the construction of the work shall not exceed the decibel levels indicated below. Noise generated by mobile and stationary construction equipment will be measured three to 6 feet from building lines, and on the A weighing network of Type-2 general purpose sound level meter set at fast response.

	Combined Residential and Commercial
Allowable Sound Levels of Mobile Construction Equipment: - From 7 a.m. to 10 p.m., Monday thru Saturday, Except Legal Holidays - At times other than those listed above	85 dBA 70 dBA
Allowable Sound Levels of Stationary Construction Equipment: - From 7 a.m. to 10 p.m., Monday thru Saturday, Except Legal Holidays - At times other than those noted above	70 dBA 60 dBA

Contractor shall assure compliance by measuring noise levels as may be required.

SC-11.7 Use of Chemicals

All Chemicals used during construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either EPA or FDA. Use of all such chemicals and disposal of residues shall be in conformance with instructions.

#### SC-11.8 By-Passing During Construction

No wastewater shall be by-passed at sewage collection or treatment facilities during project construction unless a by-passing schedule has been approved by City and the Georgia Environmental Protection Division. It shall be the responsibility of the Contractor to prepare and secure the approval of any by-passing not specifically identified in the Agreement Documents.

#### SC-11.9 Responsibility for Spills and Accidental Discharges

In the event that the Contractor causes or has a spill or accidental discharge for which the City is fined by the State of Georgia EPD, the Contractor agrees to remediate the spill or discharge immediately in accordance with current EPD regulations and to pay any fines assessed against the City and/or Contractor, and pay for the City's cost associated with efforts to remediate the situation.

#### SC-12 RIGHT TO OPERATE

As soon as any portion of structures and equipment are ready for use, the City shall have the right to operate such portion upon written notice to the Contractor by the City. The City shall also issue a certificate of completion for that portion of the work. Guarantee period on that portion of Service will begin upon issuance of certificate of completion for that portion.

Testing of equipment and appurtenance and training of City's personnel as specified hereinunder shall not constitute operation.

The execution of the bonds shall constitute the consent of the surety.

The Contractor shall provide an endorsement to his insurance permitting occupancy of the structures and use of equipment during the remaining period of construction.

#### SC-13 LIST OF MATERIALS, FIXTURES AND EQUIPMENT

- A. Within thirty (30) days after issuance of the Notice to Proceed, before any materials, fixtures or equipment are purchased, and prior to start of construction, the Contractor shall submit for approval by the Engineer the names and addresses of the manufacturers, and their catalog numbers and trade names for all materials, equipment and fixtures listed under the following Sections of the Agreement Documents:

Divisions 2, 3, 5, 7, 8, 9, 11, 12, 13, 15 and 16

The Contractor shall furnish other detailed information when so directed, under the various items. No consideration will be given to partial lists submitted from time to time except that approval of long delivery items of equipment may be requested individually. Items which are not in accordance with the Specification requirements may be rejected. The Contractor shall furnish a statement giving a complete description of all points wherein the equipment he proposes to furnish does not comply with the Specifications as well as any exceptions he may take to the Specifications. Failure to furnish such statements will be interpreted to mean that the equipment meets all requirements of the Specifications.

- B. In the event the Contractor wishes to resubmit items of materials, fixtures and equipment for review subsequent to obtaining approval as indicated in "A" above, then the

Contractor shall pay the cost of the Engineering review of each such resubmittal including shop drawing review if this review has been performed.

#### SC-14 CITY OF ATLANTA PROJECT SIGN

The basic design of the Project sign shall conform **to Attachment 1 herein** including the names of all current Council Members, the Mayor and the Commissioner, Department of Watershed Management. The City seal portion of the sign must be shaded, such that it is visible from fifty (50) yards. A full color shop drawing submittal is required before fabrication. The Project sign will be no less than 4'-0" x 8'-0" and the City requires a Project sign at the designated entrance to the Project.

In addition to the Project sign, there is to be adequate temporary signage for identifying the Project areas, offices, delivery areas and any other designations the Engineer and/or the Contractor feel are needed. These signs will designate which Phase of the Agreement that they pertain to as part of the Project coordination.

#### SC-15 PROJECT MEETINGS

The Engineer shall schedule weekly progress meetings. The progress meetings will be held at least weekly and may be scheduled at a more frequent interval by the Engineer if necessary. Progress meetings shall be held at a location designated by the Engineer.

Progress meetings shall be attended by the Engineer, Contractor, Subcontractors as appropriate to the agenda, suppliers as appropriate to the agenda and others as required.

The meeting agenda shall generally include review and approval of minutes of previous meeting, review of work progress since previous meeting, field observations, problems, and conflicts, problems which impede Construction Schedule, review of off-site fabrication and delivery schedules, corrective measures and procedures to regain project schedule, revisions to Construction Schedule, progress and schedule of the preceding work period, coordination of schedules, review of submittal schedules and status, status of requests for information, maintenance of quality standards, pending changes and substitutions, and other business.

#### SC-16 CONSTRUCTION SCHEDULE

Timely performance is of the essence on this Project. The Contractor may complete the Project or any part of the Project earlier than is stipulated in the Contract and the Milestone requirements. The Contractor may schedule his work to complete earlier than required by the Contract or stipulated in the approved schedule, however, under no circumstances shall the Contractor be entitled to added compensation for delays, which occur during the originally stipulated contract period.

The City has purchased the entire scheduled time period by virtue of this Contract and further stipulates that only those delays which meet the tests set forth in GC-26 will be considered for adjustment and only to the extent that they delay the work past the originally contractually stipulated milestones.

##### SC-16.1 Procedures

- A. The Work under this Contract shall be planned, scheduled, executed, reported and accomplished using the Precedence Diagramming Critical Path Method (hereinafter referred to as CPM). The work required by this section includes the requirement to



prepare, maintain, and update all detailed schedules as described in this section. The CPM Schedules shall be prepared in such a manner as to permit the orderly planning, organization, and execution of the Work and be sufficiently detailed to accurately depict all the Work required by the Contract. Contractor shall resource (labor, material and equipment) and cost load its Schedule as specified herein.

- B. Contractor hereby agrees that in the process of preparing its baseline schedule and monthly updates, it will consult with all key Subcontractors and suppliers to assure concurrence with the feasibility and achievability of Contractor's planned start dates, sequencing, durations, and completion dates. A copy of the computer input files, XER format shall be submitted on CD-R with each submittal. The procedures, technical details and Contractor's participation and responsibilities shall be as hereinafter described.
- C. Contractor is responsible for determining the sequence of activities, the time estimates for the detailed construction activities and the means, methods, techniques and procedures to be employed. The Schedules identified herein shall represent the Contractor's best judgment of how it will prosecute the Work in compliance with the Contract requirements. Contractor shall ensure that the Schedule is current and accurate and is properly and timely monitored, updated and revised as Project conditions may require and as required by the Contract Documents.
- D. Contractor's construction schedule shall be prepared using the latest version of Primavera Project Planner (P6)for Windows. Any and all costs incurred by the CONTRACTOR in researching, training and/or educating its personnel in CPM and/or P6 (or the utilization of outside consultants) shall be part of the Contractor's bid price and not reimbursed separately by the City
  - 1. The Project Network Schedule Diagram, mathematical analysis, written narrative and monthly updates will be reviewed by either the Engineer or an independent consultant selected by the Engineer. Items will be reviewed for compliance with these Specifications and accurate reporting by the Contractor of work in place, resource loading and work activity durations.
  - 2. Submit to the Engineer an accepted final CPM Construction Schedule and Final Schedule of Values including Allowance Items, allocated to the CPM Schedule activities within 45 days of the Notice to Proceed. Requirements for the final CPM Construction and Final Schedule of Values are further described hereinafter. Contractor's Application for Payment will not be approved until the final CPM Schedule and Schedule of Values have been accepted. The Contract Baseline Schedule submittal shall not show any progress until it is accepted by Engineer

#### SC-16.2 Standards

- A. Definition: CPM, as required by this Section, shall comply with the standards outlined in the Associated General Contractors' publication, "Construction Planning and Scheduling" unless specifically changed by this Section.
- B. CPM Construction Schedule: The Contractor's CPM Construction Schedule shall include a graphic time scaled logic network, computerized tabular reports and resource loading as described below. To be acceptable, the schedule must demonstrate the following:

1. A logical succession of Work from start to finish. This logical succession, when accepted, is the Contractor's work plan and, contrary to normal CPM standards, is designated as early start/early finish solely to accommodate the Primavera software.
2. Clear definition of each activity including cost, manpower, equipment and material quantities as resources. The assigned dollar value (cost loading) of each activity shall cumulatively equal the contract price.
3. Proper interfacing of related activities including submittals, major material and equipment deliveries, procurement, required permits and other constraints such as equipment or manpower/crew availability. Submittal dates must include review periods and permit schedules must include agency review and issue dates. The narrative shall explain the rationale for all constraints, lags and unusual relationships.
4. Agreement with the interim milestones, schedule coordination requirements, and completion dates indicated in the Contract Documents.

C. CPM Graphic Logic Network

1. The CPM graphic logic network or diagram shall be in the form of a time-scaled diagram of the customary precedence diagram and may be divided into a number of separate pages with suitable notation relating the interface points among the pages. Individual pages shall not exceed 34-inch by 44-inch. Notation on each activity line shall include activity descriptions, total float, and durations as a minimum.
2. All construction activities and procurement shall be indicated in a time-scaled format, and a calendar shall be shown on all sheets along the entire sheet length. Each activity shall be plotted so the beginning and completion dates of said activity can be determined graphically by comparison with the calendar scale. A legend shall be included clearly distinguishing between critical and non-critical path activities and progress to date.

D. Duration: The duration indicated for each activity shall be in units of whole working days and shall represent the single best time considering the scope of the Work and resources planned for the activity including time for holidays and inclement weather. The calendar for the network shall be in calendar days. Except for certain non-labor activities, such as submittal preparation and review, curing concrete, delivering and fabrication of materials, or other activities described specifically in the Contract, activity durations shall not exceed 14 Days, be less than one Day, nor exceed \$50,000 in value unless otherwise accepted by the Engineer.

E. For all equipment and materials to be fabricated or supplied for the Project, the Contract Baseline Schedule shall show a sequence of activities including: (a) preparation of shop drawings and sample submissions; (b) thirty (30) calendar days for review of shop drawings and samples (c) shop fabrication, delivery and storage, (d) erection or installation; and, (e) testing of equipment and materials

F. The Interim Schedule and Contract Baseline Schedule shall show dependencies (or relationships) between each activity. Each activity must have a successor and predecessor, except for the Project Start and Finish Milestone. The use of date

constraints shall be limited to Contract Milestones and Contract Completion dates only, unless approved by the Engineer.

- G. Contract Baseline Schedule shall contain or be able to demonstrate that the following items have been addressed: (a) the Project's name; (b) the Contractor's name; (c) revision or edition number; (d) activities of completed work, (e) activities relating to different areas of responsibility, such as subcontracted Work which is distinctly separated from that being done by the Contractor directly; (f) labor resources distinguished by craft or crew requirements; (g) equipment and material resources distinguished by equipment and material requirements; (h) distinct and identifiable subdivisions of work such as structural slabs, beams, columns; (i) locations of work within the contract limit lines that necessitates different times or crews to perform; (j) outage schedules for existing utility services that will be interrupted during the performance of the Work; (k) acquisition and installation of equipment and materials supplied and/or installed by the Owner or its separate contractors; (l) material to be stored on site; (m) Phases; and (n) Interim Milestones and the Contract Completion dates.
- H. Computerized Tabular Reports: Reports shall include the following for each activity depicted in the schedule.
  - 1. Activity ID
  - 2. Activity Description
  - 3. Duration (original and remaining)
  - 4. Early Start Date
  - 5. Early Finish Date
  - 6. Total Float
  - 7. Percent Complete
  - 8. Activity Cost and Resources
  - 9. Actual Start Date
  - 10. Actual Finish Date
- I. Project Information: Each report shall be prefaced with the following summary data.
  - 1. Project Name
  - 2. Contractor
  - 3. Type of Tabulation (Initial or Updated)
  - 4. Project Duration
  - 5. Project Scheduled Completion Date
  - 6. Projected Completion Date
- J. The Contract Baseline Schedule shall include coding (both activity and project coding) to allow additional grouping and sorting means. The Engineer shall provide the coding dictionary. Coding shall include (but shall not be limited to) the following:
  - 1. Area
  - 2. Department
  - 3. Phase
  - 4. CSI Code
  - 5. Responsibility
  - 6. Crew/ Craft

SC-16.3 Acceptance

- A. The finalized CPM Construction Schedule will be acceptable to the Engineer when it provides an orderly progression of the Work from Notice to Proceed to Final Completion in accordance with the Contract requirements, adequately defines the Contractor's Work plan, provides a workable arrangement for processing submittals in accordance with the requirements, and properly allocates resource values for manpower, major materials, equipment and costs to each activity (free of unbalances in resources) as determined by the Engineer. Manpower may be represented as composite crews in the CPM Construction Schedule. The network diagram and tabular reports when accepted by the Engineer shall constitute the CPM Construction Schedule until revised and re-accepted.
- B. When the CPM Construction Schedule has been accepted, the Contractor shall submit to the Engineer:
  - 1. six (6) copies of the CPM graphic logic network,
  - 2. six (6) copies of a computerized, tabular report in which activities have been sequenced by early starting date,
  - 3. two (2) copies of the schedule on CD
  - 4. six (6) copies of the narrative..
- C. The Engineer's review and acceptance of the Contractor's CPM Construction Schedule is for conformance to the requirements of the Contract Documents only. Review and acceptance by the Engineer of the Contractor's CPM Construction Schedule does not relieve the Contractor of any of its responsibility whatsoever for the accuracy or feasibility of the CPM Construction Schedule, or of the Contractor's ability to meet interim milestone dates and the Contract completion date, nor does such review and acceptance expressly or impliedly warrant, acknowledge, or admit the reasonableness of the logic, durations, and resource value loading of the Contractor's CPM Construction Schedule.
- D. The Contractor shall participate in a conference with the Engineer to review the Engineer's comments on the schedule and evaluation of the proposed network diagram, mathematical analysis and monetary value of activities. The intent is to reach a clearer understanding of the CPM and reach consensus on any revisions to be made. Any revisions necessary as a result of this review shall be resubmitted to the Engineer within 10 calendar days after the conference. The accepted schedule shall then be used by the Contractor for planning, organizing and directing the work and for reporting progress. If the Contractor desires to make changes in his method of performing the Work, he shall notify the Engineer in writing stating the reason for the changes and receive written acceptance of the change prior to putting the change into the accepted schedule.

#### SC-16.4 Qualifications

- A. The Contractor shall demonstrate competence in the use of CPM scheduling through the submission of a fully compliant CPM Construction Schedule with the initial CPM submission. In the event the Contractor fails to so demonstrate competence in the CPM scheduling, the Engineer may direct the Contractor to employ the services of a Scheduling Firm that can demonstrate competence. The Contractor shall comply with such directive.
- B. The Contractor shall use the services of scheduler who has verifiable training and credentials in preparing and maintaining a computerized CPM Construction Schedule

using Primavera software as specified herein. The scheduler must qualify within the planning period.

1. Required Experience: Performed CPM scheduling on at least 2 completed construction projects of value at least 75 percent as large as this one and having at least 75 percent as many schedule items as this one. Scheduling of both projects shall have been done using Primavera software (P6 for Windows) or equal.
2. Submit the following:
  - a. Descriptions of at least 2 projects of the value and complexity above.
  - b. Copy of a CPM schedule from one of the previous projects.
  - c. Names and telephone numbers of facility owner representative, design engineer, and construction manager for each project.
  - d. Evidence supporting the above qualifications shall be submitted to the Engineer.

#### SC-16.5 Submittal Requirements

- A. Initial submittal, revisions and monthly updates of the network diagram, mathematical analysis, and written narrative shall be submitted in six hard copies and two data copies on CD. Submittals will not be accepted unless they are complete as described herein.
- B. The Contractor shall submit the following:
  1. A CPM timescaled logic network, computer generated using Primavera Project Planner software (The latest version of P6 for Windows).
  2. Computerized Tabular Reports.
    - a. Activity sort by early start, organized by facility or area.
    - b. Predecessor/successor listing.
    - c. Activity code dictionary.
    - d. Resource code dictionary.
  3. Basis of schedule narrative describing the logic and reasoning of the schedule. The narrative shall summarize the overall approach to construction sequencing, including but not limited to 1) anticipated lost days due to weather. 2) the rationale for all constraints, lags and unusual relationships. 3) the definition of labor and crews. 4) a list and durations for all major pieces of equipment and resources, and 5) work proposed to be performed on a other than single shift 5 day workweek basis
  4. Resource value allocation by activity.
  5. Breakdown of specific cost amount for each component of multi-component activities in the CPM Schedule in spreadsheet format (using Microsoft Excel) showing component unit quantities as well as costs. Such breakdown, when accepted by the Engineer shall constitute the Schedule of Values for the Project.
  6. CD copy of entire schedule, narrative and spreadsheet.

#### SC-16.6 SCHEDULE ORIENTATION SESSION

- A. Contractor shall, upon notification from the Engineer, attend a Schedule Orientation Session relating to the Schedules and Reports requirements for this Contract. The Schedule Orientation Session is designed to review in detail, the objectives of the Schedules and Reports requirements and the requirements. Contractor shall arrange for its Project Manager, Superintendent, and Scheduler to attend the Schedule Orientation Session.
- B. The following items shall be discussed during the Schedule Orientation Session: (a) The procedures and requirements for the preparation of the Contract Baseline Schedule, and monthly updates by Contractor. (b) how the requirements of the Contract Documents will be monitored and enforced by the Engineer. (c) long-lead items and time requirements for the Work by Subcontractors will be identified and included in the Contract Baseline Schedule. (d) testing and startup. (e) coding and logic for the Contract Baseline Schedule, and (f) identification and scheduling of shop drawings and other submittals.

#### SC-16.7 Schedule of Values

##### A. Submittals

- 1. Contractor shall allocate a dollar value for each activity on the Contract Baseline Schedule. The dollar value for the activity shall be the cost of the Work including labor, materials and equipment. Allowances shall be loaded on activities specifically included for this purpose. No activity on the Contract Baseline Schedule shall exceed a value of \$50,000, unless approved by the Engineer. The sum of all activity costs shall equal the Contract Price. Contractor shall revise the resource and value loading as necessary to gain the acceptance of the Engineer
- 2. The Final Schedule of Values shall incorporate all comments associated with the Contractor's Schedule/Schedule of Values submittals.
- 3. Submit documentation to support the values with data, which will substantiate their correctness, as requested by the Engineer.
- 4. The Schedule of Values, when accepted by the Engineer, shall be used as the only basis for the Contractor's Applications for Payment. The total price paid for mobilization shall be as approved by the Engineer, but in no case shall it exceed two per-cent (2%) of the total bid amount and shall be substantiated with invoices and other backup documentation.
- 5. The Schedule of Values shall be derived from the assigned Progress Schedule Activity Values and identified by Activity ID.

##### B. Form and Content of Schedule of Values

- 1. Identify the Schedule of Values submittal with:
  - a. Title of Contract and location.
  - b. Contract Number.
  - c. Name and address of Contractor.
  - d. Date of submission.

2. The Contractor's Schedule of Values shall list the installed value of the component parts of the Work in sufficient detail to serve as the basis for computing values for progress payments during construction.
3. Identify accounts with the location code and area code as defined in the Primavera Schedule format and list the number and title of the respective major Section of the Specifications.
4. All accounts in the Schedule of Values shall be derived from the activities in the Progress Schedule. Account data pertaining to the Schedule of Values shall, at a minimum, include the following for each Account:
  - a. CPM Activity number.
  - b. City of Atlanta Standard Code listed on the Bid Schedule.
  - c. Account representative quantities (cubic yards of concrete, tons of steel, etc.), unit costs, person-hours, item and account dollar value.
  - d. WBS code (as used Primavera Project Planner scheduling software), including location, responsibility and area codes.
  - e. CSI Specification Section Number.
  - f. Account Type: Lump Sum (LS), Unit Price (UP), Allowance (AL), or Change Order (CO )
- b. The Schedule of Values must be developed separately from the baseline schedule in a tabular electronic format (i.e. a Microsoft Excel Spreadsheet). Upon approval of the Schedule of Values and the Project Baseline Schedule, the Schedule of Values will be merged with the Project Baseline Schedule in P6.

C. Lump Sum Accounts (LS):

1. The Lump Sum Items established in the Contractor's Bid shall be further divided into pay and progress items by the Contractor and submitted to the Engineer for approval, and as specified in Paragraph E.1 above. Payment for Lump Sum (LS) Accounts will be based upon physical progress (percent complete) for each related activity in the Progress Schedule.
2. The dollar value allocated to Lump Sum Accounts shall be representative of the Contractor's actual costs for performing the work including overhead and profit, and shall be balanced to ensure that sufficient funds are allocated for each portion of the work and shall be subject to acceptance by the Engineer.
3. In the event account values can not be agreed to between the Engineer and the Contractor, the Engineer shall have the exclusive right to determine the account dollar amounts contained in the Schedule of Values.
4. Mobilization costs shall be specifically identified in the Schedule of Values. All mobilization sub-accounts contained in the Schedule of Values must have a corresponding CPM Schedule activity. Payments for mobilization sub-accounts will be based upon lump sum (LS) values as accepted by the Engineer.

- G. Unit Price Accounts (UP): Payment for Unit Price Accounts shall be based upon actual quantities of Work performed in compliance with the Contract Documents, as verified and accepted by the Engineer. Whenever the actual quantity differs from the estimated quantity on the Unit Price Accounts, the Contractor shall notify the Engineer in writing. Quantity overruns and under runs will be tracked on the Schedule of Values.

- H. Allowance Accounts (AL): Payment for Allowance Accounts will be based upon invoices submitted by the Contractor subject to conditions and limitations of the Contract Documents. Refer to Section 01200, Measurement and Payment, for requirements. The Allowance shall be adjusted to the actual amount paid for such services, and adjusted by Change Order either at the end of that phase of the Work or at the completion of the Work. The City will have sole discretion on determining when to make adjustments to the Allowance.
- I. Cost of materials shall be assigned to the appropriate item of work, and allocated to a materials Sub-account. All materials items contained in the Schedule of Values must have a corresponding CPM Schedule activity, for various portions of the Work:
  - 1. Except for Allowance Accounts identified in Section 01200, each account shall include a directly proportional amount of the Contractor's overhead and profit.
  - 2. For accounts on which progress payments will be requested for materials suitably stored on site, break down the value into:
    - a. The cost of each material delivered and unloaded.
    - b. Paid invoices will be required for materials.
- J. The Contractor shall include in his Schedule of Values items for site maintenance, and compliance with the terms of permit stipulations, as appropriate. These items will be monitored on a monthly basis. Non-compliance will result in monies being deducted from the appropriate items.
- K. A new account will be added to the Schedule of Values for approved Change Order work. Payment for Time and Expense Change Order work (CO) shall be based upon the General and Supplementary Conditions of these Specifications.
- L. The sum of all Account Values listed in the Schedule of Values shall equal the total Contract Price, excluding Allowance Items.

#### 16.7.1 Sub-Accounts

- A. Include a breakdown of major accounts into sub-accounts on which progress payments will be requested. The sub-account breakdown shall include elements for pay items/progress items as appropriate, and show the weight of each sub-account; e.g., fabrication, installation, etc., with the total weight of the sub-accounts equal to 100 percent of the major account.
- B. The form of the submittal shall be consistent with the Schedule of Values, with each account identified the same as the line item in the Schedule of Values.
- C. The Contractor's Schedule of Values shall list the delivered value of the products, manuals and services provided under the various Specification Sections. The lists shall be sufficiently detailed to serve as a basis for computing values for progress payments during the construction period.
- D. The unit quantity for bulk materials shall include an allowance for waste.
- E. The unit values for the materials shall be broken down into:



1. Cost of the material delivered and unloaded at the site.
  2. Copies of paid invoices for component material shall be included with the payment request in which the material first appears.
- F. The installed unit value multiplied by the quantity listed shall equal the cost of that account in the Schedule of Values.
- G. Quantities and unit values identified in the Component Materials sub-accounts shall be used for determining progress payments only, and are not considered to be unit price pay items.

#### SC-16.8 Monthly Application for Payment

- A. Monthly Application for Payment: Contractor shall provide monthly Schedule Update, monthly Payment Report and monthly Narrative Report as his monthly Application for Payment package. Failure to submit all of the aforementioned submittals will result in the cessation of the pay application process until all documents are received.
- B. Monthly Schedule Update: The Contractor shall submit, at intervals of 30 calendar days, an update of all activities in the as-planned CPM schedule. The Period-Ending Date shall be the 25<sup>th</sup> of each month. Update shall be created by updating the mathematical analysis and the corresponding computerized network diagram of the Schedule.
1. The schedule shall be updated by entering the following: Actual start and completion dates of completed activities and the actual start date and remaining duration of activities in progress.
  2. The updated network diagram shall be submitted in the same format as noted in Specification Section SC-16.1, with the calendar starting from the date of the update.
  3. The updated mathematical analysis shall be submitted in the same format noted in Specification Section SC-16.1.
  4. The schedule update shall include an update of the cash flow projections in the same format as the original approved submittal.
  5. The schedule update will state the percentage of the work actually completed and scheduled as of the report date.
- C. The Monthly Payment Report shall show the activities or portions of activities completed during the reporting period, their total monetary values and the monetary values earned as a basis for the Contractor's Application for Payment. A mutually agreed upon percent complete will be assigned to each completed and partially completed activity to be used for calculating the monetary value earned to date. For activities underway, the percent complete shall not be related to the remaining duration.
- D. A monthly narrative report shall be submitted including, but not limited to the following:
1. Description of work accomplished.

2. Summary of safety and quality issues occurring during the month and corrective actions taken.
  3. Contractor evaluation of actual progress versus progress planned.
  4. If the project is behind schedule, progress along all paths with negative float shall be reported along with the reasons for the delay.
  5. A description of all revisions made to the schedule including: all accepted added, deleted, and revised activities; all logic revisions; and all duration revisions.
  6. A description of the problem areas, current and anticipated delaying factors and their impact, and an explanation of corrective actions taken or proposed.
- E. If the Contractor fails to submit any of the required components of the Application for Payment, the Engineer will withhold approval of the Application for Payment until such time as the Contractor submits the required components.

#### SC-16.9 Progress Meetings and Look-Ahead Schedules

- A. For the weekly progress meetings, the Contractor shall submit a four week Look-Ahead Schedule. This schedule will cover four weeks: the immediate past week, the current week, and the forthcoming two weeks. This schedule will include all activities which are complete, started, are incomplete or underway, or scheduled to be worked during this four week time frame. This schedule shall list all activities from the accepted CPM Construction Schedule which are complete, are scheduled for Work during the period, are currently planned to be worked, even if out of sequence, and Work which is unfinished but scheduled to be finished. Actual start and completion dates shall be provided for the Work that has been completed the prior week; forecast start and finish dates shall be provided for the Work that is in-process or upcoming.
- B. Each activity noted above shall be identified by activity number corresponding to the accepted CPM Construction Schedule and detailed description of the activity.
- C. The Look-Ahead Schedule shall be delivered to the Engineer twenty-four (24) hours prior to the weekly progress meeting.
- D. The Look-Ahead Schedule shall be in a format approved by the Engineer.
- E. Tabular reports for manpower and equipment resources shall be provided for and with each Look-Ahead Schedule.

#### SC-16.10 CPM Construction Schedule Revisions

- A. The Engineer may direct and, if so directed, the Contractor shall propose, revisions to the CPM Construction Schedule upon occurrence of any of the following instances:
  1. The actual physical progress of the Work falls more than five percent (5%) behind the accepted CPM Construction Schedule, as demonstrated by comparison to the accepted monthly CPM Construction Schedule updates or as determined by the Engineer if a current accepted CPM Construction Schedule does not exist.

2. The Engineer considers milestone or completion dates to be in jeopardy because of “activities behind schedule”. “Activities behind schedule” are all activities that have not or cannot be started or completed by the dates shown in the CPM Construction Schedule, regardless of the existence of positive float on the activity.
  3. A Change Order has been issued that changes, adds, or deletes scheduled activities or affects the time for completion of scheduled activities.
- B. When the instances requiring revision to the CPM Construction Schedule occur, the Contractor shall submit the proposed revised CPM Construction Schedule within ten (10) working days after receiving direction from the Engineer to provide such Schedule. No additional payment will be made to the Contractor for preparation and submittal of proposed revised CPM Construction Schedules. However, if the Engineer accepts the proposed revised CPM Construction Schedule, it shall replace and supersede all previous CPM Construction Schedules and substitute for the next monthly CPM Construction Schedule update that would otherwise be required.
- C. Revisions to the CPM Construction Schedule shall comply with all of the same requirements applicable to the original schedule.

#### SC-16.11 Schedule Recovery

- A. If a revised CPM Construction Schedule accepted by the Engineer requires the Contractor to employ additional manpower, equipment, hours of work or work shifts, or to accelerate procurement of materials or equipment, or any combination thereof, as schedule recovery measures to meet Contract milestones, the Contractor shall implement such schedule recovery measures without additional charge to the City. All schedules containing negative float shall mandate the submission of a recovery schedule.
- B. Furthermore, if efforts to recover are not deemed effective as determined by the Engineer, or if prior to submittal of the recovery schedule, the Engineer determines that critical milestones are in jeopardy, the Engineer may direct the Contractor to implement the above or any other recovery efforts at no additional costs to the City.

#### SC-16.12 Time Impact Analysis Requirement

- A. When delays are experienced by the Contractor and a time extension is requested, the Contractor shall submit to the Engineer a written Time Impact Analysis illustrating the influence of all changes or all delays on the current Project completion date. The time impact analysis shall be constructed on an As-Built Schedule Analysis approach. The As-Built Schedule that is created will incorporate all actual start and finish dates, actual durations of activities, actual sequences of construction (referred to as the As-Built Logic) current as of the time the Time Impact Analysis is performed. This Time Impact Analysis shall incorporate all delays (including Engineer, Contractor and third party delays without exception) in the time frame that they actually occurred with actual logic ties. The As-Built Schedule data shall be obtained from the most recent approved monthly schedule update. The As-Built Schedule shall be created as an early start schedule with the actual start and finish dates coinciding with the early start and finish dates from the most recent approved monthly schedule update. The As-Built Schedule shall show the original activity durations equal to the actual duration and the actual logic driving all activities. The Engineer will validate this As-Built Schedule. All requests for time extension shall be based upon an analysis of this As-Built Schedule. The critical path will be established and all Engineer -caused delays on the critical path will be

identified. The time extension will be based solely upon the cumulative duration of all City and third party caused delays that are on the critical path. Any time extensions to the project's Interim Milestone Dates, if any, shall be non-compensable time extensions only.

- B. Each Time Impact Analysis shall demonstrate the estimated time impact based on the events of delay, the status of construction at that point in time, and the event time computation of all activities affected by the change or delay. The event times used in the analysis shall be those included in the latest approved update of the project schedule, in effect at the time the change or delay was encountered.

#### SC-17 COOPERATION WITH OTHER CONTRACTORS AND FORCES

During progress of work under this Agreement, it will be necessary for other contractors and persons employed by the City to work in or about the Project. The City reserves the right to put such other contractors to work and to afford such access to the Site of the work to be performed hereunder at such times as the City deems proper. The Contractor shall not impede or interfere with the work for such other contractors engaged in or about the Services and shall so arrange and conduct his work that such other contractors may complete their work at the earliest date possible.

When the Contractor and any contractor or subcontractor performing Services under or pursuant to another City Agreement are employed on related or adjacent work, or are using the same materials source, storage area, or disposal area, the contractor shall be responsible to the other for any injury, damage, or loss caused the other by his operations, by his unnecessary delay or hindrance of the other's work, or by his failure to complete the Services or any portion thereof within the time specified for its completion. The Contractor shall indemnify and save harmless the City and the Engineer, and all officers and employees of the City connected with the Services from all claims, suits, or actions of any nature brought on account of any injury, damage, or loss.

Contractor's responsibilities under the preceding paragraph shall be not greater as to any injury, damage, or loss than those imposed on the Contractor or subcontractor under the comparable provision of this Agreement or subcontract.

The Engineer will decide any disputed questions regarding the performance of the Services, access and cleaning up of the site, and priority in all relations between the Contractor and other contractors in utility companies, and maintenance crews.

The Contractor shall cooperate with all other contractors requiring access to the Services for the purpose of maintenance of security, temporary facilities, cleaning of the site, and like matters requiring common effort.

#### SC-18 EXTENDED SHIFT, WEEKEND AND HOLIDAY WORK

The City observes the following holidays:

New Year's Day, Martin Luther King's Birthday, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day and following Friday, and Christmas Day.

Should the Contractor deem it necessary to work on Saturdays, Sundays, holidays or longer than eight hours (8) per shift in order to comply with his construction schedule, or because of

any emergency, the Contractor shall request permission of the Engineer to do so at least seven (7) calendar days in advance.

## SC-19 PROJECT CLOSEOUT

### SC-19.1 Restoration of Miscellaneous Surface Facilities

Construction operations on the Work may disturb or otherwise damage the surface contours and vegetation of natural and landscaped areas. Restoration of these areas shall be part of the Agreement. Restoration of pavements, trees, and ground vegetation is specified in the Technical Specifications.

### SC-19.2 Pavement Restoration

Contractor shall secure permits from the appropriate jurisdictional Agency for all pavement restoration prepared in accordance with the requirements of the Agreement Documents and the jurisdictional Agency and submit them to the Engineer.

## SC-20 EQUIPMENT SERVICE

The Contractor shall furnish the services of a competent factory representative of the manufacturer of the equipment to be installed, for the purpose of supervising and/or inspecting the installation, placing the equipment in service, and calibrating and adjusting each item of equipment. Qualification of the representative shall be appropriate to the type of equipment furnished and subject to the approval of the Engineer. Where equipment furnished has significant process complexity, engineering personnel knowledgeable in the process involved and the function of the equipment shall be furnished. These services shall be furnished in accordance with the requirements of the Technical Specifications.

When approved by the Engineer, periods of service on more than one item of equipment furnished by the same manufacturer may run concurrently. Each of these manufacturers shall furnish supervisory and/or inspection services for all equipment, which he furnishes.

During the initial operation period, a functional test shall be performed on each piece of equipment. The test shall consist of operation of the equipment on a normal duty cycle for a sufficient period of time to determine satisfactory operation (twenty-four [24] hours minimum). To the maximum extent practical, the full capabilities of all equipment shall be exercised, including remote operation, instrumented control schemes, alternate modes of operation, and emergency operation.

## SC-21 CONCRETE POUR CARD

An approved concrete pour card must be obtained by the Contractor prior to the placement of concrete. The card shall be as provided to the Contractor by the Engineer. The pour card shall be completed by the contractor and approved by the Engineer before concrete is placed.

## SC-22 PARTNERING STATEMENT

The City intends to encourage the foundation of a cohesive partnership with the Contractor and its subcontractors. This partnership will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are effective and efficient Agreement performance, intended to achieve completion within budget, on schedule, and in accordance with plans and specifications.

This partnership will be bilateral in makeup, and participation will be totally voluntary. Any costs associated with effectuating this partnership will be agreed to by both parties and will be shared equally with no change in Agreement price. To implement this partnership initiative, it is anticipated that within sixty (60) days of Notice to Proceed, the Contractor's on-site project manager and the City's on-site representative will attend a partnership development seminar followed by a team-building workshop, attended by key on-site staff from the Contractor's forces and City's personnel. Follow-up workshops will be held periodically through the duration of the Agreement as agreed by the Contractor and City. The City and Contractor shall mutually agree on a partnering facilitator and off-site facilities for the partnering sessions.

An integral aspect of partnering is the resolution of disputes in a timely, professional, and non-adversarial manner. Alternative dispute resolution methods will be encouraged to promote and maintain amicable working relationships at all levels of the project and to strengthen the partnership.

The mutual goals and objectives of the stakeholders form the Partnering Charter. The charter for each project, then, will be unique to that project. The charter may be a simple statement about communication and cooperation in all matters and resolution of conflicts at the lowest level. The following provides an idea of objectives, which might be included in the charter:

- A. We are a team dedicated to providing a quality project in accordance with the Agreement. We are committed to both employee and public safety, protection of the environment, and minimizing inconvenience to the public.
  1. Communication Objectives: We intend to deal with each other in a fair, reasonable, trusting and professional manner including:
    - a. Communicate and resolve problems within the terms of the Agreement;
    - b. Decision making at the lowest possible level;
    - c. Open, honest communication;
    - d. Treat each other with mutual respect, resolve conflicts immediately, and avoid personal attacks;
    - e. Timely notification of future meetings; and
    - f. Do not allow personal antagonism to interfere with professionalism.
  2. Conflict Resolution System:
    - a. Step 1: It is preferred that conflict be discussed and resolved at the level on which it originates;
    - b. Step 2: When conflict is not resolved at the originating level, it is taken to the next level of supervision;
    - c. Step 3: When conflict is not resolved at the immediate supervisory level, it is taken to the project manager and engineer; and
    - d. Step 4: When conflict is not resolved by the project manager and engineer, it is submitted to the Disputes Review Board for adjudication.
  3. Performance Objectives:
    - a. Complete the project without litigation;

- b. Utilize cost reduction incentive proposals;
- c. Finish the project on time;
- d. No delays to project;
- e. No lost time injuries;
- f. Promote positive public relations;
- g. Make the project enjoyable to work on;
- h. Render a finished product everyone can be proud of; and
- i. Construct and administer the Agreement so that all parties are treated fairly.

### SC-23 COLOR COORDINATION

The City will require a color coordination of architectural materials. All coatings are to be custom matched.

### SC-24 TIE-INS OR MODIFICATIONS TO EXISTING SYSTEMS

Anytime the Contractor ties into or modifies an existing system, a detailed work plan shall be required. Submittal of this work plan must be a minimum of thirty (30) days in advance of commencement of the subject work. This work plan shall include a detailed description of the work, a step-by-step plan of the modification or tie-in, a schedule, a detailed list of materials and equipment required, demonstrated communications capacity, and a listing of any gates or valves, which must be operated. Working drawings shall be submitted as required under GC-28 for any permanent or temporary structural modifications. A temporary safety plan covering the period of the work, and a listing of contingency plans and supplies, including but not limited to spill prevention planning and spill containment kits, shall be required. A coordination meeting with the City's plant operating staff, the Contractor, the Engineer and the Designer must be held at least seven (7) days prior to the commencement of the modification or tie-in. The day before the commencement of the modification or tie-in, a final coordination shall be held giving final detailed work assignments to all parties involved.

The City and the Engineer have the right to require, at no additional cost to the City, stand-by equipment on any item(s) deemed critical enough to delay the work. The Contractor shall have available stand-by personnel to supplement the committed forces should problems arise. The Contractor is responsible for meeting all OSHA standards including entrance and exit safety, confined space entry, fall protection, scaffolding, rigging, etc.

### SC-25 NOTICES OF COMMENCEMENT

- A. The Contractor shall file all "Notice of Commencement" required for this Project in accordance with O.C.G.A. § 36-91-92et. seq., as applicable, setting forth:
  - 1. The name, address, and telephone number of the person providing the labor, material, machinery, or equipment;
  - 2. The name and address of each person at whose instance the labor, material, machinery, or equipment is being furnished;
  - 3. The name and location of the public work; and

4. A description of the labor, material, machinery, or equipment being provided and, if known, the Agreement Price or anticipated value of the labor, material, machinery, or equipment to be provided or the amount claimed to be due, if any.
- B. The Contractor shall respond to all requests for copies of a Notice of Commencement. Should the City or Engineer receive such a request, this request will be forwarded to the Contractor for further handling. The name and address of the City shall be as stated as follows:
- City of Atlanta  
Department of Watershed Management  
55 Trinity Avenue, S. W.  
South Tower  
Suite 5400  
Atlanta, Georgia 30303
- C. The name and description of the Project shall be as stated in the Invitation to Bid.

#### SC-26 VALUE ENGINEERING CHANGE PROPOSALS

A. Value Engineering Change Proposals

1. The Contractor may submit Value Engineering Change Proposals (VECP) for changes that the Contractor believes will result in instant Contract savings of at least fifty thousand dollars (\$50,000.00). VECPs will only be considered if the proposed change:
  - a. will result in a net reduction in the Agreement Price;
  - b. will not impair any essential form, fit, function or characteristic of the Work, such as but not limited to, safety, service life, reliability, economy of operation, ease of maintenance, aesthetics and necessary standard features; and
  - c. will not require an extension of the Agreement Time.
2. A VECP shall not increase the risk to cost or schedule of completion.
3. A VECP, if accepted, will be accepted and implemented by Change Order in accordance with this Article.

B. Definitions

1. "Collateral Costs", as used herein, means City costs of operation, maintenance, logistics support, or City-furnished property.
2. "Collateral Savings", as used herein, means those measurable net reductions resulting from a VECP in the City's overall projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.
3. "Contractor's Development Costs", as used herein, mean those costs the Contractor incurs on a VECP specifically in developing, testing, preparing and submitting the VECP. Contractor's development costs will not be recoverable. If the VECP is adopted, the Contractor's share of the savings as hereinafter defined shall be considered full compensation to the Contractor for the VECP.



4. "Implementation Costs", as used herein, means those costs the Contractor incurs to make the contractual changes required by the City's acceptance of a VECP. Such costs will be subject to City audit.
5. "City Costs", as used herein, means those costs the City incurs that result directly from developing and implementing the VECP, such as but not limited to, any net increases in the cost of engineering, testing, operations, maintenance and logistic support. The term also includes the administrative costs of review and processing the VECP.
6. "Instant Agreement Savings", as used herein, means the reduction in Contractor cost of performance (which includes overhead and profit attributable to the reduced or eliminated work), resulting from acceptance of the VECP, minus implementation costs and City costs.

C. VECP Preparation

1. As a minimum, the Contractor shall include in each VECP the information described below:
  - a. A description of the difference between the existing Agreement requirement and that proposed, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, and the effect of the change on the end item's performance;
  - b. A list and analysis of the Agreement requirements that must be changed if the VECP is accepted, including a recommendation as to how the revisions must be made;
  - c. A separate, detailed cost estimate for (i) the affected portions of the existing Agreement requirement and (ii) the VECP. The cost estimate shall include, without limitation, both capital cost savings, and life cycle cost savings. The cost reduction associated with the VECP shall take into account the Contractor's implementation costs;
  - c. A description and estimate of costs the City may incur in implementing the VECP, such as test and evaluation and operating and support costs;
  - e. A prediction of any effects the proposed change would have on collateral costs to the City.
  - f. A statement of the time by which a Change Order accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the Agreement Time, achievement of any milestones, or delivery schedule;
  - g. Identification of any previous submissions of the VECP, including the dates submitted, and previous actions, (including those of the City) if known;
  - h. All specifications, instructions, plans and drawings detailing the implementation of the VECP. All drawings and specifications must be prepared by and sealed by a professional engineer registered in the State of Georgia;

- i. A revised Schedule of Values;
- j. A revised schedule for the affected portion(s) of the Work; and
- k. Any other information required in the judgment of the City to review and/or implement the VECP. Such information shall be provided by the Contractor as soon as practicable after the City's request thereof.

D. Processing Procedures

1. Two (2) copies of each VECP shall be submitted to the Engineer. VECPs will be processed expeditiously, however, the City will not be liable for any delay in acting upon or for failure to act upon, any VECP submitted pursuant to this Article. The Contractor may withdraw, in whole or in part, a VECP not accepted by the City within the period specified in the VECP.
2. The City will be the sole judge of the acceptability of a VECP and of the savings and costs from the adoption of all or any part of such proposal. In determining the savings, the right is reserved to disregard the Agreement bid prices if, in the judgment of the City, such prices do not represent a fair measure of the value of the work to be performed or to be deleted. The decision of the City regarding acceptability or unacceptability of the VECP, as well as the savings and costs, shall be final.
3. The City may require the Contractor to modify the VECP to make it acceptable. If any modification increases or decreases the savings resulting from the VECP, the Contractor's fair share will be determined upon the basis of the VECP as modified.
4. The City may accept, in whole or in part, a VECP submitted pursuant to this Article by issuing a Change Order. However, pending issuance of a Change Order, the Contractor shall remain obligated to perform in accordance with the terms of the Agreement.

E. Sharing Arrangements

The Contractor and City shall each receive a fifty percent (50%) share in the Instant Agreement Savings. Upon acceptance of a VECP, a Change Order will be issued reducing the Agreement Price by fifty percent (50%) of the Instant Agreement Savings.

F. Warranty

1. The Contractor shall be, and remain, liable for the effectiveness of the design of the change proposed.
2. The Contractor warrants that such change: shall be free from defects in design, function, configuration and purpose; shall fully perform the function as intended and required by the Agreement Documents; complies with all laws, rules, regulations and ordinances governing such an item; and infringes no patent, copyright, trade secret or other third party proprietary right or interest.

G. Data

To the extent permitted or allowed by law, the City will not disclose, use or duplicate any data provided by the Contractor pursuant to this Article, while such VECP is being evaluated. This restriction shall not apply to any information if it is, or has been obtained, or is otherwise

available, from the Contractor or from any other source, without limitation. If a VECP has been accepted, the City shall have the right to duplicate, use and disclose any data in any manner, and for any purpose, and have others do so, under this or any other City Agreement.

SC-27 ENCOUNTERING HAZARDOUS OR POTENTIALLY HAZARDOUS MATERIAL DURING CONSTRUCTION ACTIVITIES

Provide all labor, materials, supplies, and incidentals to protect onsite workers and the surrounding public from exposure to potentially hazardous substances, prevent spread of potentially contaminated or hazardous substances, notify Engineer, and stop all work until notified by the Engineer.

An emergency situation or imminent hazard may include, but is not limited to, the following;

- o Buried drums or containers with unknown or known toxic contents.
- o Groundwater or soils of unnatural color
- o Spills or leaks of chemicals, solvents, or petroleum products.
- o Unusual odors
- o Other perceived threats

If a potentially hazardous substance is discovered during construction activities, do not remove it from the site. Leave the potentially hazardous substance in place and stop all work in the immediate area. If the material appears to be leaking or spreading, the Contractor shall contain or abate the spread of material. Take all measures to prevent the release of the material to the environment and protect all onsite workers and the public from potential exposure.

During the course of substance containment or evacuation of site personnel, the Contractor shall protect onsite workers, non-workers, and the general public from contact with or exposure to the contaminated substances or materials.

ATTACHMENT 1 PROJECT SIGN

PROJECT SIGN required at entrance of project site

**SECTION 01005  
MISCELLANEOUS REQUIREMENTS**

**1.01 GENERAL**

- A. The Contractor shall conform to all miscellaneous requirements as herein specified.
- B. (Not Used)

**1.02 INTERFERENCE WITH EXISTING WORKS**

- A. The Contractor shall at all times conduct his operations so as to interfere as little as possible with existing works. The Contractor shall develop a program, in cooperation with the Engineer and plant personnel, which shall provide for the construction and putting into service of the new works in the most orderly manner possible. This program shall be adhered to except as deviations therefrom are expressly permitted. All work of connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to interfere with the operation of the existing facilities for the shortest possible time when the demands on the facilities best permit such interference, even though it may be necessary to work outside of normal working hours to meet these requirements. Before starting work which will interfere with the operation of existing facilities, the Contractor shall do all possible preparatory work and shall see that all tools, materials, and equipment are made ready and at hand. The Contractor shall have spare tools, materials and equipment readily available in order to limit the amount of time of interference with existing facilities.
- B. The Contractor shall make such minor modifications in the work relating to existing structures as may be necessary, without additional compensation.
- C. The Contractor shall have no claim for additional compensation by reason of delay or inconvenience in adapting his operations to meet the above requirements.

**1.03 MAINTAINING SEWAGE WATER, AND STORM WATER FLOWS AND OTHER UTILITIES AND PROCESS FLOWS**

- A. It is essential to the operation of the existing facilities system that there shall be no interruption in the flow of aforementioned utilities. To this end, the Contractor shall provide, maintain, and operate all temporary facilities such as dams, pumping equipment, conduits, and all other labor and equipment necessary to intercept these utilities before it reaches the points where it would interfere with his work, carry it past its work, and return it to the existing utility below its work.
- B. Minimum facility usage flow occurs during the night hours and weekends. The Contractor may work on the existing utilities at such times as agreed with the Engineer if he so chooses at no additional cost to the City.

**1.04 PHASE CONSTRUCTION**

- A. Work under this Contract is to be accomplished in a timely manner and in accordance

## River Intake Pump Station

with the completion time set forth in the Project Schedule.

B. (Not Used)

### **1.05 MOTOR AND STARTING EQUIPMENT DATA LIST**

- A. Each Contractor shall obtain the necessary data from its equipment suppliers, and shall prepare a complete tabulation of all motors over 1/3 hp. and all electric heaters to be furnished under his Contract.
- B. The motor and heater tabulation shall include firm and accurate information as follows:
1. Name and identification of equipment.
  2. Manufacturer.
  3. Horsepower or kilowatt rating.
  4. Voltage.
  5. Phase.
  6. Speed.
  7. Full load current.
  8. Locked rotor current or code letter.
  9. Type of enclosure (open drip proof, totally enclosed, fan cooled, etc.)
  10. Automatic control equipment used (if applicable).
  11. NEMA size of starter or contactor.
  12. Overload heater size.
  13. Type of starter (full-voltage, reduced-voltage, autotransformer, etc.).
  14. Breaker trip setting or fuse size.
  15. Voltage of starter operating coil.
  16. If starter is at a motor control center, list motor control center number.
- C. The correct submission of starting equipment shop drawings is dependent upon timely submission of the complete motor and electric heater tabulation. To this end, all Contractors shall cooperate fully in the assimilation and dissemination of motor and electric heater data.
- D. Three copies of the tabulation shall be furnished to the Engineer. Two copies shall also be furnished concurrently to the Electrical Sub-Contractor, to use in preparing his/her order for starting equipment. The Electrical Sub-Contractor shall also prepare a composite tabulation of all of these motors and electric heaters, as specified under Section 16000 – ELECTRICAL POWER & SYSTEMS.

### **1.06 VOLTAGE RATINGS OF MOTORS**

## River Intake Pump Station

- A. Unless otherwise specified, motors with ratings in excess of 1/3 hp. shall be rated 460-volt (nameplate rating), three-phase, 60-Hertz; motors of 1/3 hp. or less shall be rated 115-volt, single-phase, 60-Hertz.
- B. (Not Used)

### **1.07 HYDRAULIC UPLIFT OF STRUCTURES**

- A. The Contractor shall be responsible for the protection of all structures against hydraulic uplift until such structures have been accepted finally by the Engineer that the structure was completed in accordance with the contract documents and accepted by owner.
- B. (Not Used)

**+++ END OF SECTION 01005 +++**

**SECTION 01010  
SUMMARY OF WORK**

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

- A. Summary: This package of the City of Atlanta's Water Supply Program Project consists of constructing the initial build-out of proposed River Intake raw water pump station, a flow control connection from the tunnel network to the existing Chattahoochee plant, and associated yard piping installation and rehabilitations, discharge, access roads, grading, lighting, buildings, erosion and sediment controls, and all other items required by the Drawings or Specifications to complete the Work.
- B. Major Portions of the Work consist of, but are not limited to, the following items:
1. Construction of the River Intake Pump Station (RIPS), with full build-out of structural and yard piping components.
  2. Installation of 3 vertical turbine pump and 2 screens in the RIPS structure, as shown on the Drawings.
  3. Installation of the power service ductbank at Peachtree Pump Station from the connection to the existing plant switchgear to RIPS. The ductbank must be installed beneath Peachtree Creek via trenchless methods.
  4. Coordination with the City's security department and contractors for the installation of building and site security equipment.
  5. Three vertical turbine pumps and motors that have already been selected by the Owner after a best value evaluation and procurement process. Pumps shall be as specified in Section 11318 and shall be provided by Flowserve.
  6. The Bid Form for this project includes Optional Adders that include additional items to be installed under this project if the Owner chooses to have the work performed. These adders include the following:
    - a. a 4<sup>th</sup> vertical turbine pump, 3<sup>rd</sup> screen, associated piping, valves, supports, power and controls, and other appurtenances, as well as a 2<sup>nd</sup> transit time meter in the RIPS site meter vault
    - b. A trolley and bridge crane over the pump station as specified in the contract documents, and flow connection from Chattahoochee shaft to Chattahoochee WTP. Installation of the flow connection from the Chattahoochee Shaft to the Chattahoochee WTP influent piping, consisting of a liner plate tunnel constructed beneath the CSA railroad with 60-inch carrier pipe, the connection to the stub out to the Chattahoochee Tunnel Shaft, and the piping, valving, flow control valve and vault and

tie-in's to the existing Chattahoochee WTP water supply piping.

- c. The project award will be based on the Base Bid, not including the cost of the adders. The Owner will then decide whether to include the work of any adder based other available funding

## **1.02 PROJECT LOCATION**

- A. The equipment and materials to be furnished will be installed at the locations shown on the Bid Drawings.
- B. (Not Used)

## **1.03 QUANTITIES**

- A. The Owner reserves the right to alter the quantities of work to be performed, extend or shorten the improvements at any time when deemed necessary, and the Contractor shall perform the work as altered, increased or decreased.
- B. (Not Used)

## **1.04 PARTIAL OWNER OCCUPANCY**

- A. The existing facilities to which these improvements are being made will continue operation during the period of construction.
- B. (Not Used)

## **1.05 QUALITY CONTROL AND ASSURANCE**

- A. Each Bid Package Contractor shall coordinate and comply with the Project's Quality Control and Assurance Plan that has been prepared for this project, as well as additional requirements as stated on the Drawings or individual technical specifications governing the Work.

## **1.06 TEMPORARY FACILITIES**

- A. Each Bid Package Contractor shall include provision in the prices bid to provide their own temporary facilities, utility services, onsite material and equipment storage and security, etc.

## **PART 2 – PRODUCTS – (NOT USED)**

## **PART 3 – EXECUTION – (NOT USED)**



River Intake Pump Station

**+++ END OF SECTION 01010 +++**

**SECTION 01011  
UNIQUE REQUIREMENTS**

**PART 1 - GENERAL**

**1.01 SCOPE**

- A. The scope of this Section is to convey to the Contractor unique and unusual stipulations and requirements, which have been established for this Project. Some of the stipulations and requirements are a result of negotiations with various entities and organizations, which have an interest in this Project. Some requirements are based on technical aspects of the Project, which are not otherwise conveyed to the Contractor.
- B. (Not Used)

**1.02 EXISTING FACILITY OPERATIONS**

- A. The existing facilities must, of necessity, remain in operation while the new construction is in progress. If by any means, the existing utilities are needed to be shut down to perform any work, a lockout/tagout system approved by the City and Engineer shall be utilized.
- B. The Contractor shall coordinate the Work with the City so that the construction will not restrain or hinder the operation of the existing facilities.
- C. After having coordinated the Work with the City, the Contractor shall prepare a submittal to the City detailing the time, time limits, and methods of each connection or alteration and have the approval of the Engineer before any Work is undertaken on the connections or alterations.
- D. Contractor is advised there are numerous pressurized pipes, energized conduits and duct banks, overhead utilities, and gravity flow systems on the intake and Chattahoochee WTP sites. The Contractor is responsible for protecting the existing utility lines and shall be responsible for the repair and damages resulting from his construction activities to these systems. The Contractor is required to verify the actual locations of various buried lines shown in the Drawings by carefully excavated test pits and other direct means before starting Work in any given areas at no additional cost to the City. Special care shall be taken during any excavation to mitigate damage potential in case previously unknown and active systems are encountered. Overhead utilities may require raising or relocation to access site. Warning/caution signs are to be placed at the locations of any existing buried/overhead utilities.

**1.03 SEQUENCING**

- A. General: The Contractor shall be solely responsible for all construction sequencing. Suggested construction sequencing and limitations/restrictions regarding outage durations for connections to existing infrastructure are included on the Drawings.
- B. Sequence Submittal:
  - 1. Submit a proposed sequence with appropriate times for the start and completion of construction tasks to the Engineer for review.

## River Intake Pump Station

2. The Contractor may propose alternatives to the sequencing constraints shown in this Section in an attempt to reduce the disruption of the operation of the existing facility or streamline the tasks of this Contract. The City and Engineer are not obligated to accept any of these alternatives.

### **1.04 RIVER INTAKE PUMP STATION SITE SPECIAL REQUIRMENTS**

- A. Work at the River Intake Pump Station (RIPS) site shall be performed during regular working hours. Work may be performed 24 hours per day, seven days per week only after submitting a Written Notification and receiving Written Approval of the City.
- B. Parking for Contractor personnel shall be fully contained within the site boundaries, and shall not block access for employee parking at the adjacent Water Quality Laboratory. An area of the site has been delineated for temporary City Lab Building staff parking and is shown on the plans. No parking is permitted on any public roads or on any streets within the neighborhood. If necessary, the Contractor shall make arrangements for remote parking for its personnel, at a site approved by the Engineer, at no additional cost to the City.
- C. All traffic required at RIPS must enter and exit the site through the entrance designated on the Drawings, located on the west side of Ridgewood Rd NW. All traffic required for Peachtree Creek crossing work to enter Plant Drive, located on the north side of Bolton Road NW.
- D. Site changes, including those to land cover and vegetation, shall be based on the Drawings.

### **1.05 CHATTAHOOCHEE PLANT**

- A. Work at the Chattahoochee Plant site shall be performed during regular working hours. Work may be performed 24 hours per day, seven days per week only after submitting a Written Notification and receiving Written Approval of the City.
- B. Parking for Contractor personnel shall be fully contained within the site boundaries. No parking is permitted on any other public roads or on any streets within the neighborhood. If necessary, the Contractor shall make arrangements for remote parking for its personnel, at a site approved by the Engineer, at no additional cost to the City. Contractor personnel parking is not to interfere with the Chattahoochee Complex daily operations.
- C. All traffic must enter and exit the site through the Chattahoochee Complex Entrance Designated on the Drawings, located on the north side of Bolton Road.
- D. Unless shown otherwise on the Drawings, the Contractor shall restore the site to its original grade. Any fill placed at the site used to return it to its original grade shall be controlled fill, approved by the Engineer. The site shall be grassed and strawed.

### **1.06 GEFA PROJECT REQUIREMENTS.**

- A. The Owner's financing for this project requires the Contractor comply with Georgia Environmental Finance Authority (GEFA) Special Conditions and Requirements. This requires generally that the iron and steel products provided for this project be solely

## River Intake Pump Station

produced in the United States. The Contractor shall provide certification of compliance with GEFA American Iron and Steel (AIS) requirements to the Owner for all iron and steel products associated with this project. GEFA Special Conditions with detailed requirements and instructions are attached to this Specification. The Contractor shall adhere to the attached GEFA Special Conditions.

- B. In addition to Section 1.06.A above, Federal Requirements including, but not limited to, Women- and Minority-Owned business participation are applicable to this Project. These requirements are attached to this Specification. For this project, the Contractor shall comply with all Federal Requirements associated with GEFA financing.

### **1.07 DEFINITION OF TERMS**

- A. (Not Used)

**+++ END OF SECTION 01011 +++**

**FEDERAL REQUIREMENTS**

**Recipient: CITY OF ATLANTA**

**Loan Number: CWSRF 15-010**

1. The Borrower covenants that the Project will comply with the federal requirements applicable to activities supported with federal funds. The Borrower further covenants that the Project will be constructed in compliance with State of Georgia objectives for participation by women's and minority business enterprises in projects financed with federal funds under the federal Clean Water Act. The Borrower will comply with all federal and State of Georgia laws, rules, and regulations relating to maintenance of a drug-free workplace at the Project.
2. The Borrower covenants to comply with the requirements of the Federal Single Audit Act, to the extent it applies to the expenditure of federal funds, including the Loan or any portion thereof. The Borrower agrees to submit to the Lender copies of any audit prepared and filed pursuant to the requirements of this Section.
3. It is the policy of the Lender to promote a fair share award of sub-agreements to small and minority and women's businesses on contracts performed under the Lender. If the successful bidder plans to subcontract a portion of the Project, the bidder must submit to the Lender, with copy to the Borrower within 10 days after bid opening, evidence of the positive steps taken to utilize small, minority, and women's businesses. Such positive efforts shall include:
  - a) including qualified small and minority and women's businesses on solicitation lists;
  - b) assuring that small and minority and women's businesses are solicited whenever they are potential sources;
  - c) dividing total requirements, when economically feasible, into small tasks or quantities to permit maximum participation of small and minority and women's businesses;
  - d) establishing delivery schedules, where the requirements of the work permit, to encourage participation by small and minority and women's businesses;
  - e) using the services and assistance of the U.S. Small Business Administration and the Office of Minority Business Enterprise of the U.S. Department of Commerce;
  - f) requiring each party to a subagreement to take the affirmative steps outlined in paragraphs (a) through (e) of this section.

4. The Borrower shall fully comply with Subpart C of 2 CFR Part 180 and 2 CFR Part 1532, entitled "Responsibilities of Participants Regarding Transactions (Doing Business with Other Persons)." The Borrower is responsible for ensuring that any lower tier covered transaction as described in Subpart B of 2 CFR Part 180 and 2 CFR Part 1532, entitled "Covered Transactions," includes a term or condition requiring compliance with Subpart C. The Borrower is responsible for further requiring the inclusion of a similar term or condition in any subsequent lower tier transactions. The Borrower acknowledges that failure to disclose the information as required at 2 CFR 180.335 may result in the delay or negation of this assistance agreement, or pursuance of legal remedies, including suspension and debarment.

The Borrower may access the Excluded Parties List System at [www.epls.gov](http://www.epls.gov). This term and condition supersedes EPA Form 5700-49. "Certification Regarding Debarment, Suspension, and Other Responsibility Matters."

5. The Borrower shall insert in full in any contract which is entered into for construction, alteration, maintenance, or repair of a public water system or treatment works, financed in whole or in part from Federal funds, the document entitled "American Iron and Steel Special Conditions and Information for Federally Assisted State Revolving Loan Fund Construction Contracts."
6. Borrower certifies to the best of its knowledge and belief that: No Federal appropriated funds have been paid in full or will be paid, by or on behalf of the Borrower, to any person influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: The awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.  
  
If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency or a Member of Congress in connection with this loan agreement, then the Borrower shall fully disclose same to the Lender, and shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with instructions.
7. The Borrower will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Borrower will comply with all sections of Executive Order 12246 – Equal Employment Opportunity.
8. The Borrower will comply with all federal requirements outlined in the Water Resources Reform and Development Act of 2014 and related Clean Water State Revolving Fund Policy Guidelines, which the Borrower understands includes, among other requirements,

that all of the iron and steel products used in the Project (as described in Exhibit A) are to be produced in the United States ("American Iron and Steel Requirement" – section 608) unless (i) the Borrower has requested from the Lender and obtained a waiver from the Environmental Protection Agency pertaining to the Project or (ii) the Lender has otherwise advised the Borrower in writing that the American Iron and Steel Requirement is not applicable to the Project.

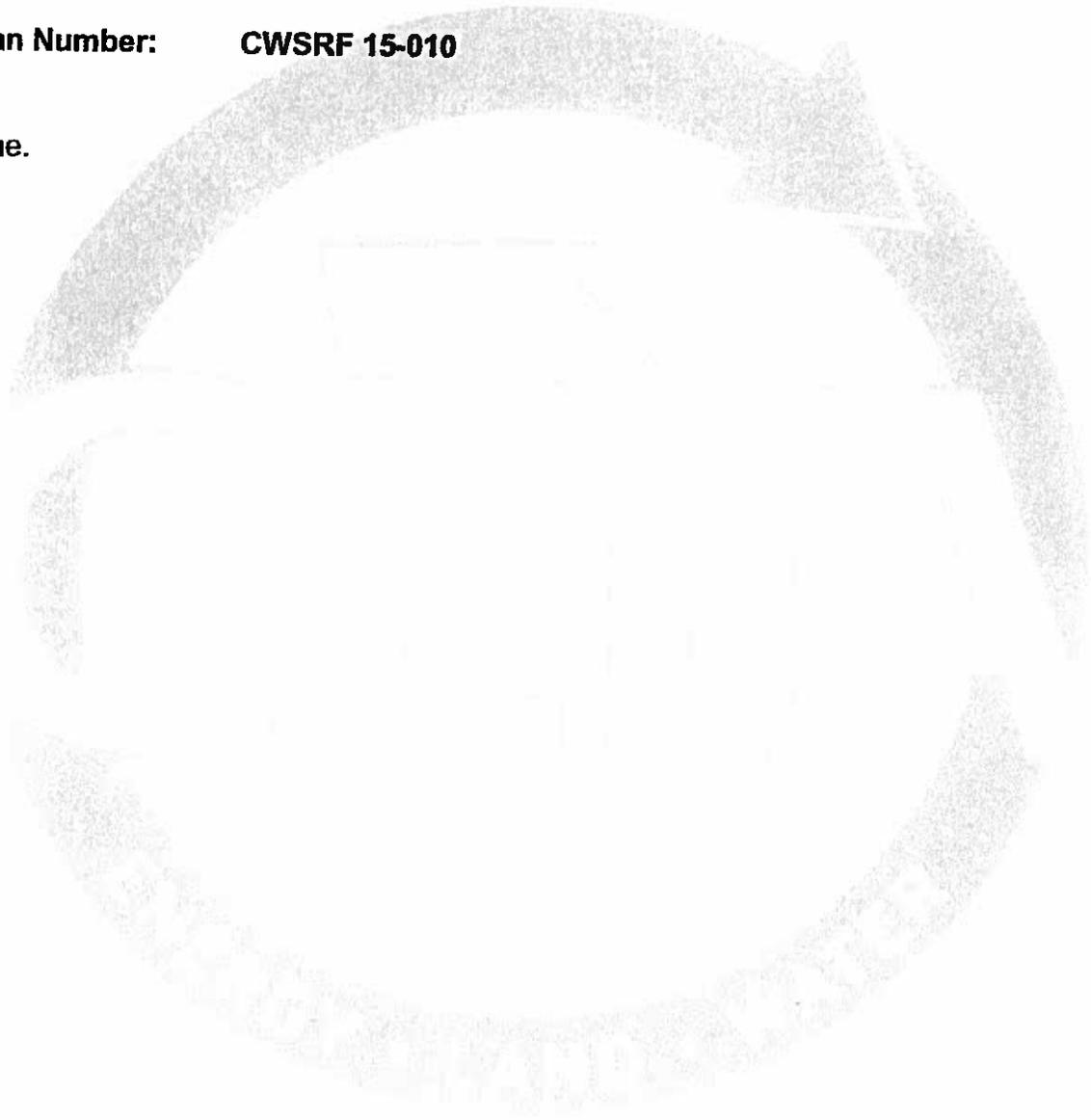
9. The Borrower will comply with all federal requirements outlined in the Water Resources Reform and Development Act of 2014 and related Clean Water State Revolving Fund Policy Guidelines, which the Borrower understands includes, among other requirements, the development of a Fiscal Sustainability Plan (FSP) (section 603(d)(1)(E)) for the Project (as described in Exhibit A). The Borrower has either certified that the FSP has been developed and is being implemented for the portion of the treatment works in the Project or the Borrower has certified that an FSP will be developed and implemented for the portion of the treatment works in the Project prior to the final disbursement of funds, unless the Lender has otherwise advised the Borrower in writing that the development and implementation of an FSP is not applicable to the Project.
10. The Borrower will comply with all record keeping and reporting requirements under the Clean Water Act, including any reports required by the Environmental Protection Agency or the Lender such as performance indicators of program deliverables, information on costs and project progress. The Borrower understands that (i) each contract and subcontract related to the Project is subject to audit by appropriate federal and state entities and (ii) failure to comply with the Clean Water Act and this Agreement may be a default hereunder that results in a repayment of the Loan in advance and/or other remedial actions.
11. The Borrower shall insert in full in any contract which is entered into for construction, alteration, maintenance, or repair of a public water system or treatment works, financed in whole or in part from Federal funds, the document entitled "American Iron and Steel Special Conditions and Information for Federally Assisted State Revolving Loan Fund Construction Contracts."
12. The Borrower will comply with the requirements and obligations of Title VI of the Civil Rights Act in accordance with 40 C.F.R. Part 5 and 7. Among the requirements, borrowers must have a nondiscrimination notice, operate programs or activities that are accessible to individuals with disabilities, designate a civil rights coordinator, have a language access services policy, and maintain demographic data on the race, color, national origin, sex, age, or handicap of the population it serves.

**FINANCIAL COVENANTS**

**Recipient: CITY OF ATLANTA**

**Loan Number: CWSRF 15-010**

None.





# GEORGIA ENVIRONMENTAL FINANCE AUTHORITY

## **AMERICAN IRON AND STEEL SPECIAL CONDITIONS AND INFORMATION**

For

### **FEDERALLY ASSISTED STATE REVOLVING LOAN FUND CONSTRUCTION CONTRACTS**

April 11, 2014

*The following standard language must be incorporated into construction contract documents and in all solicitations for offers and bids for all construction contracts or subcontracts to be funded, in whole or in part, through the Federally-assisted State Revolving Fund in the State of Georgia for projects subject to the American Iron and Steel requirements.*

*These Special Conditions shall not relieve the participants in this project of responsibility to meet any requirements of other portions of this construction contract or of other agencies, whether these other requirements are more or less stringent. The requirements in these Special Conditions must be satisfied in order for work to be funded with the State Revolving Fund.*

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## GENERAL REQUIREMENTS

These Special Conditions are based on guidance provided by the United States Environmental Protection Agency (EPA). Public Law 113-76, the Consolidated Appropriations Act, 2014 (Act), includes an "American Iron and Steel" (AIS) requirement that requires State Revolving Loan Fund (SRF) assistance recipients to use iron and steel products that are produced in the United States for projects in this project. A copy of Section 436 of the Act is found in Appendix 3.

The products and materials subject to these requirements will be defined in Appendix 1 of these special conditions.

The Owner must maintain documentation of compliance with the AIS requirements. The documentation that the Owner maintains will be subject to review and audit by representatives of the state of Georgia, the EPA, the EPA Office of the Inspector General, and other federal authorities.

The Prime Contractor must provide certifications of compliance for all products subject to AIS requirements to the Owner prior to requesting payments for those products. The Owner or the Engineer may require certifications of compliance with submittals and shop drawings for these products as part of the submittal review process.

All manufacturing processes for a covered iron or steel product, as further defined in Appendix 1, must take place in the United States. If a covered product is taken out of the US for any part of the manufacturing process, it becomes foreign source material.

The EPA recommends the use of a step certification process to document the locations of the manufacturing processes involved with the production of steel and iron materials. A step certification is a process under which each handler (supplier, fabricator, manufacturer, processor, etc.) of the iron and steel products certifies that its step in the process was domestically performed. Each time a step in the manufacturing process takes place, the manufacturer delivers its work along with a certification of its origin. A certification should include the name of the manufacturer, the location of the manufacturing facility where the product or process took place (not its headquarters), a description of the product or item being delivered, and a signature by a manufacturer's responsible party. Attached in Appendix 2 is a sample step certification.

Alternatively, the final manufacturer that delivers the iron or steel product to the worksite, vendor, or contractor, may provide a certification asserting that all manufacturing processes for the product and for its iron and steel components occurred in the United States. The EPA states that additional documentation may be needed if the certification lacks important information and recommends step certification as the best practice. A sample final manufacturer certification is attached in Appendix 2.

The Prime Contractor may document that incidental and generally low cost components, as defined in Appendix 1, are compliant with AIS requirements under the De Minimis Waiver issued by the EPA. For these items, the Contractor must provide the Owner with documentation of costs for these items, including invoices, and a report of types and categories of materials to which the waiver is applied, the total cost of incidental components covered by the waiver for each category, and the calculations by which the total cost of materials incorporated into the project was determined. A sample De Minimis report is attached in Appendix 2.

Contractor, supplier, and manufacturer records are subject to review and audit by the EPA, its Inspector General, and other federal authorities.

Failure to comply with these requirements may delay, limit, or prevent the disbursement of SRF funds to the Owner. Violations of AIS requirements will require correction by the Contractor as determined by the Owner and Engineer, including replacement of deficient products with compliant products and compensation for costs and other damages that may result. Violations may also subject the Owner, the Contractor, and suppliers to other enforcement actions within the discretion of the EPA and other federal authorities.

The Act permits EPA to issue waivers for a case or category of cases in which EPA finds (1) that applying these requirements would be inconsistent with the public interest; (2) iron and steel products are not produced in the US in sufficient and reasonably available quantities and of a satisfactory quality; or (3) inclusion of iron and steel products produced in the US will increase the cost of the overall project by more than 25 percent. The Contractor should notify the Owner and Engineer immediately if it finds that a waiver may be required.

By submitting a bid for this project and by executing this construction contract, the Contractor acknowledges to and for the benefit of the Owner and the state of Georgia that it understands that the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund or the Drinking Water State Revolving Fund and that Federal law authorizing these Funds contains provisions commonly known as "American Iron and Steel" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contractor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Owner and the state of Georgia that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Owner or the state of Georgia. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Owner or the state of Georgia to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Owner or the state of Georgia resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the state of Georgia or any damages owed to the state of Georgia by the Owner). The Owner and the Contractor agree that the state of Georgia, as a lender to the Owner for the funding of its project, is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the state of Georgia.

## Appendix 1 – Definitions

For purposes of the Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF) projects that must comply with the AIS requirement, an iron or steel product is one of the following made primarily of iron or steel that is permanently incorporated into the project:

Lined or unlined pipes or fittings;  
Manhole Covers;  
Municipal Castings (defined in more detail below);  
Hydrants;  
Tanks;  
Flanges;  
Pipe clamps and restraints;  
Valves;  
Structural steel (defined in more detail below);  
Reinforced precast concrete (defined in more detail below); and  
Construction materials (defined in more detail below).

**Product primarily of iron or steel:** The product must be made of greater than 50% iron or steel, measured by cost. If one of the listed products is not made primarily of iron or steel, United States (US) provenance is not required, except as required for reinforced precast concrete. If a product is composed of more than 50% iron or steel, but is not listed in Section 436 (a) (2) of the Act, it is not required to be produced in the US. Alternatively, the iron or steel in such a product can be sourced from outside the US.

**Steel:** An alloy that includes at least 50 percent iron and between 0.02 and 2 percent carbon and may include other elements. Other alloys of iron are not required to be produced in the US.

**Produced in the United States:** Production in the US of the iron or steel products used in the project requires that all manufacturing processes, including application of coatings, must take place in the United States, with the exception of metallurgical processes involving refinement of steel additives. All manufacturing processes includes processes such as melting, refining, forming, rolling, drawing, finishing, fabricating and coating. Further, if a domestic iron and steel product is taken out of the US for any part of the manufacturing process, it becomes foreign source material. However, raw materials such as iron ore, limestone and iron and steel scrap are not covered by the AIS requirement, and the material(s), if any, being applied as a coating are similarly not covered. Non-iron or steel components of an iron and steel product may come from non-US sources. For example, for products such as valves and hydrants, the individual non-iron and steel components do not have to be of domestic origin.

**Municipal Castings:** Municipal castings are cast iron or steel infrastructure products that are melted and cast. They typically provide access, protection, or housing for components incorporated into utility owned drinking water, storm water, wastewater, and surface infrastructure. They are typically made of grey or ductile iron, or steel. Examples of municipal castings include access hatches, ballast screen, benches, bollards, cast bases, cast iron hinged hatches, cast iron riser rings, catch basin inlets, cleanout/monument boxes, construction covers and frames, curb and corner guards, curb openings, detectable warning plates, downspout shoes, drainage grates, frames & curb inlets, inlets, junction boxes, lampposts, manhole covers, rings & frames, risers, meter boxes, steel hinged hatches, steel riser rings, trash receptacles, tree grates, tree guards, trench grates, and valve boxes.

**Structural Steel:** Structural steel is rolled flanged shapes, having at least one dimension of their cross-section 3 inches or greater, which are used in the construction of bridges, buildings, ships, railroad rolling stock, and for numerous other constructional purposes. Such shapes are designated as wide-flange shapes, standard I-beams, channels, angles, tees and zees. Other shapes include H-piles, sheet piling, tie plates, cross ties, and those for other special purposes.

**Reinforced Precast Concrete:** While reinforced precast concrete may not be at least 50% iron or steel, in this particular case, the reinforcing rebar must be produced in the US and meet the same standards as for any other iron or steel product. Additionally, the casting of the concrete product must take place in the US. The cement and other raw materials used in concrete production are not required to be of domestic origin. If the reinforced concrete is cast at the construction site, the reinforcing rebar is considered to be a construction material and must be produced in the US.

**Construction Materials subject to AIS:** Construction materials are those articles, materials, or supplies made primarily of iron and steel, that are permanently incorporated into the project, not including mechanical and/or electrical components, equipment and systems. Some of these products may overlap with what is also considered “structural steel”. This includes, but is not limited to, the following products: welding rods, wire rod, bar, angles, concrete reinforcing bar, wire, wire cloth, wire rope and cables, tubing, framing, joists, trusses, fasteners (i.e., nuts and bolts), decking, grating, railings, stairs, access ramps, fire escapes, ladders, wall panels, dome structures, roofing, ductwork, surface drains, cable hanging systems, manhole steps, fencing and fence tubing, guardrails, doors, gates, and screens.

**Construction Materials not subject to AIS:** Mechanical and/or electrical components, equipment and systems are not considered construction materials. Mechanical equipment is typically that which has motorized parts and/or is powered by a motor. Electrical equipment is typically any machine powered by electricity and includes components that are part of the electrical distribution system.

The following examples, including their appurtenances necessary for their intended use and operation, are NOT considered construction materials: pumps, motors, gear reducers, drives, variable frequency drives (VFDs), mixers, blowers/aeration equipment, compressors, meters, electric/pneumatic/manual accessories used to operate valves (such as valve actuators), gates, motorized screens (such as traveling screens), sensors, controls, switches, supervisory control and data acquisition (SCADA), membrane bioreactor systems, membrane filtration systems, filters, clarifiers and clarifier mechanisms, rakes, grinders, disinfection systems, dewatering equipment, presses (including belt presses), conveyors, cranes, HVAC (excluding ductwork), water heaters, heat exchangers, generators, cabinetry and housings (such as electrical boxes/enclosures), lighting fixtures, electrical conduit, emergency life systems, metal office furniture, shelving, laboratory equipment, and analytical instrumentation.

Items temporarily used during construction, which are removed from the project site upon completion of the project, are not required to be made of U.S. Iron or Steel. For example, trench boxes or scaffolding are not considered construction materials subject to AIS requirements.

**Incidental Components compliant with AIS under the De Minimis Waiver:** This waiver permits the use of de minimis incidental components that may otherwise be prohibited under AIS. These de minimis items may cumulatively comprise no more than a total of 5 percent of the total cost of the materials used in and incorporated into the project. The cost of an individual item may not exceed 1 percent of the total cost of the materials used in and incorporated into the project.

These items are miscellaneous, generally low-cost components that are essential for, but incidental to, the construction and are permanently incorporated into the project. For many of these incidental components, the country of manufacture and the availability of alternatives are not always readily or reasonably identifiable prior to procurement in the normal course of business. For other incidental components, the country of manufacture may be known, but the miscellaneous character in conjunction with the low cost, individually and in total, as typically procured in bulk, mark them as properly incidental. Examples of incidental components include small washers, screws, fasteners (i.e., nuts and bolts), miscellaneous wire, corner bead, ancillary tube.

Examples of items that are not incidental and are not covered by the De Minimis Waiver include significant process fittings (i.e., tees, elbows, flanges, and brackets), distribution system fittings and valves, force main valves, pipes for sewer collection and/or water distribution, treatment and storage tanks, large structural support structures.

Items covered as compliant under this waiver must be documented in a report to the Owner to demonstrate that they are both incidental and that they fall within the cost allowances of this waiver. The costs of these items must be documented by invoices. The report must include a listing of types and categories of materials to which the waiver is applied, the total cost of incidental components covered by the Waiver for each category, and the calculations by which the total cost of materials incorporated into the project was determined.

## **Appendix 2 – Sample Certifications Step Certification**

The following information is provided as a sample letter of step certification for American Iron and Steel compliance. Documentation must be provided on company letterhead. This is to be provided by each handler (supplier, fabricator, manufacturer, processor, etc.). Each time a step in the manufacturing process takes place, the handler delivers its work along with a certification of its origin.

Date

Company Name  
Company Address  
City, State Zip

Subject: American Iron and Steel Step Certification for Project (Insert project name and SRF number)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

List of items, products and/or materials:

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative



## **Appendix 2 – Sample Certifications**

### **Final manufacturer certification**

The following information is provided as a sample letter of the final manufacturer to certify American Iron and Steel compliance for the entire manufacturing process. Documentation must be provided on company letterhead.

Date

Company Name  
Company Address  
City, State Zip

Subject: American Iron and Steel Certification for Project (Insert project name and SRF number)

I, (company representative), certify that the following products and/or materials shipped/provided to the subject project are in full compliance with the American Iron and Steel requirement of P.L. 113-76 and as mandated in EPA's State Revolving Fund Programs.

List of items, products and/or materials:

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

## Appendix 2 – Sample Certifications Contractor De Minimis Report

**Owner:** (Owner Name)

**SRF Project No:** (SRF Number)

**Project Description:** (Contract title or brief description)

**Date:** (Date of report)

**Submitted by (name & title):** (Contractor representative)  
Company Name

**LIST OF MATERIALS  
OR CATEGORIES OF MATERIALS  
PERMANENTLY INCORPORATED  
INTO THE PROJECT**

	<b>COST</b>
Category or Item	\$1,000.00
Category or Item	\$1,000.00
Category or Item	\$1,000.00
Category or Item	\$1,000.00
Category or Item	\$1,000.00
Category or Item	\$1,000.00
Category or Item	\$1,000.00
Category or Item	\$1,000.00
Category or Item	\$1,000.00
Category or Item	\$1,000.00

**Total Permanent Materials** **\$10,000.00**

<b>1 % of total material cost</b>	<b>\$100.00</b>	<b>Maximum cost for individual item waived</b>
<b>5 % of total material cost</b>	<b>\$500.00</b>	<b>Maximum cumulative cost for category waived</b>

**LIST OF MATERIALS  
OR CATEGORIES OF MATERIALS  
COVERED BY  
DE MINIMIS WAIVER**

	<b>COST</b>	<b>COMPLIANT (Yes/No)</b>
Category or Item	\$100.00	Yes
Category or Item	\$100.00	Yes
Category or Item	\$100.00	Yes
Category or Item	\$100.00	Yes
Category or Item	\$100.00	Yes

**Total De Minimis Items** **\$500.00** **Yes**

**INVOICES ATTACHED FOR DE MINIMIS ITEMS.**

## Appendix 3 – P.L. 113-76, Consolidated Appropriations Act, 2014

The Act states:

Sec. 436 (a)(1) None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j–12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products used in the project are produced in the United States.

(2) In this section, the term “iron and steel products” means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

(b) Subsection (a) shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency (in this section referred to as the “Administrator”) finds that—

(1) applying subsection (a) would be inconsistent with the public interest;

(2) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or

(3) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

(c) If the Administrator receives a request for a waiver under this section, the Administrator shall make available to the public on an informal basis a copy of the request and information available to the Administrator concerning the request, and shall allow for informal public input on the request for at least 15 days prior to making a finding based on the request. The Administrator shall make the request and accompanying information available by electronic means, including on the official public Internet Web site of the Environmental Protection Agency.

(d) This section shall be applied in a manner consistent with United States obligations under international agreements.

(e) The Administrator may retain up to 0.25 percent of the funds appropriated in this Act for the Clean and Drinking Water State Revolving Funds for carrying out the provisions described in subsection (a)(1) for management and oversight of the requirements of this section.

(f) This section does not apply with respect to a project if a State agency approves the engineering plans and specifications for the project, in that agency’s capacity to approve such plans and specifications prior to a project requesting bids, prior to the date of the enactment of this Act.

**SECTION 01016  
OCCUPANCY**

**PART 1 – GENERAL**

**1.01 PARTIAL OCCUPANCY BY CITY**

- A. Whenever, in the opinion of the Engineer, any section or portion of the Work is in suitable condition, it may be put into use upon the written order of the Engineer and such usage will not be held in any way as an acceptance of said work, or any part thereof, or as a waiver of any of the provisions of these Specifications and the Contract. Pending completion and final acceptance of the Work, all necessary repairs, and replacements, due to defective materials or workmanship or operations of the Contractor, for any section of the Work so put into use shall be performed by the Contractor at the Contractor's own expense.
- B. (Not Used)

**PART 2 – NOT USED**

**+++ END OF SECTION 01016 +++**

**SECTION 01026  
SCHEDULE OF VALUES**

**PART 1 - GENERAL**

**1.01 SCOPE**

- A. The work under this Section includes preparation and submittal of a Schedule of Values (SOV).

**1.02 GENERAL**

- A. Timing of Submittal: Submit to the Prime Contractor, a draft SOV allocated to the various portions of the Work, within 15 days after Notice to Proceed. The Contractor shall submit the Final SOV within 15 days after receipt of Prime Contractor comments.
- B. In the event account values cannot be agreed to between the Prime Contractor and the Contractor, the Prime Contractor shall have the exclusive right to determine the account dollar amounts contained in the Schedule of Values.
- C. Supporting Data: Upon request of the Prime Contractor, support the values with data which will substantiate their correctness.
- D. Use of Schedule: The schedule of values, unless objected to by the Prime Contractor, shall be used only as a basis of the Contractor's Application for Payment. Acceptance of the Contractor's SOV is a condition precedent to processing all applications for payment other than mobilization.

**1.03 FORM AND CONTENT OF SCHEDULE OF VALUES**

- A. Form and Identification
  - 1. Enter the SOV's account information in SOV format furnished by the Prime Contractor, which will be provided in an Excel spreadsheet.
  - 2. Contractor's standard forms and automated printout may be used.
  - 3. Identify schedule with:
    - a. Title of project and location
    - b. Prime Contractor
    - c. Name and address of Contractor
    - d. Contract designation

## River Intake Pump Station

- e. Date of submission
- B. Schedule shall list the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing values for progress payments during construction. Breakdown shall be by Pay Item (detailed in Section 01200 Measurement and Payment), then by CSI Format, for ease of field verification of quantities completed in each structure.
- C. Format
  - 1. Follow the Table of Contents of the Contract Documents as the format for listing the component items.
  - 2. Identify each item with the number and title of the respective major section of the Specifications.
- D. For each major line item list sub values of major products or operations under the item.
- E. For the Various Portions of the Work:
  - 1. Each item shall include a directly proportional amount of the Contractor's overhead and profit.
  - 2. For items on which progress payments will be requested for stored materials, break down the value into:
    - a. The cost of the materials, delivered and unloaded, with taxes paid and paid invoice.
    - b. The total installed value, including Contractor's overhead and profit, less item a. above.
  - 3. For each item, the Contractor shall specify which equipment is rented and which is owned, Contractor's labor rates and fringe, crew size and type of personnel, number shifts for each activity, and production rates assumed.
- F. The sum of all values listed in the schedule shall equal the Bid Total.

**+++END OF SECTION+++**

**SECTION 01040  
COORDINATION**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Coordinate execution of the Work with subcontractors and the Engineer as required to maintain operation of the existing facilities and satisfactory progress of the Work.
- B. The Engineer may require a written explanation of the Contractor's plan for accomplishing separate phases of the Work.

**1.02 CONNECTIONS TO EXISTING SYSTEMS**

- A. (Not Used)

**1.03 RELOCATIONS**

- A. The Contractor shall be responsible for the relocation of structures, including but not limited to light poles, signs, sign poles, fences, piping, conduits, and drains that interfere with the positioning of the Work as set out on the Drawings. The cost of all such relocations shall be included in the bid price.
- B. (Not Used)

**1.04 EXISTING UNDERGROUND PIPING, STRUCTURES, AND UTILITIES**

- A. The attention of the Contractor is drawn to the fact that during excavation, the possibility exists of the Contractor encountering various water, gas, telephone, electrical, or other utility lines not showed on the Drawings. The Contractor shall exercise extreme care before and during excavation to locate and flag these lines so as to avoid damage to the existing lines.
- B. 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.
- C. The existing piping and utilities that interfere with new construction 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 Engineer of the location of the pipeline or utility and shall reroute or relocate the pipeline or utility as directed.
- D. The Contractor shall exercise care in any excavation to locate all 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 Engineer.
- E. The Drawings indicate utilities or obstructions that are known to exist according to the best information available. The Contractor shall call the Utilities Protection Center

## River Intake Pump Station

(UPC) (800-282-7411) as required by Georgia Law (O.C.G.A. Sections 25-9-1 through 25-9-13) and shall call all utilities, agencies or departments that own and/or operate utilities in the vicinity of the construction work site at least 72 hours (three business days) prior to construction to verify the location of the existing utilities.

- F. Existing Utility Locations: The following steps shall be exercised to avoid interruption of existing utility service.
1. Provide the required notice to the utility owners and allow them to locate their facilities according to Georgia law. Field utility locations are valid for only 10 days after original notice. The Contractor shall ensure, at the time of any excavation that a valid utility location exists at the point of excavation.
  2. Expose the facility, for a distance of at least 200 feet in advance of pipeline construction, to verify its true location and grade. Repair, or have repaired, any damage to utilities resulting from locating or exposing their true location.
  3. Avoid utility damage and interruption by protection with means or methods recommended by the utility owner.
  4. Maintain a log identifying when phone calls were made, who was called, area for which utility relocation was requested and work order number issued, if any. The Contractor shall provide the Engineer an updated copy of the log bi-weekly, or more frequently if required.
- G. Conflict with Existing Utilities
1. Horizontal Conflict: Horizontal conflict shall be defined as when the actual horizontal separation between a utility, main, or service and the proposed water/sewer main does not permit safe installation of the water/sewer main by the use of sheeting, shoring, tying-back, supporting, or temporarily suspending service of the parallel or crossing facility. The Contractor may change the proposed alignment of the water/sewer main to avoid horizontal conflicts if the new alignment remains within the available right-of-way or easement, complies with regulatory agency requirements and after a written request to and subsequent approval by the Engineer. Where such relocation of the water/sewer main is denied by the Engineer, the Contractor shall arrange to have the utility, main, or service relocated.
  2. Vertical Conflict: Vertical conflict shall be defined as when the actual vertical separation between a utility, main, or service and the proposed water/sewer main does not permit the crossing without immediate or potential future damage to the utility, main, service, or the water/sewer main. The Contractor may change the proposed grade of the water main to avoid vertical conflicts if the changed grade maintains adequate cover and complies with regulatory agencies requirements after written request to and subsequent approval by the Engineer. Where such relocation of the water/sewer main is denied by the Engineer, the Contractor shall arrange to have the utility, main, or service relocated.
- H. Water and Sewer Separation
1. Water mains should maintain a minimum 10 foot edge-to-edge separation from sewer lines, whether gravity or pressure. If the main cannot be installed in the prescribed



- easement or right-of-way and provide the 10 foot separation, the separation may be reduced, provided the bottom of the water main is a minimum of 18-inches above the top of the sewer. Should neither of these two separation criteria be possible, the water main shall be installed below the sewer with a minimum vertical separation of 18-inches.
2. The water main, when installed below the sewer, shall be encased in concrete with a minimum 6-inch concrete thickness to the first joint in each direction. Where water mains cross the sewer, the pipe joint adjacent to the pipe crossing the sewer shall be cut to provide maximum separation of the pipe joints from the sewer.
  3. No water main shall pass through, or come in contact with, any part of a sanitary sewer manhole.
- J. Work shall be located substantially as indicated on the Drawings, but the Engineer reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures, utilities or for other reasons. Where fittings are noted on the Drawings, such notation is for the Contractor's convenience and does not relieve the Contractor for laying and joining different or additional items where required or when directed by the Engineer.

#### **1.05 COOPERATION WITH OTHER CONTRACTORS AND FORCES**

- A. During progress of work under this agreement, it will be necessary for other contractors and persons employed by the City to perform Work in or about the project area. The City reserves the right to put other such Contractors to work and to afford those Contractors access to the site of the Work to be performed hereunder at such times as the City deems appropriate. The Contractor shall not impede or interfere with the Work for such other Contractors engaged in Work or shall so arrange and conduct their Work that such other Contractors may complete their work at the earliest date possible.
- B. When the Contractor and any contractor or sub-contractor performing Work under or pursuant to another City Agreement are employed on related or adjacent work, or are using the same material source, storage area, or disposal area, the Contractor shall be responsible to the other for any inquiry, damage, or loss caused the other by his operations, by his unnecessary delay or hindrance of the others work, or by his failure to complete the Work or any portion delay or hindrance of the other's Work, or by his failure to complete the Work or any portion thereof within the time specified for its completion. The Contractor shall indemnify and save harmless the City and the Engineer, and all officers and employees of the City connected with the Work from all claims, suits, or actions of any injury, damage, or loss.
- C. Contractors Responsibilities under the preceding paragraph shall be not greater as to any injury, damage or loss than those imposed on the Contractor or Sub-contractor under the comparable provision of this Agreement or Subcontract.
- D. The Engineer will decide any disputed questions regarding the performance of the Work, access and cleaning up of the site, and priority in all relations between the Contractor and other contractors in utility companies, and maintenance crews.

- E. The Contractor shall cooperate with all other Contractors requiring access to the Work for the purpose of maintenance of security, temporary facilities, cleaning of the site, and like matters requiring common effort.

### **1.05 HAZARDOUS LOCATIONS**

- A. The existing wet wells, manholes and related areas are hazardous locations, in that explosive concentrations of sewage gas may be present. The Contractor is cautioned that the above areas, especially the wet well, may be deficient in oxygen. Checks shall be made by the Contractor whenever personnel are working in these areas to determine if adequate oxygen is available.
- B. (Not Used)

## **PART 2 PRODUCTS (NOT USED)**

## **PART 3 EXECUTION**

### **3.01 COORDINATION**

- A. The Contractor shall consult with the Engineer on a daily basis while performing demolition, excavation, or any other alteration activity. No water or sewer function, utility or structure shall be altered, shut off or removed unless approved in advance, and in writing, by the Engineer. The Contractor shall give the Engineer at least 48 hours advanced notice, in writing, of the need to alter, shut off or remove such function. Lockout/tagout procedures shall be required.
- B. Coordinate the Work with the Engineer and revise daily activities if needed so as to not adversely affect system operations. Such revisions in the proposed work schedule will be accomplished with no additional compensation to the Contractor.

### **3.02 OWNER'S RESPONSIBILITIES**

- A. All existing raw water system valves shall be located, uncovered as necessary and operated by the Owner.
- B. (Not Used)

### **3.03 PROTECTION AND RESTORATION OF WORK AREA**

- A. General: Return all items and all areas disturbed, directly or indirectly by work under these Specifications, to their original condition or better, as quickly as possible after work is completed.
  - 1. The Contractor shall plan, coordinate, and prosecute the work such that disruption to personal property and business is held to a practical minimum.

## River Intake Pump Station

2. All construction areas abutting lawns and yards of residential or commercial property shall be restored promptly. Backfilling of underground facilities, ditches, and disturbed areas shall be accomplished on a daily basis as work is completed. Finishing, dressing, and grassing shall be accomplished immediately thereafter, as a continuous operation within each area being constructed and with emphasis placed on completing each individual yard or business frontage. Care shall be taken to provide positive drainage to avoid ponding or concentration of runoff.
  3. Handwork, including raking and smoothing, shall be required to ensure that the removal of roots, sticks, rocks, and other debris is removed in order to provide a neat and pleasing appearance.
  4. The Engineer shall be authorized to stop all work by the Contractor when restoration and cleanup are unsatisfactory and to require appropriate remedial measures.
- B. Man-made Improvements: Protect, or remove and replace with the Engineer's approval, all fences, walkways, mail boxes, pipe lines, drain culverts, power and telephone lines and cables, property pins and other improvements that may be encountered in the Work.
- C. Cultivated Growth: Do not disturb cultivated trees or shrubbery unless approved by the Engineer. Any such trees or shrubbery which must be removed shall be heeled in and replanted under the direction of an experienced nurseryman.
- D. Cutting of Trees: Do not cut trees for the performance of the work except as absolutely necessary. Protect trees that remain in the vicinity of the work from damage from equipment. Do not store spoil from excavation against the trunks. Remove excavated material stored over the root system of trees within 30 days to allow proper natural watering of the root system. Repair any damaged tree over 3-inches in diameter, not to be removed, under the direction of an experienced nurseryman. All trees and brush that require removal shall be promptly and completely removed from the work area and disposed of by the Contractor. No stumps, wood piles, or trash piles will be permitted on the work site.
- E. Disposal of Rubbish: Dispose of all materials cleared and grubbed during the construction of the Project in accordance with the applicable codes and rules of the appropriate county, state and federal regulatory agencies.
- F. Swamps and Other Wetlands – (Not Used)
- G. Refer to Section 02920, Site Restoration.

### **3.04 PIPE DISTRIBUTION – (NOT USED)**

### **3.05 CONSTRUCTION OPERATIONS**

- A. The Contractor shall insure that all work areas and roadways are free from excess excavated material, debris, mud, soil, and rocks etc. at the end of each work day. Contractor shall be responsible for sweeping all areas at the end of each work day.
- B. (Not Used)

**3.06 WATER FOR CONSTRUCTION PURPOSES**

- A. All water required for construction shall be furnished by the Owner. It shall be available by connecting to the Owner's water system at a point approved by the Owner. There shall be installed in every connection to the Owner's water supply a water meter with backflow preventer meeting the requirements of the City. The Contractor shall meter all water usage. The Contractor shall notify the City one week in advance prior to connecting to the water system.
- B. A total of the metered water used shall be submitted to the Owner with each monthly application for payment.

**+++ END OF SECTION 01040 +++**

**SECTION 01045  
CUTTING AND PATCHING**

**PART 1 GENERAL**

**1.01 DEFINITIONS**

- A. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition.
  - 1. Cutting and patching is performed for coordination of the work, to uncover work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes.
  - 2. Cutting and patching performed during the manufacture of products, or during the initial fabrication, erection or installation processes is not considered to be "cutting and patching" under this definition. Drilling of holes to install fasteners and similar operations are also not considered to be "cutting and patching".
  - 3. "Demolition" and "Selective Demolition" are recognized as related- but-separate categories of work, which may or may not require cutting and patching as defined in this section; refer to "Demolition" and "Selective Demolition" sections of Division 2.
- B. Refer to other sections of these specifications for specific cutting and patching requirements and limitations applicable to individual units of work.
  - 1. Unless otherwise specified, requirements of this section apply to mechanical and electrical work. Refer to Division-15 and Division-16 sections for additional requirements and limitations on cutting and patching of mechanical and electrical work

**1.02 SECTION INCLUDES**

- A. This Section specifies administrative and procedural requirements for cutting and patching.
- B. Refer to other sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
  - 1. Requirements of this Section apply to mechanical and electrical installations. Refer to Division-15 and Division 16 Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

**1.03 RELATED SECTIONS**

- A. Drawings and general provisions of Contract, including; general and Supplementary

Conditions and other Division-1 Specification Sections, apply to this section.

- B. Demolition of selected portions of the building for alterations is included in Section "Selective Demolition".

#### 1.04 QUALITY ASSURANCE

- A. Requirements for Structural Work. Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio. All cutting/coring activities that will be performed on concrete structures must be approved by the Engineer.
  - 1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
    - a. Primary operational systems and equipment.
    - b. Air or smoke barriers.
    - c. Water, moisture, or vapor barriers.
    - d. Fire Protection Systems.
    - e. Control Systems.
    - f. Communication systems.
    - g. Conveying systems
    - h. Noise and vibration control elements and systems.
- B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decrease operational life or safety.
- C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in visually unsatisfactory manner.
  - 1. If possible, retain the original installer or fabricator to cut and patch the exposed Work listed below. If it is impossible to engage the original installer or fabricator, engage another recognized experienced and specialized firm.
    - a. Stonework and stone masonry.
    - b. Window wall systems.
    - c. Ornamental metal.
    - d. Firestopping
    - e. Stucco and ornamental plaster.
    - f. Carpeting.
    - g. Wall Coverings.
- D. Before cutting and patching the following categories of work, obtain approval to proceed.
  - 1. Structural steel.
  - 2. Miscellaneous structural metals, including lintels, equipment supports, stair systems and similar categories of work.
    - a. Structural concrete.

## River Intake Pump Station

- b. Foundation construction.
  - c. Steel.
  - d. Lintels.
  - e. Bearing and retaining walls.
  - f. Structural decking.
  - g. Exterior curtain wall construction.
  - h. Equipment Supports.
  - i. Piping, ductwork, vessels and equipment.
  - j. Structural systems of special construction, as specified by Division- 13 sections.
  - k. Shoring, bracing, and sheeting.
  - l. Primary operational systems and equipment.
  - m. Water/moisture/vapor/air/smoke barriers, membranes and flashings.
  - n. Noise and vibration control elements and systems.
  - o. Control, communication, conveying, and electrical wiring systems.
- E. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years of experience.
- F. Products Requiring Electrical Connection: Listed and classified by UL as suitable for the purpose specified and indicated.

### 1.05 SUBMITTALS

- A. Procedural Proposal for Cutting and Patching: Where prior approval of cutting and patching is required, submit proposed procedures for this work well in advance of the time work will be performed and request approval to proceed. Include the following information, as applicable, in the submittal:
- 1. Describe nature of the work and how it is to be performed, indicating why cutting and patching cannot be avoided. Include a step by step procedure describing the details of the method of work to be employed. Describe anticipated results of the work in terms of changes to existing work, including structural, operational and visual changes as well as other significant elements.
  - 2. List products and mechanical equipment to be used and firms including their qualifications that will perform work.
  - 3. Give dates when work is expected to be performed.
  - 4. List utilities that will be disturbed or otherwise be affected by work, including those that will be relocated and those that will be out-of-service temporarily. Indicate how long utility service will be disrupted.
  - 5. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of unsatisfactory work.
  - 6. When cutting and patching of structural work involves the addition of reinforcement, submit details and engineering calculations to show how that reinforcement is integrated with original structure to satisfy requirements.
  - 7. Describe the safety measures to be employed during the work.

## **1.06 WARRANTY**

- A Existing Warranties: Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void any warranties required or existing.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. General: Except as otherwise indicated, or as directed by the Contracting Officer, use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics. Materials differing from existing shall be approved by the Engineer through a submitted data sheet.
  - 1. The use of a trade name and suppliers name and address is to indicate a possible source of the product. Products of the same type from other sources shall not be excluded provided they possess like physical and functional characteristics.
- B. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Before cutting existing surfaces examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.
- B. Before cutting, examine the surfaces to be cut and patched and the conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the work.
  - 1. Before the start of cutting work, meet at the work site with all parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict between the various trades. Coordinate layout of the work and resolve potential conflicts before proceeding with the work

### **3.02 PREPARATION**



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- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Take precautions necessary to avoid cutting existing pipe conduit, or ductwork serving the building, but schedule to be removed or relocated until provisions have been made to bypass them.

### 3.03 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
- B. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original conditions.
- C. Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original installer; comply with the original installer's recommendations.
  - 1. In general, where cutting is required, use hand or small tools designed for sawing or grinding, no hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. To avoid marring existing finish surfaces, cut the exposed or finished side into concealed surfaces.
  - 3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.
  - 4. Comply with requirements of applicable Sections or Division-2 where cutting and patching require excavating and backfilling.
  - 5. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- D. Protect and cover elements where putty/stucco is applied to prevent dust layers from forming that would prevent any finished coating from adhering to the surface.

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- E. Patching: Patch with durable seams that are as invisible a possible. Comply with specified tolerances.
1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
  2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
  3. When removal of walls or partitions extends one finish area into another, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, as necessary to achieve uniform color and appearance.
    - a. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken area containing the patch, after the patched area has received primer and second coat.
  4. Patch, repair or rehang existing ceiling as necessary to provide an even surface of uniform appearance.

### 3.04 CLEANING

- A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Completely remove paint, mortar, oils, putty, and items of similar nature. Thoroughly clean piping, conduit and similar features before paint or other finishing is applied. Restore damaged pipe covering to its original conditions.
- B. Do not permit traffic over unprotected floor surface.

**+++ END OF SECTION 01045 +++**

**SECTION 01055  
CONSTRUCTION STAKING**

**PART 1 GENERAL**

**1.01 SCOPE**

- A. Construction staking shall include all of the surveying work required to layout the Work and control the location of the finished Project. The Contractor shall have the full responsibility for constructing the Project to the correct horizontal and vertical alignment, as shown on the Drawings, as specified, or as ordered by the Engineer.
- B. The Contractor shall be responsible for the development and implementation of a surveying program capable of satisfying all Project survey and accuracy requirements. This program shall be subject to the review of the Engineer before commencement of the work. The review shall in no way release the Contractor of liabilities associated with or dependent on this part of the Services.
- C. The Contractor shall assume all costs associated with rectifying work constructed in the wrong location.
- D. Work under this Section also includes surveying work required to prepare Record Drawings as specified herein.

**1.02 QUALITY ASSURANCE**

- A. The Contractor shall hire, at the Contractor's own expense, a Surveyor with current registration in the State of Georgia, and shall be conducted by personnel with documented experience in the specific types of work required. The surveyor must be acceptable to the Owner, to provide project construction staking and confirmation of the vertical and horizontal alignment.
- B. Any deviations from the Drawings shall be confirmed by the Engineer if it falls within the compatible tolerance prior to construction of that portion of the Project.

**1.03 SUBMITTALS**

- A. Submit name and address of Registered Surveyor along with proof of credentials and experience in similarly scaled projects to the Engineer.
- B. Submit detailed description of proposed survey method, network diagrams and equipment type, accompanied with manufacturer's literature specifying probable accessories, calibration procedures and certificates/logs, requirements and frequencies. On request of Engineer, submit documentation to verify accuracy of construction staking.
- C. Submit record drawings in accordance with PART 3 of the Section.

**1.04 Equipment Calibration and Data Accurate Processing**

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- A. Calibrate all instruments as per manufacturer's recommendation and keep a log of calibration performance indicating time and individual who performed the calibration.
- B. Data processing shall include, as required, rigorous least squares adjustments. Employ data outlier detection. Determine horizontal and vertical confidence intervals.

### **1.05 Compliance With Contractor's Offered Field Engineering Services**

- A. Report to the engineer any loss or destruction of any of the survey control points. In addition, any discovered discrepancy related to the control points established by the engineer, the latter must be informed within forty-eight (48) hours of the discovery and before starting the work.
- B. Establish, verify and maintain a minimum of three (3) additional survey monuments for the work at each work site. The monuments shall be permanent on site and referenced to the established survey control points. Record locations, with horizontal and vertical data, on Project Record Documents. Monuments will also be checked and verified by the construction verification surveyor. Survey notes relating to the monuments and primary control points shall be submitted to the Engineer.
- C. Establish elevations, lines and levels. Locate and layout by instrumentation and similar appropriate means:
  - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes and invert elevations.
  - 2. Grid or axis for structures.
  - 3. Foundation and wall locations, sloping floor elevations, and embedment centerlines and elevations.

## **PART 2 (NOT USED)**

## **PART 3 EXECUTION**

### **3.01 PROJECT CONDITIONS**

- A. The Drawings provide the location of principal components of the Project. The Engineer may order changes to the location of some of the components of the Project or provide clarification to questions regarding the correct alignment.
- B. The Engineer will provide the following:
  - 1. One vertical control point on the Project site with its elevation shown on the Drawings.
  - 2. A minimum of two horizontal control points on the Project site with their coordinates shown on the Drawings.

### **3.02 GENERAL**

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- A. From the information shown on the Drawings and the information to be provided as indicated in paragraph 3.01 above, the Contractor shall:
1. Be responsible for establishing GPS control coordinate control system, setting reference points and/or offsets, establishment of baselines, and all other layout, taking, and all other surveying required for the construction of the Project.
  2. The horizontal position of all points shall be referenced to the North American datum of 1983 (1986 adjustment) in the Georgia State Plane West 1002 Coordinate System.
  3. The vertical position of all points shall be referenced to the North American Vertical datum of 1988.
  4. All coordinate values shall be delivered as grid coordinates in US Survey Feet.
  5. The minimum data accuracy required for all record drawings shall be +/- 0.10 USFT (one tenth of one foot).
  6. Safeguard all reference points, stakes, grade marks, horizontal and vertical control points, and shall bear the cost of re-establishing same if disturbed.
  7. Stake out the limits of construction to ensure that the Work does not deviate from the indicated limits.
  8. Stake out the pipeline horizontal and vertical alignment.
  9. Be responsible for all damage done to reference points, baselines, center lines and temporary bench marks, and shall be responsible for the cost of re-establishment of reference points, baselines, center lines and temporary bench marks as a result of the operations.
  10. Maintain a complete, accurate log of all control and survey work as it progresses.
- B. Baselines shall be defined as the line to which the location of the Work is referenced, i.e., edge of pavement, road centerline, property line, right-of-way or survey line.

### **3.03 STAKING PRECISION**

- A. The precision of construction staking shall match the precision of components location indicated on the Drawings. Staking of utilities shall be done in accordance with standard accepted practice for the type of utility.
- B. The precision of construction staking required shall be such that the location of the water main or sewer or storm drain can be established for construction and verified by the Engineer. Where the location of components of the water main or sewer or storm drain, ( i.e. fittings, valves, manholes, road crossings, etc.) are not dimensioned, the establishment of the location of these components shall be based upon scaling these locations from the Drawings with relation to readily identifiable land marks, i.e. survey reference points, power poles, manholes etc.
- C. Paved Surfaces: The Contractor shall establish a reference point for establishing and

verifying the paving subgrade and finished grade elevations. Any variance with grades shown on the Drawings shall be identified by the Contractor and confirmed by the Engineer prior to constructing the base.

D. The Contractor's attention is directed to Specification Section 01040, Coordination.

### **3.04 RECORD DRAWINGS**

#### **A. Water Mains**

1. The Contractor shall submit record drawings which show the final installed location of the water main and survey data for all installed pipe, valves and fittings, tunnel and casing limits and service connections 3-inches in diameter and greater. Survey data shall consist of final coordinates for all valves, fittings, tunnel and casing limits and main tap locations for service connections 3-inches in diameter and greater and center line of pipe at points every 500 feet along the length of pipe installed.
2. In addition, the location of all valves and fittings and main tap location for service connections 3-inches in diameter and greater shall be indicated by at least 2 ties (measured distances) from permanent fixed objects within the public right of way, as accepted by the Engineer, to allow the Owner to locate the water main and components in the future without the use of GPS instruments.

#### **B. Sewers and Storm Drains**

1. The Contractor shall submit record drawings which show the final installed location of storm and sanitary pipes and structures. The information shall include coordinations, pipe and structure size and type, rim elevations, and inverts of each influent and effluent line.
2. Record drawing information provided shall include pipe sizes, slope percentage, and materials. Lateral tie-ins and alignments to the served facilities shall also be included.

C. The record drawings shall also indicate the horizontal and vertical location, dimensions and materials of all utilities encountered during excavation.

D. Record drawings must be georeferenced to the U.S. State Plane Coordinate System, NAD 83 GA West Zone, US Survey Feet. All drawings must contain two reference pins which are labeled and tied to the Fulton County GPS Monument Network.

E. Two full size hard copies of record drawings shall be furnished to the Engineer for review. Each record drawing shall be stamped with the name of the Contractor, signed and dated by the Contractor's Project Manager and signed, sealed and dated by the Surveyor. Record Drawings, once approved by the Engineer, shall be scanned and saved as PDF's.

F. The Contractor shall provide an electronic copy of the record drawings in AutoCAD Civil 3D 2015 (.DWG) format.

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- G. Final submittal of record drawings shall be provided by two compact disks containing the signed and sealed PDF's and DWG files referenced above.

**+++ END OF SECTION 01055 +++**

**SECTION 01060  
REGULATORY REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SCOPE**

- A. Permits and Responsibilities: The Contractor shall be responsible for complying with all applicable federal, state, county and municipal laws, codes and regulations, in connection with the prosecution of the Work and for obtaining all permits including but not limited to NPDES permits for storm water discharges from the Work site.
- B. Permits and applications for this project are identified in PART 3 of this Section.
- C. The Contractor shall comply with all requirements of the permitting authority, whether permits were obtained by the Contractor or not.

**PART 2 PRODUCTS**

**(NOT USED)**

**PART 3 EXECUTION**

**3.01 NPDES PERMITS FOR STORM WATER DISCHARGES**

- A. The Contractor shall comply with the provisions of the Authorization to Discharge under the National Pollutant Discharge Elimination System, Storm Water Discharges Associated with Construction Activity for Infrastructure Construction Projects, Georgia Environmental Protection Division General Permit No. GAR 100002, including but not limited to filing permit applications, filing Notice of Intent (NOI), filing Notice of Termination (NOT), performing inspections and monitoring and performing record keeping as required.
- B. (Not Used)

**3.02 CITY LANE CLOSURE PERMITS**

- A. The Engineer, in conjunction with the Contractor, will submit permit applications to the City's Department of Public Works, Office of Transportation for all lane closures required for completion of the project. Refer to Section 01550, Traffic Regulation.
- B. (Not Used)

**3.04 NOISE CONTROL**

- A. The Contractor shall take every action possible to minimize the noise caused by their Work.
- B. When required by agencies having jurisdiction, noise-producing Work shall be performed in less sensitive hours of the day or week as directed by the Engineer.



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- C. The Contractor shall provide equipment that operates with the least possible noise. The use of noisy equipment is prohibited. Hoists and compressor plants shall be electronically operated unless otherwise permitted. The air intake of compressors shall be equipped with silencers, and machinery operated by gearing shall be provided with a type of gearing designed to reduce noise to a minimum. Internal combustion engines shall be equipped with mufflers in good order.
- D. Noise generated by mobile construction equipment, stationary construction equipment, and other equipment involved in the construction of the work shall not exceed decibel levels indicated below. Noise generated by the mobile and stationary construction equipment will be measured three (3) to six (6) feet from building lines, and on the A weighing network of Type-2 general purpose sound level meter set at fast response.

Allowable sound levels Mobile Construction Equipment:	Combined Residential and Commercial
From 7:00 a.m. to 10:00 p.m., Monday thru Saturday, Except Legal Holidays	85 dBA
At times other than those listed above	70 dBA
Allowable sound levels Stationary Construction Equipment:	Combined Residential and Commercial
From 7:00 a.m. to 10:00 p.m., Monday thru Saturday, Except Legal Holidays	70 dBA
At times other than those listed above	60 dBA

- E. Contractor shall assure compliance by measuring noise levels as may be required.

**3.05 OTHER PERMITS**

- A. The Contractor shall submit applications for and obtain all other permits required in conjunction with completion of the Work of the Contact.
- B. (Not Used)

**3.06 GENERAL**

- A. The Contractor shall pay for all remaining permits, fees and licenses required for construction of the Project.

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- B. The Contractor shall examine all permits and conform to the requirements contained therein, including the purchase of additional bonds or insurance as specified therein, and such requirements are hereby made a part of these Contract Documents as though the same were set forth herein. Failure to examine the permit and agreement applications will not relieve the Contractor from compliance with the requirements stated therein.
- C. No separate payment shall be made to the Contractor for permits, fees and licenses required for construction of the Project. Provision for such costs is considered incidental and included in the work of the various pay items.

**+++ END OF SECTION 01060 +++**

**SECTION 01101  
SPECIAL PROJECT PROCEDURES**

**PART 1 - GENERAL**

**1.01 CONNECTIONS TO EXISTING SYSTEMS**

- A. The Contractor shall perform all work necessary to locate, excavate, and prepare for connections to the terminus of the existing systems as shown on the Drawings. The cost for this work and for the actual connection to the existing systems shall be included in the bid price for the project and shall not result in any additional cost to the City. Connections shall be made only after approval by the Engineer.

**1.02 RELOCATIONS**

- A. The Contractor shall be responsible for the relocation of structures, including but not limited to light poles, signs, sign poles, fences, piping, conduits, and drains that interfere with the positioning of the Work as set out on the Drawings. The cost of all such relocations shall be included in the bid price.

**1.03 EXISTING UNDERGROUND PIPING, STRUCTURES, AND UTILITIES**

- A. The attention of the Contractor is drawn to the fact that during excavation, the possibility exists of the Contractor encountering various water, gas, telephone, electrical, or other utility lines not shown on the Drawings. The Contractor shall exercise extreme care before and during excavation 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 City.
- B. 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.
- C. The existing piping and utilities that interfere with new construction 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 Engineer of the location of the pipeline or utility and shall reroute or relocate the pipeline or utility as directed.
- D. The Contractor shall exercise care in any excavation to locate all 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 Engineer.

**1.04 HAZARDOUS LOCATIONS**

- A. The existing wet wells, manholes and related areas are hazardous locations, in that

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explosive concentrations of sewage gas may be present. The Contractor is cautioned that the above areas, especially the wet well, may be deficient in oxygen. Checks shall be made by the Contractor whenever personnel are working in these areas to determine if adequate oxygen is available.

### **1.05 CONNECTIONS TO WORK BY OTHERS**

- A. As shown on the Drawings, pipelines constructed under this Contract are to be connected to pipelines to be built by others.
- B. Pipelines built under this Contract will be connected to pipelines constructed by others by removing the plugs and making the connection.
- C. If the pipelines have not been constructed by others, the pipeline (under this Contract) shall be laid to the required line and grade, terminated with a plugged connection, precisely at the location indicated on the Drawings and then backfilled and marked with a stake.

### **1.06 WATER FOR CONSTRUCTION PURPOSES**

- A. All water for testing, flushing and construction shall be furnished by the City. The City shall have the option of recouping the cost of plant water usage. It may be available by connecting to the City's water system at a point approved by the Engineer. There shall be installed in each and every connection to the City's potable water supply, a meter and a backflow preventer meeting the requirements of the City of Atlanta, Department of Water.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION (NOT USED)**

**+++ END OF SECTION 01100 +++**

**SECTION 01200  
MEASUREMENT AND PAYMENT**

**PART 1 – GENERAL****1.01 SCOPE**

- A. Work includes furnishing all plant, labor, equipment, tools, materials, and performing all operations required to complete the Work satisfactorily, in-place, as specified and as indicated on the Drawings.
- B. All costs of required items of work and incidentals necessary for the satisfactory completion of the Work shall be considered as included in the Bid. The cost of work not directly described in the pay item descriptions, but necessary to complete the work of the pay item, shall be considered incidental to the contract and no additional compensation shall be allowed.
- C. The Contractor shall take no advantage of any apparent error or omission on the Drawings or Specifications, and the Engineer shall be permitted to make corrections and interpretations as may be deemed necessary for fulfillment of the intent of the Contract Documents.

**1.02 SUBMITTALS**

- A. The Contractor shall submit to the Engineer for approval, in the form directed or acceptable to the Engineer, a complete schedule of values of the various portions of the Work, including quantities and unit prices, aggregating the Contract Price, per General Condition GC-38.1. An unbalanced breakdown providing for overpayment to the Contractor on items of Work, which would be performed first, will not be approved.
- B. Submit application for payment on a form approved by the Engineer showing allowances, lump sum schedule of value items, and unit price items in accordance with Section 01026 and Special Condition SC-16.
- C. Final payment quantities shall be determined from the record drawings or as measured in the field during construction by the Project Inspector. The record drawing lengths, dimensions, quantities, etc. shall be determined by a survey after completion of all required work.

**1.01 LUMP SUM ITEMS**

- A. Payment of the lump sum items established in the Contractor's Bid shall be full compensation for all labor, materials, and equipment required to furnish, install, construct, and test the Work covered under the lump sum bid items.
- B. Payment of the lump sum items established in the Contractor's Bid shall also fully compensate the Contractor for any other work which is not specified or shown, but which is necessary to complete the Work.
- C. The lump sum items shall be specifically subdivided by activity, broken-out in the Schedule of Values and as further required by Special Condition SC-16.

- D. Payments for the lump sum items specifically broken-out in the Schedule of Values will be based upon physical progress for each activity in accordance with the breakdown of the Lump Sum prices agreed to in the Schedule of Values.

## **1.02 MONTHLY PAYMENTS AND MEASUREMENT OF QUANTITIES**

- A. Monthly and Final payments will be based on the project Schedule of Values Breakdown approved per General Condition 38.1 and Specification Section 01026. Monthly payments shall be based on quantities shall be determined from progress recorded on project record drawings as approved by the Engineer each month. Record drawings shall be maintained throughout the life of the project. The record drawing lengths, dimensions, quantities, etc. shall be determined by a survey after completion of all required work. The precision of final payment quantities shall match the precision shown for that item in the Bid Schedule or Schedule of Values as required. Measurements will be taken according to the United States standard measurements and in the manner as specified in these Specifications.

### **B. General**

1. No separate or additional payment shall be made for the requirements contained in the Special Conditions of the Contract Documents. The cost for complying with these requirements shall be included in the prices bid for the items to which they pertain.
2. No separate or additional payment shall be made for the requirements contained in the individual specification sections contained in Division1 – General Requirements of the Technical Specifications. The cost for complying with these requirements shall be included in the prices bid for the items to which they pertain.

## **1.05 BID ITEMS**

### **A. ITEM NO .1 – BASE BID, LUMP SUM, COMPLETE.**

1. Measurement: Lump sum, Complete.
2. All work to complete the Project, and which is not included in other Items, shall be included in the lump sum amount for Item No. 1 “Base Bid”.

## **1.06 ALLOWANCES**

- A. The allowances specified in the Bid Schedule are to establish a fund to pay the cost of items for which the City could not establish accurate quantities and/or detailed scope of work. This work shall be completed only at the written direction of the Engineer, and the cost of such work shall be approved prior to performance of the work.
- B. The Contractor shall be responsible for the payment for these services to the appropriate payee providing such service and shall submit evidence of payments to the Owner and Engineer prior to it’s inclusion in the progress payments.

- C. Payment will be made for invoices submitted by the Contractor subject to the conditions and limitations in the Contract Documents.
- A. Allowance allocations shall only be paid to the Contractor for completed work authorized by the Owner or Engineer. All allowance dollar amounts not expended shall revert to the City at the completion of the project. Should the final allowance costs be less than the specified amount of the allowance the Contract will be adjusted accordingly by change order. The amount of change order will not recognize any changes in handling costs at the site, labor, overhead, profit and other expenses caused by the adjustment to the allowance item.
- B. ITEM NO. 2 – REPLACEMENT HISTORIC CABIN STRUCTURE
  - 1. An allowance has been established for the value of this item. This allowance may be used, as authorized and directed by the Owner or Engineer, to pay the costs of replacing the historic cabin structure. Costs shall be determined as specified in General Conditions Article GC-42, and as directed by the Engineer.
  - 2. The Drawings and Specifications do not currently include construction requirements, plans, details, and specifications that govern installation of the Replacement Historic Cabin Structure. The Owner and Engineer will furnish the Contractor with needed plans, details, and specifications at a later date. The Contractor will price the work provide a price proposal and a price for the work will be negotiated. Upon receipt of the Owner’s acceptance of the Contractor’s proposal, the Contractor will then be directed to construct the Replica Historic Cabin Structure.
- C. ITEM NO. 3 – ADDITIONAL EARTH EXCAVATION
  - 1. An allowance has been established for the value of this item. This allowance may be used, as authorized and directed by the Owner or Engineer, to pay the costs of additional earth excavation. Costs shall be determined as specified in General Conditions Article GC-42, and as directed by the Engineer. This work, not shown or specified in the Drawings or Specifications and not covered by another item in the Bid Schedule, may be required in the event the Engineer establishes the need for additional work deemed to be necessary and for the successful completion of this Agreement.
- D. ITEM NO. 4 – ADDITIONAL ROCK EXCAVATION
  - 1. An allowance has been established for the value of this item. This allowance may be used, as authorized and directed by the Owner or Engineer, to pay the costs of additional rock excavation. Costs shall be determined as specified in General Conditions Article GC-42, and as directed by the Engineer. This work, not shown or specified in the Drawings or Specifications and not covered by another item in the Bid Schedule, may be required in the event the Engineer establishes the need for additional work deemed to be necessary and for the successful completion of this Agreement.
- E. ITEM NO. 5 – ADDITIONAL BACKFILL
  - 1. An allowance has been established for the value of this item. This allowance may be used, as authorized and directed by the Owner or Engineer, to pay the costs of additional backfill. Costs shall be determined as specified in General Conditions Article GC-42, and as directed by the Engineer. This work, not shown or specified in the Drawings or

Specifications and not covered by another item in the Bid Schedule, may be required in the event the Engineer establishes the need for additional work deemed to be necessary and for the successful completion of this Agreement.

F. ITEM NO. 6 – ADDITIONAL REINFORCED CONCRETE

1. An allowance has been established for the value of this item. This allowance may be used, as authorized and directed by the Owner or Engineer, to pay the costs of additional reinforced concrete. Costs shall be determined as specified in General Conditions Article GC-42, and as directed by the Engineer. This work, not shown or specified in the Drawings or Specifications and not covered by another item in the Bid Schedule, may be required in the event the Engineer establishes the need for additional work deemed to be necessary and for the successful completion of this Agreement.

G. ITEM NO. 7 – UNFORSEEN CONDITIONS

1. An allowance has been established for the value of this item. This allowance may be used, as authorized and directed by the Owner or Engineer, to pay the costs of unforeseen conditions. Costs shall be determined as specified in General Conditions Article GC-42, and as directed by the Engineer. This work, not shown or specified in the Drawings or Specifications and not covered by another item in the Bid Schedule, may be required in the event the Engineer establishes the need for additional work deemed to be necessary and for the successful completion of this Agreement.

H. ITEM NO. 8 – PERMITTING ALLOWANCE

1. An allowance has been established for the value of this item. This allowance may be used, as authorized and directed by the Owner or Engineer, to pay the costs of permitting for the project. Costs shall be determined as specified in General Conditions Article G-42, and as directed by the Engineer. This work, not shown or specified in the Drawings or Specifications and not covered by another item in the Bid Schedule, may be required in the event the Engineer establishes the need for additional work deemed necessary and for the successful completion of this Agreement.

## 1.07 OPTIONAL ADDERS

- A. The Bid Form for this project includes Optional Adders that include additional items to be installed under this project if the Owner chooses to have the work performed. These adders include a 4<sup>th</sup> vertical turbine pump, 3<sup>rd</sup> screen, associated piping, valves, supports, power and controls, and other appurtenances, as well as a 2<sup>nd</sup> transit time meter in the RIPS site meter vault. The project award will be based on the Total Base Bid (Items 1-8), not including the cost of the adders (Items 9-12). The Owner will then decide whether to include the work of any adder at the Owner's sole discretion.
- B. Additional adders include a trolley crane over the pump station, and flow connection from Chattahoochee shaft to Chattahoochee WTP. Installation of the flow connection from the Chattahoochee Shaft to the Chattahoochee WTP influent piping, consisting of a liner plate tunnel constructed beneath the CSA railroad with 60-inch carrier pipe, the connection to the stub out to the Chattahoochee Tunnel Shaft, and the piping, valving, flow control valve and vault and tie-in's to the



existing Chattahoochee WTP water supply piping

- C. ITEM NO. 9 – OPTIONAL ADDER – INSTALL 4<sup>TH</sup> VERTICAL TURBINE PUMP AND 3<sup>RD</sup> SCREEN.
1. Measurement: Lump sum, complete, upon receipt of the Owner’s direction to proceed with the work of this Item.
  2. Payment shall include, but not be limited to:
    - a. Furnish and install a fourth vertical turbine and motor.
    - b. Furnish and install a 3<sup>rd</sup> screen.
    - c. Furnish and install all piping, valves, controls, power conductors, conduits, pipe and conduit supports, instrumentation, controls, and other appurtenances required for a complete and functioning installation.
    - d. All other labor, materials, tools, equipment, and incidentals required to complete the Work.
- D. ITEM NO. 10 – OPTIONAL ADDER – INSTALL 2<sup>ND</sup> TRANSIT TIME METER
1. Measurement: Lump sum, complete, upon receipt of the Owner’s direction to proceed with the work of this Item.
  2. Payment shall include, but not be limited to:
    - a. Furnish and install a second transit time meter in the RIPS meter vault.
    - b. Furnish and install all piping taps, valves, controls, power conductors, conduits, pipe and conduit supports, instrumentation, controls, and other appurtenances required for a complete and functioning installation.
    - c. All other labor, materials, tools, equipment, and incidentals required to complete the Work.
- A. ITEM NO. 11 – OPTIONAL ADDER – INSTALL TROLLEY AND BRIDGE CRANE ASSEMBLY
1. Measurement: Lump sum, Complete.
  2. All work to complete the construction of the trolley and bridge crane assembly as shown on the Drawings or in the Specifications, including foundations, columns, steel, bridge crane, electrical power, controls, coatings, testing, and other appurtenances and incidentals required to complete the construction of the work of this Item.
- B. ITEM NO. 12 – OPTIONAL ADDER – CHATTAHOOCHEE SHAFT AND CHATTAHOOCHEE WTP FLOW CONNECTION
1. Measurement: Lump sum, Complete.
  2. All work to complete the construction of the 8’ liner plate tunnel as shown on the Drawings and/or in the Specifications.

**+++ END OF SECTION 01200 +++**

**SECTION 01320  
CONSTRUCTION PHOTOGRAPHY**

**PART 1 GENERAL**

**1.01 SCOPE**

- A. The Contractor shall furnish all labor, equipment and materials required to provide the Owner with digital construction photography of the Project as specified herein.
- B. The Contractor shall provide for professional videos and photographs to be made prior to and after construction to provide documentation of conditions and aid in any damage claims assessment. All conditions which might later be subject to disagreement shall be shown in sufficient detail to provide a basis for decisions.
- C. Video and photo files shall become the property of the Owner and none of the video or photographs herein shall be published without express permission of the Owner.

**1.02 PRE AND POST CONSTRUCTION PHOTOGRAPHY**

- A. Prior to the beginning of any work, the Contractor shall provide for professional videos and photographs of the work area to record existing conditions.
  - 1. The Contractor shall furnish a complete videotaped record of the pump station sites, ductbanks, substation, driveway/access roads, and pipeline routes. The video tape shall include the date of taping and shall contain audio commentary to emphasize existing conditions along the entire route.
  - 2. The routes and sites shall be videotaped prior to beginning of construction. The Contractor shall furnish three sets of compact discs containing the videotaped data to the Engineer.
  - 3. The route shall also be videotaped at the completion of construction when directed by the Engineer. The video tape shall show the same areas and features as in the preconstruction videos. The Contractor shall furnish three sets of compact discs containing the videotaped data to the Engineer.
- B. The pre-construction videos shall be submitted to the Engineer within 15 calendar days after receipt of construction Notice to Proceed by the Contractor. Post construction videos and photographs shall be provided prior to final acceptance of the project.

**1.03 PROGRESS PHOTOGRAPHS**

- A. Photographs shall be taken to record the general progress of the Project during each pay period. Photographs shall be representative of the primary work being performed at the time.

- B. All photographs shall be taken with a digital camera. The photographs shall include the date and time marking in the digital record. All photographs shall be labeled on a tab connected to the bottom of the photo to indicate date and description of work shown.

## **PART 2 PRODUCTS**

### **2.01 PHOTOGRAPHS**

- A. Photography and video files shall be provided in CD-ROM format.
- B. Photographs shall also be provided in hard copy format. The photographs shall include the date and time marking on the photograph. All photographs shall be labeled on a tab connected to the bottom of the photograph. Tab label shall contain:
  - 1. Project name.
  - 2. Orientation of view.
  - 3. Description of work shown.
- C. All compact disks (CDs) furnished under this section shall be suitable for viewing with Windows Media Player.

## **PART 3 EXECUTION**

### **3.01 SUBMITTALS**

- A. No construction shall start until pre-construction photography has been completed and accepted by the Engineer.
- B. A minimum of ten 8 x10-inch progress photographs shall be submitted with each application for payment. The view selection will be as determined by the Engineer. Photographs shall be submitted in Print File Archival Preservers, 8 1/2 x 11-inch plastic sleeves pre-punched for a 3-ring binder.
- C. Construction photographs shall be submitted with each payment request. Failure to include photographs may be cause for rejection of the payment request.
- D. The Contractor shall be responsible for all discrepancies not documented in the pre-construction videos and photography.

**+++ END OF SECTION 01320 +++**

**SECTION 01400**  
**QUALITY ASSURANCE/QUALITY CONTROL**

**PART 1 GENERAL**

**1.01 SCOPE**

- A. This section includes requirements for the implementation of the Contractor's quality assurance and quality control program.
- B. (Not Used)

**1.02 SUMMARY**

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
  - 1. Specific quality-assurance and –control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections and related actions do not limit Contractor's other quality assurance and –control procedures that facilitate compliance with the Contract Document requirements
  - 3. Requirements for Contractor to provide quality-assurance and –control services required by Architect, Owner or authorities having jurisdiction are not limited by provisions of this Section.
  - 4. Specific test and inspection requirements are not specified in this Section.

**1.03 DEFINITIONS**

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect or Construction Manager.
- C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the work, to verify performance or compliance with specified criteria.

- D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish performance and compliance with specified requirements.
- E. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory or shop.
- F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- G. Testing Agency: An entity engaged to perform tests, inspections or both. Testing laboratory shall mean the same as testing agency.
- H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor of Sub-subcontractor, to perform a particular construction operation, including installation, erection, application and similar operations.
  - 1. Use of trade-specified terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- I. Experienced: When used with an entity or individual, “experienced” means having successfully completed a minimum of five previous projects similar in nature, size, and scope of this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

#### **1.04 CONFLICTING REQUIREMENTS**

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirements. Refer conflicting requirements that are different, but apparently equal to Engineer for decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quality or quantity specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Engineer for a decision before proceeding

#### **1.05 SUBMITTALS**

- A. Contractor’s Quality-Control Plan: For quality assurance and quality-control activities and responsibilities.

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- B. Qualification Data: For testing agencies specified in “Quality Assurance” Article to determine their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Entity responsible for performing tests and inspections.
  - 3. Description of test and inspection.
  - 4. Identification of applicable standards.
  - 5. Identification of test and inspection methods.
  - 6. Number of tests and inspections required.
  - 7. Time schedule or time span for tests and inspections.
  - 8. Requirements for obtaining samples.
  - 9. Unique characteristics of each quality-control service.

### **1.02 SITE INVESTIGATION AND CONTROL**

- A. Contractor shall check and verify all dimensions and conditions in the field continuously during construction. Contractor shall be solely responsible for any inaccuracies built into the Work due to Contractor’s and subcontractor’s failure to comply with this requirement.
- B. Contractor shall inspect related and appurtenant Work and report in writing to the Engineer any conditions that will prevent proper completion of the Work. Failure to report any such conditions shall constitute acceptance of all Site conditions, and any required removal, repair, or replacement caused by unsuitable conditions shall be performed by the Contractor solely and entirely at Contractor’s expense.

### **1.03 INSPECTION OF THE WORK**

- A. All work performed by the Contractor and subcontractors shall be inspected by the Contractor and non-conforming Work and any safety hazards in the work area shall be noted and promptly corrected. The Contractor is responsible for the Work to be performed safely and in conformance to the Contract Documents.
- B. The Work shall be conducted under the general observation of the Engineer and is subject to inspection by representatives of the City acting on behalf of the City to ensure strict compliance with the requirements of the Contract Documents. Such inspection may include mill, plant, shop, or field inspection, as required. The Engineer or any inspector(s) shall be permitted access to all parts of the Work, including plants where materials or equipment are manufactured or fabricated.
- C. The presence of the Engineer, or any inspector(s), however, shall not relieve the Contractor of the responsibility for the proper execution of the Work in accordance with all requirements of the Contract Documents. Compliance is the responsibility of the Contractor. No act or omission on the part of the Engineer, or any inspector(s) shall be

construed as relieving Contractor of this responsibility. Inspection of Work later determined to be non-conforming shall not be cause or excuse for acceptance of the non-conforming Work. The City may accept non-conforming Work when adequate compensation is offered, and it is in the City's best interest as determined by the City.

- D. All materials and articles furnished by the Contractor or subcontractors shall be subject to rigid documented inspection, by qualified personnel, and no materials or articles shall be used in the Work until they have been inspected and accepted by the Contractor's Quality Control representative and the Engineer or other designated representative. No Work shall be backfilled, buried, cast in concrete, covered, or otherwise hidden until it has been inspected. Any Work covered in the absence of inspection shall be subject to uncovering. Where uninspected Work cannot be easily uncovered, such as in concrete cast over reinforcing steel, all such Work shall be subject to demolition, removal, and reconstruction under proper inspection at the Contractor's expense.
- E. All materials, equipment and/or articles furnished to the Contractor by the City shall be subject to rigid inspection by the Contractor's Quality Control representative before being used or placed by the Contractor. The Contractor shall inform the Engineer, in writing, of the results of said inspections within one working day after completion of inspection. In the event the Contractor believes any material or articles provided by the City to be of insufficient quality for use in the Work, the Contractor shall immediately notify the Engineer.

#### **1.04 TIME OF INSPECTION AND TESTS**

- A. Samples and test specimens required under these Specifications shall be furnished and prepared for testing in ample time for the completion of the necessary tests and analyses before said articles or materials are to be used. The Contractor shall furnish and prepare all required test specimens at Contractor's own expense.
- B. Whenever the Contractor is ready to backfill, bury, cast in concrete, hide, or otherwise cover any Work under this Contract, the Engineer shall be notified not less than three workdays in advance to request inspection before beginning any such Work of covering. Failure of the Contractor to notify the Engineer at least three workdays in advance of any such inspections shall be reasonable cause for the Engineer to order a sufficient delay in the Contractor's schedule to allow time for such inspection. The costs of any remedial or corrective work required, and all costs of such delays, including its impact on other portions of the Work, shall be borne by the Contractor.

#### **1.05 SAMPLING AND TESTING**

- A. The Contractor shall retain and pay for an independent materials testing agency approved by the Engineer and the City of Atlanta as required by the General Conditions. This independent testing agency will develop and submit a testing plan for quality assurance on each type of work activity. The testing agency will document the processes and procedures utilized to verify and maintain quality work. When not otherwise specified, all



sampling and testing shall be in accordance with the methods prescribed in the most current standards, as applicable to the class and nature of the article or materials considered. However, the Engineer reserves the right to use any generally accepted system of inspection which, in the opinion of the Engineer, will ensure the Engineer that the quality of the workmanship is in full accord with the Contract Documents.

- B. The City reserves the right to abbreviate, modify the frequency of or waive tests or quality assurance measures, but waiver of any specific testing or other quality assurance measure, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial work, shall not be construed as a waiver of any technical or qualitative requirements of the Contract Documents.
- C. Notwithstanding the existence of such waiver, the City shall reserve the right to make independent investigations and tests as specified in the following paragraph and failure of any portion of the Work to meet any of the qualitative requirements of the Contract Documents, shall be reasonable cause for the City to require the removal or correction and reconstruction of any such Work.
- D. In addition to any other inspection or quality assurance provisions that may be specified, the City shall have the right to independently select, test, and analyze, at the expense of the City, additional test specimens of any or all of the materials to be used. Results of such tests and analyses shall be considered along with the tests or analyses made by the Contractor to determine compliance with the applicable specifications for the materials so tested or analyzed provided that wherever any portion of the Work is discovered, as a result of such independent testing or investigation by the Engineer, which fails to meet the requirements of the Contract Documents, all costs of such independent inspection and investigation and all costs of removal, correction, reconstruction, or repair of any such Work shall be borne by the Contractor.

#### **1.06 CONTRACTOR'S QUALITY CONTROL REQUIREMENTS**

- A. The Contractor shall establish and execute a Quality Control (QC) program for the services that are being procured from the Contractor. The program shall provide the Contractor with adequate measures for verification and conformance to defined requirements by the Contractor's personnel and subcontractors (including fabricators and suppliers). This program shall be described in a Plan responsive to this Section. It shall utilize the services of an independent testing agency/company that is industry certified to provide quality assurance and compliance with the standards specified.
- B. The Contractor shall furnish the Engineer a project specific QC Plan. The Plan shall contain a comprehensive account of Contractor's QC procedures as applicable to this job. The Contractor shall furnish for review by the Engineer, no later than 14 days after receipt of notice to proceed, the QC plan proposed to be implemented. The plan shall

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identify personnel, procedures, control, instructions, tests, records, and forms to be used. Construction will be permitted to begin only after acceptance of the QC Plan. The detailed requirements for this Plan are delineated in the following paragraphs. No payments will be made to the Contractor until the QC Plan is fully accepted by the Engineer.

- C. The QC Plan shall describe and define the personnel requirements described herein. The Contractor shall employ a full-time on-site QC Manager to manage, address and resolve all quality control issues.
  - 1. The QC Manager shall be as identified by the Contractor and approved by the City. The QC Manager shall have a minimum of five (5) years of construction experience in pipeline installation. The QC Manager shall be onsite at all times while work is being performed by the contractor, to remedy and demonstrate that work is being performed properly and to make multiple observations of all Work in progress. This individual shall be dedicated solely to QC activities and shall have no supervisory or managerial responsibility over the work force. The QC Manager shall not be assigned any other duties or roles by the Contractor.
  - 2. The Contractor shall provide additional personnel who are assigned to assist the QQC Manager as required to fulfill the requirements of the QC Plan. The Contractor shall provide a copy of the letter to the QC Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the QC Manager, including authority to stop work which is not in compliance with the contract. The QC Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Engineer.
- D. The Contractor's QC program shall ensure the achievement of adequate quality throughout all applicable areas of the Project. A customized QC Plan shall be developed that discusses each type of work that the Contractor is responsible for within the Project. The QC Plan shall describe the program and include procedures, work instructions and records and a description of the quality control organization.
  - 1. The description of the quality control organization shall include a chart showing lines of authority staffing plan and acknowledgment that the QC staff shall implement the system for all aspects of the work specified. The staffing plan shall identify the name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a QC function including the QC Manager.
  - 2. In addition, the Plan shall describe methods relating to areas that require special testing and procedures as noted in the specifications.

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- E. Identification and Control of Items and Materials: Procedures to ensure that items or materials that have been accepted at the site are properly used and installed shall be described in the QC Plan.
  - F. The procedures shall provide for proper identification and storage and prevent the use of incorrect or defective materials.
  - G. Inspection and Tests: The Contractor shall have written procedures defining a program for control of inspections performed and these procedures shall be described in the QC Plan. The QC Plan shall include a comprehensive schedule of Work requiring
    - 1. Inspections and tests shall be performed and documented by qualified individuals. At a minimum, "qualified" shall mean having performed similar QC functions on similar type projects for a minimum of five (5) years and possession of industry standards certification and license. Records of personnel experience, training and qualifications shall be submitted to the Engineer for review and approval.
    - 2. The Contractor shall maintain and provide to the Engineer, within two working days of completion of each inspection and test, adequate records of all such inspections and tests. Inspection and test results shall be documented and evaluated to ensure that requirements have been satisfied.
    - 3. The QC Plan shall be a comprehensive schedule of Work requiring testing or inspection, including the following:
      - a. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Contractor-performed tests and inspections cannot be performed by the Special Inspector.
      - b. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
      - c. Owner-performed tests and inspections indicated in the Contract Documents
- 3. Procedures shall include:
    - a. Specific instructions defining procedures for observing all Work in process and comparing this Work with the Contract requirements (organized by specification section).
    - b. Maintaining and providing daily QC inspection reports. Such reports shall, at a minimum, include the following:
      - i. Dated list of Item(s) inspected
      - ii. Project title and number

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- iii. Name, address and telephone number of testing agency
  - iv. Dates and location of the test sample(s)
  - v. Names of individuals making tests and inspections
  - vi. Identification of product and Specification Section
  - vii. Logs, detailed locational drawings and confirmation reports
  - viii. Record of temperature and weather conditions at time of sample taking and testing and inspecting
  - ix. Quality characteristics in compliance
  - x. Quality characteristics not in compliance
  - xi. Corrective/remedial actions taken
  - xii. Statement of certification
  - xiii. QC Manager's signature
- c. Specific instructions for recording all observations and requirements for demonstrating through the reports that the Work observed was in compliance or a deficiency was noted and action to be taken.
  - d. Procedures to preclude the covering of deficient or rejected Work.
  - e. Procedures for halting or rejecting Work.
  - f. Procedures for resolution of differences between the QC representative(s) and the production representative(s).
  - g. Method of documenting QC process and results including:
    - i. Automatic exception reporting
    - ii. Resolution tracking
    - iii. Quality Confirmation Test reports
    - iv. Sample retention index and storage
4. The QC Plan shall identify all contractual hold/inspection points as well as any Contractor imposed hold/inspections points.
5. The QC Plan shall include procedures to provide verification and control of all testing provided by the Contractor including:
- a. Individual test records containing the following information:
    - i. Item tested –item number and description
    - ii. Test results
    - iii. Test designation
    - iv. Test work sheet including location sample was obtained
    - v. Acceptance or rejection
    - vi. Date sample was obtained
    - vii. Retest information, if applicable

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- viii. Control requirements
    - ix. Tester signature
    - x. Testing QC staff initials
  - b. Maintaining and providing to the Engineer daily testing records. Such records shall, at a minimum, contain the following:
    - i. Dated list of Item(s) inspected
    - ii. Location of the test sample(s)
    - iii. Logs, detailed location drawings and confirmation reports
    - iv. Quality characteristics in compliance
    - v. Quality characteristics not in compliance
    - vi. Corrective/remedial actions taken
    - vii. Statement of certification
  - c. QC Manager's signature providing for location maps/drawings (i.e. lift drawings, laying schedules, etc.) for all tests performed or location of Work covered by the tests.
  - d. Maintaining copies of all test results.
  - e. Ensuring Engineer receives independent copy of all tests.
  - f. Ensuring testing lab(s) are functioning independently and in accordance with the specifications.
  - g. Ensuring re-tests are properly taken and documented.
- H. Control of Measuring and Test Equipment: Measuring and/or testing instruments shall be adequately maintained, calibrated, certified and adjusted to maintain accuracy within prescribed limits. Calibration shall be performed at specified periods against valid standards traceable to nationally recognized standards and documented.
- I. Supplier Quality Assurance: The QC Plan shall include procedures to ensure that procured products and services conform to the requirements of the Specifications. Requirements of these procedures shall be applied, as appropriate, to subcontractors and suppliers. QA/QC inspections and certifications shall not be deferred to the Contractor's subcontractors or suppliers.
- J. Deficient, Defective and Non-conforming Work and Corrective Action
- 1. The QC Plan shall include procedures for handling of deficiencies and non-conformances. Deficiencies and non-conformances are defined as documentation, drawings, material, and equipment or Work not conforming to the specified requirements or procedures. The procedures shall prevent non-conformances by identification, documentation, evaluation, separation, disposition and corrective

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action to prevent recurrence. Conditions having adverse effects on quality shall be promptly identified and reported to the senior level management. The cause of conditions adverse to quality shall be determined and documented and measures implemented to prevent recurrence. In addition, at a minimum, this procedure shall address:

- a. Personnel responsible for identifying deficient and non-complying items within the work.
  - b. How and by whom deficient and non-compliant items are documented “in the field”.
  - c. The personnel and process utilized for logging deficient and non-compliant work at the end of each day onto a Deficiency Log.
  - d. Tracking processes and tracking documentation for Deficient and Non-Compliant items.
  - e. Personnel responsible for achieving resolution of outstanding deficiencies.
  - f. Once resolved, how are the resolutions documented and by whom.
2. (Not Used)

### K. Special Processes and Personnel Qualifications

1. The QC Plan shall include detailed procedures for the performance and control of special process (e.g. welding, soldering, heat treating, cleaning, plating, nondestructive examination, etc.).
2. Personnel performing special process tasks shall have the experience, training and certifications commensurate with the scope, complexity, or nature of the activity. They shall be approved by the Engineer before the start of Work on the Project.

### L. Audits

1. The Contractor’s QC program shall provide for documented audits to verify that QC procedures are being fully implemented by the Contractor as well as its subcontractors. Audit records shall be made available to the Engineer upon request.
2. The Contractor shall provide to the City, a quarterly report indicating any outstanding and unresolved exceptions to the QC program or contract documents. The report will include documentation on any standards modifications, corrections, failed tests and a review of field procedures and checks and balances effectiveness.

### M. Documented Control/Quality Records

1. The Contractor shall establish methods for control of Contract Documents that describe how Drawings and Specifications are received and distributed to assure the correct issue of the document being used. The methods shall also describe how as-built data are documented and furnished to the Engineer.
  2. The Contractor shall maintain evidence of activities affecting quality, including operating logs, records of inspections and tests, audit reports, material analyses, personnel qualification and certification records, procedures, and document review records.
  3. Quality records shall be maintained in a manner that provides for timely retrieval, and traceability. Quality records shall be protected from deterioration, damage, and destruction. The Contractor shall maintain an automated exceptions list of any non-conforming or defective or substandard work.
  4. The Contractor shall provide a list with specific records as specified in the Contract Documents which will be furnished to the Engineer at the completion of activities and in conjunction with logs and location drawings.
- N. Acceptance of QC Plan: The Engineer's review and acceptance of the Contractor's QC Plan shall not relieve the Contractor from any of its obligations for the performance of the Work. The Contractor's QC staffing is subject to the Engineer's review and continued acceptance. The City, at its sole option, without cause, may direct the Contractor to remove and replace the QC representative. No Work covered by the QC Plan shall start until the Engineer's acceptance of Contractor's QC plan has been obtained.
- O. The Engineer may perform independent quality assurance audits to verify that actions specified in Contractor's QC Plan have been implemented. No Engineer audit finding, or report shall in any way relieve Contractor from any requirements of this Contract.

#### **1.07 REPORTS AND DOCUMENTS**

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
1. Date of issue
  2. Project title and number
  3. Name, address, and telephone number of testing agency
  4. Dates and locations of samples and tests or inspections
  5. Names of individuals making tests and inspections
  6. Description of the Work and test and inspection method.
  7. Identification of product and Specification Section
  8. Complete test or inspection data
  9. Test and inspection results and an interpretation of test results
  10. Record temperature and weather conditions at time of sample taking and testing and inspecting

11. Comments or professional opinions on whether tested or inspected Work complies with the Contract Document requirements
  12. Name and signature of laboratory inspector
  13. Recommendations on retesting and reinspection
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of technical representatives making report
  2. Statement on condition of substrates and their acceptability for installation of product.
  3. Statement that products at Project site comply with requirements.
  4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  6. Statement whether conditions, products, and installation will affect warranty.
  7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making reports
  2. Statement that equipment complies with requirements.
  3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  4. Statement whether conditions, products, and installation will affect warranty.
  5. Other required items indicated in individual Specification Sections.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

## **1.08 QUALITY ASSURANCE**

- A. General: Qualification paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.



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- C. Fabricators Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Install Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
  - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
  - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this project.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with following:
  - 1. Contractor responsibilities include the following:
    - a. Provide test specimens representative of proposed products and construction.

- b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
  - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
  - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
  - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
  - a. f. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.
2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and Owner, with copy to Contractor and to authorities having jurisdiction. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- K. Special Inspector: Special Inspectors shall meet the more stringent of the qualifications listed in this section and the requirements listed in the Statement of Special Inspections submitted to the Authority Having Jurisdiction on this site or otherwise required by the Authority Having Jurisdiction.

## 1.09 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services:
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform
  2. Payment for these services will be made from testing and inspecting allowances.
  3. Costs for retesting and reinspection construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
  2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

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- a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. **Manufacturer's Field Services:** Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in "Submittal Procedures."
- D. **Manufacturer's Technical Services:** Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. **Retesting/Reinspection:** Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspection, for construction that replaced Work that failed to comply with the Contract Documents.
- F. **Testing Agency Responsibility:** Cooperate with Engineer, Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of Contractor.
- G. **Associated Services:** Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested.

Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Delivery of samples to testing agencies.
  6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

## **1.09 SPECIAL TESTS AND INSPECTIONS**

- A. Special Tests and Inspection: It will be the owner's responsibility to contract for special inspections to conduct special tests and inspections required by authorities having jurisdiction as follows:
1. Verifying manufacturer's certification by submittal of documentation.
  2. Notifying Architect, Owner and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect and Owner, with copy to Contractor and to authorities having jurisdiction.
  4. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  5. Retesting and reinspection corrected work.
  6. Submitting a final report of special tests and inspections at Substantial Completion, which shall include descriptions of satisfactory resolutions achieved for all previously reported deficiencies.

## 1.10 TESTING SERVICES

- A. All tests which require the services of a laboratory to determine compliance with the Contract Documents shall be performed by an independent commercial testing firm acceptable to Engineer. The testing firm's laboratory shall be staffed with experienced technicians, properly equipped and fully qualified to perform the tests in accordance with the specified standards. All standard quality assurance testing and installation verification testing will be at the expense of the Contractor.
- B. Testing, when required, will be in accordance with all pertinent codes and regulations and with procedures and requirements of the American Society for Testing and Materials (ASTM).
- C. The Engineer shall have the right to inspect work performed by the independent testing laboratory both at the project and at the laboratory. This shall include inspection of the manual, equipment calibrations, proficiency sample performance, etc.).
- D. Testing services provided by the City, if any, are for the sole benefit of the City; however, test results shall be available to the Contractor. Testing necessary to satisfy Contractor's internal quality control procedures shall be the sole responsibility of Contractor.
- E. Testing Services Provided by the Contractor
  - 1. Unless otherwise specified, and in conjunction with, all other specified testing requirements, the Contractor shall provide the following testing services, and submit a detailed testing plan for each along with proposed forms for Engineer's review:
    - 2. Moisture-density and relative density tests on embankment, fill, and backfill materials.
    - 3. In-place field density test on embankments, fills and backfill.
    - 4. QC testing of all precast and/or pre-stressed concrete
    - 5. All other tests and engineering data required for the Engineer's review of materials and equipment proposed to be used in the Work
    - 6. In addition, the following QC tests shall be performed by the Contractor:
      - a. Holiday testing of pipeline and all other coatings systems applied to surfaces as required by the Engineer
      - b. Slumps, air bucket tests, compression tests and other confirmation tests

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- c. Air testing of field-welded joints for steel pipe or pipe cylinders and fabricated specials.
  - d. All testing and inspection of welding work including, but not limited to, welding procedure qualifications, welder operator qualifications, all work performed by the certified welding inspector, all appropriate nondestructive testing of welds and all repair and retest of weld defects.
7. Testing, including sampling, shall be performed by the Contractor's testing firm's laboratory personnel, in the manner and frequency indicated in the Specifications. The Engineer shall have the right to stipulate the location of the confirmation tests. The Contractor shall provide preliminary representative samples of materials to be tested, to the testing firm's laboratory, in required quantities.
  8. The testing firm's laboratory shall perform all laboratory tests within a reasonable time consistent with the specified standards and will furnish a written report of each test.
  9. Where such inspection and testing are to be conducted by an independent laboratory agency, the sample or samples shall be selected by such laboratory or agency or the Engineer and shipped to the laboratory by the Contractor at Contractor's expense.
  10. Notify laboratory sufficiently in advance of operation to allow for the assignment of personnel and schedules of tests.

### F. Transmittal of Test Reports:

1. Written reports of tests and engineering data furnished by Contractor for Engineer's review of materials and equipment proposed to be used in the Work shall be submitted as specified for Shop Drawings. Final transmittal of all Project testing records will be required as a final close-out submittal for the release of retainage.
2. Promptly process and distribute all required copies of test reports and related instructions to insure all necessary retesting or replacement of materials with the least possible delay in progress of the Work.

## **PART 2 PRODUCTS**

**(NOT USED)**

## **PART 3 EXECUTION**

### **3.01 REPAIR AND PROTECTION**

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- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching.
  2. Protect construction exposed by or for quality-control service activities.
  3. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

**+++ END OF SECTION 01400 +++**

**SECTION 01410  
TESTING LABORATORY SERVICES**

**PART 1 - GENERAL**

**1.01 SCOPE**

- A. From time to time during progress of the Work, the Engineer may require that testing be performed to determine that materials provided for the Work meet the specified requirements, in accordance with the requirements of the Specifications. Such testing includes, but is not necessarily limited to:
  - 1. Cement
  - 2. Aggregate
  - 3. Concrete
  - 4. Concrete block
  - 5. Pipe
  - 6. Steel and metals
  - 7. Welding
  - 8. Soil compaction
  - 9. Bituminous pavement
- B. Requirements for testing may be described in various sections of these Specifications; where no testing requirements are described but the Engineer decides that testing is required to demonstrate compliance with specified material or performance standards, the Engineer may require testing to be performed under current pertinent standards for testing.
- C. Employment of a testing laboratory shall in no way relieve the Contractor of Contractor's obligation to perform work meeting the requirements of the Contract.
- D. The independent testing laboratory shall be selected and paid by the Contractor and approved in writing by the Engineer before any testing services are performed.
- E. The Contractor shall pay directly for the services of the independent testing laboratory, approved by the Engineer, for all testing required under this Contract.

**1.02 LABORATORY DUTIES**

- A. Cooperate with Engineer and Contractor.
- B. Provide qualified personnel promptly on notice.
- C. Perform specified inspections, sampling and testing of materials and methods of construction.
  - 1. Comply with specified standards, ASTM, other recognized authorities and as



specified.

2. Ascertain compliance with requirements of Contract Documents.
- D. Promptly notify Engineer and Contractor of irregularity or deficiency of work which are observed during performance of services.
- E. Promptly submit three (3) copies (two (2) copies to Engineer and one (1) copy to Contractor of report of inspections and tests in addition to those additional copies required by the Contractor including:
1. Date issued
  2. Project title and number
  3. Testing laboratory name and address
  4. Name and signature of inspector
  5. Date of inspection or sampling
  6. Record of temperature and weather
  7. Date of test
  8. Identification of product and Specification section
  9. Location of Project
  10. Type of inspection or test
  11. Results of test
  12. Observations regarding compliance with Contract Documents
- F. Perform additional services as required.
- G. Laboratory is not authorized to:
1. Release, revoke, alter or enlarge on requirements of Contract Documents.
  2. Approve or accept any portion of Work.

### **1.03 CONTRACTOR RESPONSIBILITIES**

- A. Cooperate with laboratory personnel, provide access to Work and/or manufacturer's requirements.
- B. Provide to laboratory, preliminary representative samples, in required quantities, of materials to be tested.
- C. Furnish copies of mill test reports.
- D. Furnish required labor and facilities.
  1. To provide access to Work to be tested
  2. To obtain and handle samples at the site

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3. To facilitate inspections and tests
  4. Build or furnish a holding box for concrete cylinders or other samples as required by the laboratory.
- E. Notify laboratory sufficiently in advance of operation to allow for the assignment of personnel and schedules of tests.
- F. Laboratory Tests: Where such inspection and testing are to be conducted by an independent laboratory agency, the sample or samples shall be selected by such laboratory or agency or the Engineer and shipped to the laboratory by the Contractor at Contractor's expense.
- G. Copies of all correspondence between the Contractor and testing agencies shall be provided to the Engineer.

### **1.04 QUALITY ASSURANCE**

- A. Testing, when required, will be in accordance with all pertinent codes and regulations and with procedures and requirements of the American Society for Testing and Materials (ASTM).
- B. (Not Used)

### **1.05 PRODUCT HANDLING**

- A. Promptly process and distribute all required copies of test reports and related instructions to insure all necessary retesting or replacement of materials with the least possible delay in progress of the Work.
- B. (Not Used)

### **1.06 FURNISHING MATERIALS**

- A. The Contractor shall be responsible for furnishing all materials necessary for testing.
- B. (Not Used)

### **1.07 CODE COMPLIANCE TESTING**

- A. Inspections and tests required by codes or ordinances or by a plan approval authority, and made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.
- B. (Not Used)

### **1.08 CONTRACTOR'S CONVENIENCE TESTING**

- A. Inspection or testing performed exclusively for the Contractor's convenience shall be

the sole responsibility of the Contractor.

B. (Not Used)

## 1.09 SCHEDULES FOR TESTING

A. Establishing Schedule

1. The Contractor shall, by advance discussion with the testing laboratory determine the time required for the laboratory to perform its tests and to issue each of its findings, and make all arrangements for the testing laboratory to be on site to provide the required testing.
2. Provide all required time within the construction schedule.

B. When changes of construction schedule are necessary during construction, coordinate all such changes of schedule with the testing laboratory as required.

## 1.10 TEST AND CERTIFICATIONS

A. General: As a minimum, the following tests shall be performed and the following certifications provided:

1. Cement: Certified test results by cement manufacturer or by independent laboratory shall be furnished as required by the Engineer.
2. Aggregate and Mortar Sand: Certified test results by aggregate producer or by independent laboratory shall be furnished as required by the Engineer.
3. Concrete
  - a. At least five (5) standard 6-inch cylinders shall be taken each day for each 100 cubic yard or fraction thereof for each class of concrete used.
  - b. The number of cylinders, the point of sampling, and the method of securing the samples shall be determined by the Engineer.
  - c. The five (5) samples shall be taken to the testing laboratory for laboratory curing.
  - d. Two (2) of the laboratory cured samples shall be tested at 7 days, two (2) samples tested at 28 days; one (1) sample in reserve.
  - e. Test all concrete in accordance with ASTM C31-69, C39-71 and C-172.
4. Slump Tests
  - a. Perform slump tests on the job in accordance with ASTM standards.
    - 1) One (1) slump test shall be performed for each 25 cubic yards of concrete.
    - 2) More slump tests shall be performed if deemed necessary by the Engineer.

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- b. Perform air entrainment tests in accordance with the following standards:
  - 1) Field tests - ASTM C 173
  - 2) Laboratory tests - ASTM C 231
- B. Precast and Concrete Block for Buildings
  - 1. Concrete mixes used for precast items are subject to review and approve by the Engineer before casting and delivery of the items to the site.
  - 2. Block and precast may be visually inspected on the site by the Engineer. The mix design used in forming concrete or masonry block is also subject to review and approval by the Engineer.
  - 3. The Engineer reserves the right to have the concrete block tested by an independent laboratory.
- C. Steel and Miscellaneous Metal: Reinforcing steel, structural steel and miscellaneous metal may be inspected visually on the site by the Engineer.
- D. Welding: Per Structural Specification requirements.
- E. Compaction of Earthwork
  - 1. The compaction shall be tested by the Engineer or by an independent laboratory.
  - 2. The testing shall be performed in a manner in accordance with these Specifications.
- F. Bituminous Concrete: The material testing for the bituminous concrete shall be performed by an independent laboratory as deemed necessary by the Engineer.

### 1.11 TAKING SPECIMENS

- A. Unless otherwise provided in the Contract Documents, all specimens and samples for tests will be taken by the testing laboratory or the Engineer.
- B. (Not Used)

### 1.12 TRANSPORTING SAMPLES

- A. The Contractor shall be responsible for transporting all samples, except those taken by testing laboratory personnel, to the testing laboratory.
- B. (Not Used)

**+++ END OF SECTION 01410 +++**

**SECTION 01500  
FIELD OFFICES AND SHEDS**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. The Contractor shall provide all field offices and sheds as necessary for completion of the Work as specified herein.
- B. The Contractor shall maintain offices and sheds in proper and safe condition through the progress of the Work. In the event of loss or damage, the Contractor shall immediately make all repairs and replacements necessary subject to approval of the Engineer and at no additional cost to City. At completion of the Work, the Contractor shall remove all offices and sheds as directed by the Engineer.
- C. The ownership of the trailers for Engineer's facilities shall remain with the Contractor. Office furnishings and equipment provided by Contractor may be rented or purchased by the Contractor and are not required to be turned over to the City at the completion of the project.

**1.02 SUBMITTALS**

- A. Submittals shall be made in accordance with the requirements of the General Conditions of the Contract Documents.
- B. Engineer's Field Office: Submit a plan of the office layout to Engineer for mark-up and approval within 10 days after the Notice to Proceed. Submittal shall depict:
  - 1. Field trailer dimensions, including dimensions for each room.
  - 2. Furnishings and equipment sizing, layouts, and locations inside the trailer.
  - 3. Locations of wall outlets.
  - 4. Porch layouts exterior to the trailer.
  - 5. Routing for temporary utility connections to the trailer (water, sewer, electrical, internet, etc.)
  - 6. Security system details.
  - 7. Rain and outside thermometer locations.
- C. Telephone System: Not required.
- D. Submit a site utilization plan for review and approval by the Engineer. The plan will generally need to show locations of trailers, storage sheds, Contractor's parking, temporary utility line routing, equipment and material storage and staging, etc.
  - 1. Note that as there are other Contractors engaged at the site, the Owner and Engineer will participate in coordinating the site utilization plan with other Contractors at the site to minimize work and access conflicts.

2. The Owner generally anticipates that the trailers and parking areas will be located outside the motorized gate to facilitate temporary utility connections

### **1.03 REQUIREMENTS**

#### **B. General**

1. The materials, equipment, and furnishings provided under this Section shall be new and shall meet all the applicable codes and regulations.
2. Make all provisions, and pay all costs of furnishing, installation, maintenance, professional services, permit fees, and site work for the temporary facilities.

#### **B. Construction**

1. Temporary buildings shall be structurally sound, weather tight, with floors raised above ground. All mobile/modular buildings shall comply with GA-DCA/SBCC/ADA requirements and shall be Williams-Scottsman or equal.
2. Temporary buildings shall have temperature transmission resistance compatible with occupancy and storage requirements.

## **PART 2 PRODUCTS**

### **2.01 CONTRACTOR'S FACILITIES**

- A. Contractor's Plant: Contractor's plant, for purposes of this Section, is defined to include but not limited to Contractor's field offices, first aid station, storage facilities, shops, and major equipment. Sufficient construction plant shall be provided and maintained at all points where work is in progress to meet adequately demands of the Work and with ample margin for emergencies or overload.
- B. The plant shall be of sufficient capacity and reliability to permit a rate of progress, which will insure completion of the Work within the time stipulated in the Contract. Insufficient, inadequate and improper plant or equipment shall be brought to acceptable condition or shall be removed from the site.
- C. The location of stationary and mobile equipment shall be subject to the Engineer's approval.
- D. First Aid Station: Contractor shall provide a suitable first aid station at the work site. The station shall be equipped with all facilities and medical supplies necessary to administer emergency first aid treatment. Contractor shall have standing arrangements for the removal and hospital treatment of any injured person. The information reflecting this arrangement shall be clearly posted for easy visibility. All first aid facilities and emergency ambulance service shall be made available by the Contractor to the City's and Engineer's personnel.

## 2.02 ENGINEER'S FACILITIES

### A. General

1. The Contractor shall be responsible for all office setup and removal costs, furnishing and installing all furniture and equipment as specified herein, and all maintenance costs for the Engineer's field office. The facilities for the field staff shall be in place within 30 days following issuance of the Notice to Proceed.
2. All facilities and equipment listed below are to be provided as specified for exclusive use by the City's and Engineer's project staff during the entire duration of the contract plus six additional months after completion of all punch list items or total project closeout whichever occurs last. The Contractor shall maintain ownership of the office trailer, furniture, and equipment provided with the Engineer's field trailer.

### B. Engineer's Field Office

1. The Contractor shall furnish one new single or double wide trailer to serve as the Engineer's field office for the Engineer's and City's field staff. The interior of the trailer shall be divided by wall partitions with doors and have a minimum of three offices, conference room, men's restroom, women's restroom, communications/electrical breaker equipment closet, break area, janitor's closet and storage closet. The floor plan shall be submitted to the Engineer for approval as specified in Paragraph 1.02B of this Section.
2. The field office shall have a minimum of two exterior entrances with solid core doors with deadbolts. The trailer shall be furnished with a white, fiberglass shingle, 20-year warranty roof, color coordinated plastic or PVC skirting with access door and porch with landing, steps and full aluminum canopy at each exterior door. Porch shall be 8-foot wide by 6-foot deep, minimum. Aluminum canopy shall be as manufactured by Ray-O-Lite South East, Inc. or approved equal.
3. The field office shall be equipped with approximately, 1-foot wide, perforated aluminum soffits on all four sides and continuous ridge vent.
4. Electrical outlets shall be no more than 6 feet apart, with a minimum two outlets per wall. All outlets shall be surge protected. Provide four duplex surge protected outlets at 42-inches above finished floor (AFF) in the communications equipment closet.
6. All walls shall be vinyl covered sheetrock. All exterior and all interior walls shall be fully insulated.
7. Floors shall be double 3/4-inch CDX plywood minimum with vinyl tile floor covering and color coordinated vinyl base cove throughout.

8. Provide a minimum of twelve 48-inch by 30-inch minimum sliding, lockable, double pane insulated windows with insect screens and metal mini-blinds.
9. Provide 4-foot fluorescent lighting fixtures with diffuser covers to provide 100-foot candles of illumination for all areas. Provide 18-inch fluorescent lighting fixture in bathrooms.
10. Each restroom shall be furnished with:
  - a. An elongated ceramic commode.
  - b. Ceramic sink with faucets
  - c. Vinyl coated wire shelf for supplies, 12-inches deep by 24-inches wide, minimum.
  - d. Medicine cabinet with mirror doors.
  - e. Paper towel dispenser.
  - f. Toilet paper holder.
  - g. Liquid soap dispenser.
11. Break area shall be furnished with:
  - a. Wall cabinets with shelves
  - b. Laminated counter with stainless steel sink and faucet
  - c. Base cabinet with shelves
  - d. Microwave oven – Minimum size 1.1 cu.ft.
  - e. Coffeemaker – 12-cup commercial metal coffee maker with two decanters, filters, 12-ounce styrofoam cups, stirrers and supplies, including regular coffee, decaffeinated coffee, tea bags, sugar, nondairy creamer and artificial sweetener for the duration of the Contract.
  - f. Refridgerator – minimum 10 cu.ft freezer-refrigerator unit with ice maker and filtered water dispenser.
12. Provide 40-gallon hot water heater (to serve both restrooms and break area).
13. Exterior doors shall be insulated heavy-duty steel with pneumatic/hydraulic closures and Best lock sets and double cylinder deadbolts. Locksets on all interior doors except restrooms shall be keyed privacy type, Kwikset, or approved equal.



14. Interior doors shall be prehung stained solid core wood with wood trim and shall be furnished with integral locks. Provide chrome coat hook on the back of all interior doors.
15. Sound attenuation/insulation in all interior walls shall be required.
16. Communication/electrical equipment closet with door shall have painted plywood walls. Provide up to 24 J-boxes with conduit stubbed to under trailer for use in communications installation. Provide stainless steel switch plates and outlet covers. Include master circuit surge protector. Lights and receptacles shall be on separate circuits. Provide minimum 10 separate circuits for offices, HVAC, water heater, outlets, copiers, etc. and emergency lights and lighted exit signs.
17. Provide a 10-pound Type A-B-C fire extinguisher at each exit and in break area.
18. Provide a high-pressure sodium photocell controlled light at each exterior entrance.
19. Provide freeze protection for all water system piping.
20. Provide a HVAC system. HVAC system shall include:
  - a. Dual heat pump units.
  - b. In duct heat strips as required; piped condensate drains to eliminate surface evaporation, including dry well if needed; single programmable thermostat to control both units simultaneously; accessible filter locations; individual returns and supplies for all rooms and spaces including hallways.
  - c. Locate units at center of each side of trailer for optimum and equal air distribution.
  - d. Two vertical chases to be s located on interior walls, behind doors.
  - e. HEPA air filtration system including manufacturer's recommended maintenance instructions.
21. Furnish and install the following office furniture:
  - a. Per Office:
    - i. One desk, 36-inches by 60-inches, double pedestal with mahogany colored laminated top.
    - ii. One 36" x 96" bookshelf, mahogany colored laminate.
    - iii. One credenza, mahogany colored laminate, with kneehole and keyboard drawer.
    - iv. One Swivel Chair with Black Frame.
    - v. One wall mounted dry erase board, min. size 36" x 48".
    - vi. Two guest chairs with black frame.

- vii. One lockable fire proof file cabinet.
- viii. Trash can.

b. Conference Room:

- a. Table, 48-inches by 168-inches with mahogany colored laminated top.
- b. Swivel chairs with black frames, minimum 6.
- c. One minimum size 65-inch HDTV, wall mounted, wifi capable, with HDMI cables for connecting laptops.
- d. One wall mounted dry erase board, min. size 48" x 96".
- e. Trash Can.
- f. Layout/work table, 30" x 60", with mahogany colored laminated tops.

22. Furnish and install the following office equipment and supplies:

- a. One copier machine capable of color and black and white prints, faxing, scanning, sorting/collating/stapling multi-page documents, equipped with automatic document feeder and copy sorter, and have single and double sided printing, copying and scanning capabilities. Copier shall have multiple paper supply trays for sizes 8-1/2 x 11, 8-1/2 x 14, and 11 x 17 paper sizes. Scanner shall be capable of scanning up to 11x17 page sizes. Machine shall be capable of wifi network connections to computers for printing, and shall email scanned documents to addresses as input by users.
- b. The Contractor shall provide a maintenance service contract and copy paper, toner/ink cartridges, etc., for both machines during the Contract period.

## 2.03 TELEPHONE AND INTERNET SERVICES

- A. Telephone service not required to be provided in the Engineer's Trailer.
- B. Provide cable modem and wifi wireless network capable of high speed internet connections and download speeds not less than 1 gbps. This network shall be for the Engineer's and City's exclusive use and separate from other network(s) provided for the Contractor's use.

## 2.04 SECURITY SYSTEM

- A. During other than normal daytime office working hours provide a totally separate electronic security system monitored by a security agency for the Engineer's facilities. All offices shall be equipped with exterior security flood lights automatically activated by darkness and in sufficient number and placement to provide adequate lighting of the office and the parking areas
- B. Arrange for installation and provide security system for Engineer's field office during construction. Pay for purchase and installation and all monthly charges.

## 2.05 TEMPORARY UTILITIES

- A. Determine the need for temporary utility services, including utility services for Engineer's facilities and first aid stations, and make all arrangements with utility companies and governmental agencies to secure such services. Such services shall be provided at no additional cost to the City. Temporary utility services shall be furnished, installed, connected, and maintained by Contractor in a manner satisfactory to the Engineer, and shall be removed in like manner prior to final acceptance.
- B. Power
  - 1. The Contractor shall determine the type and capacity required and shall make the necessary arrangements for obtaining temporary power metering equipment, pay for all installation costs and usage costs.
  - 2. All temporary electric power installations shall meet the safety requirements of all federal, state, and local codes and regulations.
  - 3. Cost of electric power used in testing will be borne by the Contractor.
- C. Lighting: Provide temporary site lighting to meet all applicable safety requirements to allow erection, application or installation of materials and equipment, and observation or inspection of the Work.
- D. Heating, Cooling, and Ventilating
  - 1. Provide as required to maintain adequate environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation of materials, and to protect materials, equipment, and finishes from damage due to temperature or humidity. Costs for temporary heat shall be borne by the Contractor.
  - 2. Provide adequate forced air ventilation of enclosed areas to cure installed materials, to dispense humidity, and to prevent hazardous accumulations of dust, fumes, vapors, or gases.
  - 3. Pay all costs of installation, maintenance, operation, removal, and fuel consumed.
  - 4. Provide portable unit heaters, complete with controls, oil or gas-fired, and vented to the outside as required for protection of health and property.
  - 5. If permanent natural gas piping is used for temporary heating units, do not modify or reroute gas piping without approval of utility company. Provide separate gas metering as required by utility.
- E. Water

1. The Contractor shall be allowed to connect to the existing City water system at a point approved by the Engineer. The connection point shall serve as a source for water for construction purposes. The Contractor shall provide temporary facilities and piping required to bring water to the point of use at each site, and remove them when no longer needed.
2. Refer to Section 01040 for requirements related to utilization of water for construction purposes.

F. Sanitary and Personnel Facilities

1. Provide and maintain facilities for Contractor's employees, Subcontractors, and all other onsite employer's employees. Service, clean, and maintain facilities and enclosures.
2. Use of City's existing sanitary facilities by construction personnel will not be allowed.

G. Fire Protection: Furnish and maintain on the site adequate firefighting equipment capable of extinguishing incipient fires. Comply with applicable parts of the National Fire Prevention Standard for Safeguarding Building Construction Operations (NFPA No. 241).

## **2.06 PARKING FACILITIES**

- A. The civil plans for the project provide for parking during construction.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Fill and grade sites for temporary structures to provide surface drainage.
- B. (Not Used)

### **3.02 INSTALLATION**

- A. Coordinate office locations with the City and/or the City's representatives.
- B. Construct temporary field offices, first aid stations, and storage facilities on proper foundations and provide connections for utility all services.
1. Secure portable or mobile buildings when used.
  2. Provide tie-downs for 100 mile per hour gusts and winds.
- C. Provide and mount thermometer at convenient outside location, not in direct sunlight.

- D. Provide and mount rain gauge in accessible open area.

### **3.03 MAINTENANCE AND CLEANING**

- A. Repair and clean the offices, parking areas and access routes and provide complete professional janitorial services in the Engineer's facilities for the duration of the project. Cleaning shall be done on a daily basis, to the satisfaction of the Engineer, during other than normal daytime office working hours. These daily services shall include sweeping, vacuuming, dusting, emptying of trash, cleaning of washbasins, bathroom facilities and mopping of all vinyl floors.
- B. Provide approved containers for collection and disposal of waste materials, debris and rubbish. Dispose of such waste materials, debris, and rubbish offsite. Trash containers shall be lined with trash bags.
- C. Contractor shall provide for monthly waxing of all vinyl floors.
- D. Contractor shall provide for monthly exterminating services of the offices.
- E. The Contractor shall provide floor mats at exterior entrances (inside and outside of door) and all cleaning supplies, toilet tissue and paper towels, liquid soap, air fresheners, etc.

### **3.04 REMOVAL**

- A. Remove temporary field offices, contents, temporary utilities and services at a time when no longer needed.
- B. Remove foundations and debris; grade site to required elevations; clean and restore areas as specified in Section 02920, Site Restoration.

**+++ END OF SECTION 01500 +++**

**SECTION 01540  
SECURITY AND SAFETY**

**PART 1 GENERAL**

**1.01 REFERENCES**

- A. Refer to and comply with the Prime Contractor Site Safety and Security Plan.
- B. (Not Used)

**1.02 SECURITY PROGRAM**

- A. The Contractor shall protect the Work, including all field offices and temporary facilities and their contents from theft, vandalism and unauthorized entry.
- B. The Contractor shall initiate a site security program at the time of mobilization onto the worksite, which provides adequate security for site stored and installed material.
- C. The Contractor shall maintain the security program throughout the Contract duration.
- D. The Contractor shall be wholly responsible for the security of their storage and lay down areas and for all their plant, material, equipment and tools at all times.
- E. The Contractor shall provide the Engineer with a list of 24 hour emergency phone numbers including chain of command.
- F. The Contractor shall provide a designated security guard at the entrance to the pump station site during normal working hours and any other time the Contractor is onsite performing work outside of normal working hours. The designated security guard shall coordinate site access at the existing motorized entry gate with the City Lab Building Staff to facilitate site access. Contractor shall also coordinate as needed with the City's existing security guard staff at the RM Clayton site entrance as needed for activities to be performed within the City's secured area.

**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 as established by the Prime Contractor's Site Safety and Security Plan.
- C. The Contractor shall maintain an Employee Log and Visitor Log and make the log available to the City upon request. The log shall be submitted to the Engineer bi-weekly or as necessary. Sample logs are included at the end of this section.
- D. The Contractor shall require all 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 Engineer bi-weekly and maintained in the Contractor's security files on-site.

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- E. The Contractor shall require all employees to sign the Employee Acknowledgment of Project Site Rules Log included at the end of this Section. All 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 Engineer 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 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 will be 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 will be held responsible for all damage to the work and any resulting injuries due to failure of barricades, signs and lights and whenever evidence is found of such damage, the Contractor shall immediately remove the damaged portion and replace it at 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 City.

### **1.05 RESTRICTIONS**

- A. The Contractor shall not allow cameras on site or photographs taken except with approval of the City or the Engineer.
- B. (Not Used)

### **1.06 CONTRACTOR SAFETY/HEALTH AND SECURITY PLAN**

- A. Prior to the performance of any work the Contractor will prepare a contract specific Safety/Health and Security Plan signed by an officer of the Contractor's organization. Adequacy of the plan shall be the responsibility of the Contractor.
- B. The Engineer will not review the Contractor's safety plan for the adequacy of the plan. The plan shall:
  - 1. Identify the person(s) responsible for implementation and enforcement of Safety/Health and Security rules and regulations for this Project.
  - 2. Generally address safe work procedures for the activities within the subcontractor's scope of work.
  - 3. Included a new employee orientation program, which addresses job and site specific rules, regulations and hazards.

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4. Include the subcontractor's Drug Free Work Place Policy including substance abuse prevention and testing program.
  5. Include provisions to protect all of the Contractor's employees, other persons and organizations who may be affected by the work from injury, damage or loss.
  6. Comply with current Fed/OSHA, Safety/Health and Security Plan, 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 Engineer with documentation to show compliance with their plan, plus accidents and investigation reports.
  11. Address any other specific contract requirements.
- C. Provide a Job Safety Analysis (JSA) for the scope of work, prior to the start of work.
- D. Review of the Contractor's Safety Plan by the Engineer shall not impose any duty or responsibility upon the Engineer 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 Engineer with all safety reports, training records, competent person list, and accident reports prepared in compliance with Fed/OSHA and the Project Safety/Health and Security Plan.

### **1.07 PROJECT SAFETY COORDINATOR**

- A. The Contractor shall be responsible for the safety of the Contractor's and the City's personnel and all other personnel at the site of the Work. The Contractor shall have a Project Safety Coordinator on the job site. The Project Safety Coordinator shall maintain and keep available safety records and up-to-date copies of all pertinent safety rules and regulations.
- B. The Project Safety Coordinator shall:
1. Ensure compliance with all applicable health and safety requirements of all governing legislation.
  2. Schedule and conduct safety meetings and safety training programs as required by law for all personnel engaged in the work.
  3. Post all appropriate notices regarding safety and health regulations at locations that afford maximum exposure to all personnel at the job site.



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4. Post the name, address and hours of the nearest medical doctor; 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 all 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 savers, oxygen breathing apparatus, resuscitators, gas detectors, oxygen deficiency indicators, explosion meters, and any other equipment mandated by law.
7. Make inspections at least once daily in accordance with an inspection checklist report form to ensure that all machines, tools and equipment are in safe operating condition; that all work methods are not dangerous; and that all work methods are free of hazards.
8. Submit to the Engineer upon request copies of all inspection checklist report forms, safety records and all safety inspection reports and certifications from regulating agencies and insurance companies.
9. Notify the Engineer of a serious accident immediately, followed by a detailed written report within twenty-four (24) hours. A “serious accident” is defined as an accident requiring an absence from work of more than 2 days and/or hospitalization.
10. Notify the Engineer immediately in the event of a fatal accident.
11. Notify Engineer of any accident claim against the Contractor or any sub-contractor immediately, followed up by a detailed written report on the claim and its resolution.
12. Review safety aspects of the Contractor’s submittals as applicable.

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 Engineer directly or indirectly for the City of Atlanta, I waive on behalf of myself, my heirs, employer, legal representatives and assigns and hereby release and discharge the City, Engineer, Designer, and their subcontractors and consultants and each of their directors, officers, employees, representatives and agents from any and all claims, actions, causes of action or any charge of any kind whatsoever which 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 City's property
- Violation of safety or security rules or procedures
- Possession of firearms or lethal weapons on jobsite
- Acts of sabotage
- Destruction or defacing City's property
- Failure to use sanitary facilities
- Failure to report accidents 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 property
- Wearing shorts or tennis shoes on the jobsite
- Failure to wear a hardhat/safety glasses.
- 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

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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.

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VISITOR LOG

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

VISITOR'S NAME PRINT	SIGNATURE	COMPANY VISITED	DATE	IN	OUT

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 City's property
- Violation of safety or security rules or procedures
- Possession of firearms or lethal weapons on jobsite
- Acts of sabotage
- Destruction or defacing City's 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
- 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.



River Intake Pump Station

**PART 2 PRODUCTS**

**(NOT USED)**

**PART3 EXECUTION**

**(NOT USED)**

**+++ END OF SECTION 01540 +++**

**SECTION 01550  
TRAFFIC REGULATION**

**PART 1 GENERAL**

**1.01 SCOPE**

- A. 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.
- B. (Not Used)

**1.02 TRAFFIC CONTROL MANAGER**

- A. The Contractor shall designate a qualified individual as the Traffic Control Manager (TCM) who shall be responsible for selecting, installing and maintaining all traffic control devices in accordance with the Drawings and Specifications and the Manual of Uniform Traffic Control Devices (MUTCD).
- B. The Contractor shall provide, erect, maintain, and finally remove all barricades, danger warning and detour signs necessary to properly protect and divert traffic. Contractor shall provide, erect, maintain, and finally remove all barricades, danger warning and detour signs necessary to properly protect and divert traffic. All barricades and signs, including detour signs, shall be illuminated at night or when visibility is reduced. The Contractor will be held responsible for all damage to the Services due to failure of the signs and barricades to properly protect the Services from traffic, pedestrians, animals, and from all other sources, and whenever evidence of any such traffic is found upon the Services the Engineer will order that the Work, if in his opinion it is damaged, be immediately removed and replaced by the Contractor at no additional cost to the City. The devices used will be in accordance with the manual of Uniform Traffic Control Devices for Streets and Highways compiled by the State Department of Transportation. Access to City streets and roads will be limited and will require the use of flagmen or the installation of traffic control signals, or both. The City must approve haul routes.
- C. City of Atlanta Substitute Ordinance adopted March 13, 1978 requires that Contractors obtain a permit for work involving blockage of a public street. Open pits, trenches, unpaved streets, debris, or other obstructions due to construction that will prevent the normal flow of traffic during an extended construction stoppage for any reason, will not be permitted. In the event an extended construction stoppage is found to be necessary, Contractor shall, at his own expense, provide normal traffic flow during extended construction stoppage. Extended stoppage will be defined by the City.
- D. A written resume documenting the experience and credentials of the TCM shall be submitted and accepted by the Engineer prior to beginning any work that involves traffic control.
- E. The TCM shall be available on a twenty-four (24) hour basis to perform his duties. If the work requires traffic control activities to be performed during the daylight and nighttime



hours it may be necessary for the Contractor to designate alternate TCMs. An alternate TCM must meet the same requirements and qualifications as the primary TCM and be accepted by the Engineer prior to beginning any traffic control duties.

- F. The Traffic Control Manager's traffic control responsibilities shall have priority over all other assigned duties.
- G. 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 all other individuals making decisions regarding traffic control shall meet the training requirements of the Part VI of the MUTCD.
- H. The TCMs shall supervise the initial installation of traffic control devices. The Engineer 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, drums and flashing lights as approved by local jurisdictions.
- D. The Contractor shall provide City of Atlanta police officers and certified flaggers and flagger's equipment as required by GDOT.

## **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 (City of Atlanta Division of Traffic and Transportation, GDOT, etc). Refer to Section 01060, Regulatory Requirements.
- B. 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.
- D. Operations between the hours of 6:00 p.m. and 10:00 p.m. and Saturdays and Sundays must be approved by the City

- E. Full street closure permits require ninety-six (96) hours advance notice prior to street closure. The following additional information is required prior to approval:
  - 1. The recommended detour route with signage and Traffic Management Plan as per the Manual of Uniform Traffic Control Devices (MUTCD).
  - 2. A copy of the resident and/or business notification letters about the closure. The residents/businesses located between the detour routes must be notified about the closure at least five (5) business days prior to the proposed closure.
- F. The City of Atlanta Division of Traffic and Transportation will return full street closure permit applications to the Contractor with a cover letter to the Fire Chief, Chief of Police, Grady Memorial Hospital, MARTA and the Atlanta Board of Education. The Contractor shall have received the permit application and cover letter at least seventy-two (72) hours before commencing street closure activities.
- G. Lane closure permits require a minimum of forty-eight (48) hour notice prior to lane 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.
- H. The City of Atlanta Division of Traffic and Transportation will return the lane closure applications to the Contractor with a cover letter with copies to the Fire Chief, Chief of Police, Grady Memorial Hospital, MARTA and the Atlanta Board of Education. The Contractor shall have received the permit application and cover letter at least seventy-two (72) hours before commencing lane closure activities.

### **3.02 PREPARATION OF TRAFFIC CONTROL PLANS**

- A. The Maintenance of Traffic drawings included with the Contract Documents shall only be considered as a guide and are not intended to contain all the traffic regulation details that may 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 all requirements for certified flaggers, 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 any and all required traffic control devices as required by both the permitting agencies and these specifications at no additional cost to the City.
- B. (Not Used)

### **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 City's operations.

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- 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 RIGHT OF WAY CONSTRUCTION ACCESS**

- A. The City will furnish all rights-of-way for the performance of Work included in this Contract. Areas designated on the Contract Drawings as the Contractor's Work Area will be provided to the Contractor for the duration of construction, without charge. The Contractor will be responsible for observing the limits of the right-of-way and shall prohibit any Work to be done on or any damage to property outside the bounds of the right-of-way. Additional work and storage space, if required, shall be obtained by the Contractor at no additional cost to the City.
- B. (Not Used)

### **3.04 MAINTENANCE OF TRAFFIC**

- A. Whenever and wherever, in the Engineer'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 on the Drawings and these Specifications, the Contractor shall keep such road, street, or highway open to all traffic and shall provide such maintenance as may be required to safely accommodate traffic. The Contractor shall furnish, erect and maintain barricades, warning signs, flaggers, and other traffic control devices in conformity with the requirements of the Georgia Department of Transportation and other local jurisdictions.
- C. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary to ingress into 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.
- D. The Contractor shall make his own estimate of all labor, materials, equipment, and incidentals necessary for providing the maintenance of traffic as specified in this section.
- E. Unless specified on the Drawings or in these Specifications and subject to the approval of the City, the cost of maintaining traffic specified in this section shall be included under Bid Item, Traffic Regulation.

### **3.05 UNIFORMED POLICE OFFICER FOR TRAFFIC CONTROL**

- A. The Contractor will provide uniformed City of Atlanta police officers to regulate traffic when construction or project operations will impact the following locations:
  - 1. In all signalized intersections
  - 2. In streets designated as “collector” streets
  - 3. In all full street closings
  - 4. In GDOT right of ways
- B. Officers will be currently employed by the City of Atlanta, be in full uniform and have full arrest power while working.
- C. Officers will be employed and paid by the Contractor.
- D. It is the officers’ responsibility to assist in the direction of traffic within the construction site.
- E. City of Atlanta Police Field Operations Division Phone Number: 404-546-7775

### **3.06 FLAGGERS FOR TRAFFIC CONTROL**

- A. The Contractor shall provide Georgia Department of Transportation (GDOT) certified trained and equipped flaggers to regulate traffic when construction operations or traffic encroach on public traffic lanes.
- B. (Not Used)

### **3.07 FLASHING LIGHTS**

- A. The Contractor shall use flashing lights during hours of low visibility to delineate traffic lanes and to guide traffic.
- B. (Not Used)

### **3.08 HAUL ROUTES**

- A. The Contractor shall consult with authorities and establish public thoroughfares to be used for haul routes and site access and obtain a haul route permit as specified in Section 01060, Regulatory Requirements.
- 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 CITY STREETS AND ROADS**

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- A. No street or road shall be closed without the permission of the Owner of any street or road and the fire department having jurisdiction. Prior to closing a street, road or highway, signs shall be posted for a minimum of seven (7) days prior to actual closing, forewarning of the imminent closing. The City shall determine the information to be placed upon the signs by the Contractor. Where traffic is diverted from the Work, the Contractor shall provide all materials and perform all work for the construction and maintenance of all required temporary roadways, structures, barricades, signs and signalization.
- B. To obtain approval to close a road or street maintained by the City, the Contractor shall proceed as follows:
  - 1. The Contractor shall obtain approval of his traffic plan from the Engineer unless a traffic plan approved by the Engineer is included in the Drawings. The traffic plan must be in accordance with the requirements of the Georgia Department of Transportation and the City of Atlanta.
  - 2. The Contractor shall obtain a utility permit.
  - 3. The Contractor shall apply in writing to the City and obtain a permit to close the road on a specific date. Routine permit approval by the City requires from one (1) to two (2) weeks depending on when the application is received.
  - 4. The Contractor shall obtain a permit from the City before posting closure signs. Signs must be posted for seven (7) days prior to the first day of closure. Signs shall be acceptable to the Engineer.
  - 5. Emergency road closures will be handled by the Engineer.

### **3.10 PROCEDURES FOR TRAFFIC DETOUR ROUTE PLAN**

- A. The Contractor shall provide a sketch map showing his traffic detour route plan to the Engineer. 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. "Road Closed Ahead" signs shall be erected before the start point of the detour indicating the name of the street closed.
- C. Detour signs with appropriate directional arrows shall be erected at every 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. Each detour and "End Detour" sign shall be accompanied by an accessory plate indicating the name of the street being detoured.

- F. The Contractor shall apply appropriate traffic control measures in accordance with the requirements of the MUTCD and the City of Atlanta Department of Public Works.

**3.11 BARRICADES AND WARNING SIGNS**

- A. The Contractor shall furnish, erect, and maintain all 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 the City of Atlanta Department of Public Works.
- C. The Contractor shall furnish and erect all barricades and warning signs for hazards prior to commencing Work which requires such erection and shall maintain the barricades and warning signs for hazards until their dismantling is directed by the Engineer.

**3.12 REMOVAL**

- A. The Contractor shall remove equipment and devices when no longer required and repair damage caused by installation.
- B. (Not Used)

**3.13 RIGHT OF WAY MANUAL**

- A. Included at the end of this Section are copies of the title page and pages 42 through and including page 52 from the City's Right-of Way Manual. These pages include Appendices A, B and C which indicate street designations and Appendix D which covers restrictions for working within the City's right of way. These restrictions shall also apply to GDOT right of ways.
- B. (Not Used)

**+++ END OF SECTION 01550 +++**

**SECTION 01600  
GENERAL MATERIAL AND EQUIPMENT REQUIREMENTS**

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

- A. All installed materials and equipment are to be the latest version of the manufacturer's product line and not be outdated by newer versions at the time of purchasing. Materials and equipment, which show any signs of extended storage such as but not limited to corrosion, scratches and dents, will not be accepted for installation in this project.
- B. All equipment used for performing the Work shall conform to the latest version of all applicable safety standards including but not limited to OSHA requirements. Contractor shall not exceed or ignore any requirements or recommendations of the equipment manufacturer. Equipment not meeting requirements of this Section will be barred from use on the project.
- C. All installed material and equipment shall meet or exceed the latest applicable code requirements including but not limited to, Underwriters Laboratory, Standard Building Code and OSHA, as well as requirements of these Specifications. Where there is conflict with requirements of the Contract Documents and code requirements, comply with the more stringent requirements with no additional compensation to the Contractor.

**PART 2 - MATERIALS AND EQUIPMENT**

**2.01 ANCHOR DOWELS**

- A. All anchor dowels to be ANSI type 316 stainless steel unless otherwise specified or indicated, and must conform to requirements of this Section and the material articles in the appropriate Sections they are used.
- B. All anchor dowels are to be supplied by the manufacturer or fabricator of the specific material or equipment to be installed.
- C. Design criteria for anchor dowels
  - 1. When the size, length or load carrying capacity of an anchor bolt, expansion anchor, or concrete insert is not shown on the Drawings, provide the size, length and capacity required to carry the design load times a minimum safety factor of four.
  - 2. Determine design loads as follows:
    - a. For equipment anchors, use the design load recommended by the manufacturer and approved by the Engineer.
    - b. For pipe hangers and supports, use one half the total weight of pipe, fittings, valves, accessories and water contained in pipe, between the hanger or support in question and adjacent hangers and supports on both sides.
    - c. Allowances for vibration are included in the safety factor specified above.
    - d. Anchors shall develop ultimate shear and pull-out loads of not less than the

## River Intake Pump Station

following values in concrete:

<u>Dowel Diameter (Inches)</u>	<u>Min. Shear (Pounds)</u>	<u>Min. Pull-Out Load (Pounds)</u>
1/2	4,500	6,300
5/8	6,900	7,700
3/4	10,500	9,900

3. Embedment depth to be 6 inches for epoxy anchors and 4 inches for steel expansion anchors, unless noted otherwise on the drawings.

### D. Anchor Type and Manufacturer

1. Where epoxy anchors are noted on the drawings, provide ANSI type 316 stainless steel threaded rod with Speed Bond #1 epoxy injection as manufactured by Prime Resins, Inc. or equal.
2. For all other applications, provide ANSI type 316 steel expansion anchors from one of the following manufacturers or approved equivalent.
  - a. Hilti, Incorporated.
  - b. Ramset, Incorporated
3. Install anchors per manufacturer's recommendations and this Section.
  - a. Drilled anchorage holes are to be blown out with compressed air before installing anchor.
  - b. Not used.

## 2.02 CONNECTION BOLTS

- A. Materials shall be as specified in other Sections of the Specifications, or as shown on the Drawings. Where materials are not specified or shown on the Drawings, they shall be of ANSI Type 316 stainless steel, with ANSI Type 316 stainless steel nuts and washers.
- B. Unless otherwise specified, stud, tap and machine dowels and nuts shall be ANSI Type 316 stainless steel and shall conform to the requirements of ASTM Standard Specification for Carbon Steel Externally and Internally Threaded Standard Fasteners, Designation A307-80. Hexagonal nuts of the same quality of metal as the dowels shall be used. All threads shall be clean cut and shall conform to AN Standard B1.1-1974 for Unified Inch Screw Threads (UN and UNR Thread Form).

## 2.03 CONCRETE INSERTS

- A. Concrete inserts for hangers shall be designed to support safely, in the concrete that is used, the maximum load that can be imposed by the hangers used in the inserts. Inserts for



## River Intake Pump Station

hangers shall be of a type, which will permit adjustment of the hangers both horizontally (in one plane) and vertically and locking of the hanger head or nut. All inserts shall be galvanized, then epoxy phenolic primed and top coated with PVC, using thermal bond process.

- B. (Not Used)

### **2.04 SLEEVES**

- A. Unless otherwise indicated on the Drawings or specified, openings for the passage of pipes through floors and walls shall be formed of sleeves of standard-weight, stainless-steel pipe. The sleeves shall be of ample diameter to pass the pipe and its insulation, if any, and to permit such expansion as may occur. Sleeves shall be of sufficient length to be flush at the walls and the bottom of slabs and to project 4-in. above the finished floor surface. Threaded nipples shall not be used as sleeves.
- B. Sleeves in exterior walls below grade or in walls to have liquids on one or both sides shall be as detailed on the Drawings and specified in other sections.
- C. All sleeves shall be set accurately before the concrete is placed or shall be built in accurately as the masonry is being built.

### **2.05 ELECTRICAL EQUIPMENT ENCLOSURES**

- A. All items of electrical equipment that are furnished with process equipment shall conform to the requirements specified under the appropriate electrical sections of the specifications. Enclosures for electrical equipment such as switches, starters, etc., shall conform to the requirements specified under the appropriate electrical sections of the specifications.
- B. (Not Used)

### **2.06 EQUIPMENT DRIVE GUARDS**

- A. All equipment driven by open shafts, belts, chains, or gears shall be provided with acceptable all-metal guards enclosing the drive mechanism. Guards shall be constructed of epoxy paint coated, galvanized sheet steel or galvanized woven wire or expanded metal set in a frame of galvanized steel members. Guards shall be secured in position by steel braces or straps, which will permit easy removal for servicing the equipment. The guards shall conform in all respects to all applicable safety codes and regulations.
- B. (Not Used)

### **2.07 NAMEPLATES**

- A. With the exception of the items mentioned below, each piece of equipment shall be provided with a substantial nameplate of non-corrodible metal, securely fastened in place and clearly and permanently inscribed with the manufacturer's name, model or type designation, serial number, principal rated capacities, electrical or other power characteristics, and similar information as appropriate.

## River Intake Pump Station

- B. This requirement shall not apply to standard, manually operated gate, lobe, check and plug valves.
- C. Each process valve shall be provided with a substantial tag of non-corrodible metal securely fastened in place and inscribed with an identification number in conformance with the tag numbers indicated on the Process and Instrumentation Drawings.

### **2.08 LUBRICANTS**

- A. During testing and prior to acceptance, the Contractor shall furnish all lubricants necessary for the proper lubrication of all equipment furnished under this contract.
- B. (Not Used)

### **2.09 PROTECTION AGAINST ELECTROLYSIS**

- A. Where dissimilar metals are used in conjunction with each other, suitable insulation shall be provided between adjoining surfaces so as to eliminate direct contact and any resultant electrolysis. The insulation shall be bituminous impregnated felt, heavy bituminous coatings, nonmetallic separators or washers, or other acceptable materials.
- B. (Not Used)

### **2.10 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION**

- A. Packing and Shipping:
  - 1. Product and materials shall be shipped and handled in ways which will prevent damage.
  - 2. Equipment shall be protected against damage from moisture, dust, handling, or other cause during transport from manufacturer's premises to the project site. Bearing housing, vents and other types of openings shall be wrapped or otherwise sealed to prevent contamination by grit and dirt.
  - 3. Ship equipment, material, and spare parts in assembled units except where partial disassembly is required by transportation regulations or for protection of components.
  - 4. Pipe and appurtenances shall be handled, stored, and installed as recommended by the manufacturer. Pipes shipped with interior bracing shall have the bracing removed only when recommended by the pipe manufacturer.
  - 5. Stiffeners shall be used where necessary to maintain shapes and to give rigidity.
  - 6. Each item or package shall be marked with the number unique to the specification reference covering the item. Spare parts shall be packed in containers bearing labels clearly designating contents and pieces of equipment for which intended.
- B. Acceptance at Site:
  - 1. Damaged items will not be permitted as part of the work except in cases of minor damage that have been satisfactorily repaired and are acceptable to the Engineer.

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2. Damage shall be corrected to conform to the requirements of the Contract before the assembly is incorporated into the Work.
  3. The Contractor shall bear the costs arising out of dismantling, inspection, repair, and reassembly.
- C. Storage and Protection:
1. Store Material in accordance with manufacturer's recommendations.
  2. Equipment and materials to be located outdoors may be stored outdoors if protected against moisture condensation. Equipment shall be stored at least 6 inches above ground. Temporary power shall be provided to energize space heaters or other heat sources for control of moisture condensation. Space heaters or other heat sources shall be energized without disturbing the sealed enclosure.

### **2.11 UNIT RESPONSIBILITY**

- A. Equipment systems made up of two or more components shall be provided as a unit by the responsible manufacturer. Unless otherwise specified, the Contractor shall obtain each system from the supplier of the driven equipment, which supplier shall provide all components of the system to enhance compatibility, ease of construction, and efficient maintenance. The Contractor shall be responsible to the City for performance of all systems.
- B. Where the detailed specifications require the Contractor to furnish a certificate of unit responsibility, such certificate executed by the manufacturer. No other submittal material shall be processed until the Certificate of Unit Responsibility has been received and has been found to be satisfactory. A typical Manufacturer's Certificate of Unit Responsibility form is included in this specification.

### **2.12 SERVICES OF MANUFACTURER'S REPRESENTATIVE**

- A. Refer to Specification Section 01640 – Manufacturer Services.
- B. (Not Used)

## MANUFACTURER'S CERTIFICATE OF PROPER INSTALLATION

Contractor: \_\_\_\_\_

Equipment Name: \_\_\_\_\_

Equipment Tag Number(s): \_\_\_\_\_

Specification Section: \_\_\_\_\_

Manufacturer/Phone No.: \_\_\_\_\_

Service Rep./Phone No.: \_\_\_\_\_

Date: \_\_\_\_\_ Hours on Site: \_\_\_\_\_

Purpose: To verify installation recommendations and warranty is valid.

At a minimum, the following items (if applicable) must be checked:

	Yes	No	NA
Equipment serviced with proper lubricants.			
All safety equipment properly installed.			
Proper electrical connections.			
Proper mechanical connections.			
Equipment meets all warranty requirements.			

List additional items checked: (See Detailed Specification Section)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

(List and attach additional pages, if necessary.)

Signatures (Do not initial.)

Contractor: \_\_\_\_\_

Date: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Date: \_\_\_\_\_

Engineer: \_\_\_\_\_

Date: \_\_\_\_\_

# MANUFACTURER'S CERTIFICATE OF FUNCTIONAL TEST ACCEPTANCE INSTALLATION

Contractor: \_\_\_\_\_

Equipment Name: \_\_\_\_\_

Equipment Tag Number(s): \_\_\_\_\_

Specification Section: \_\_\_\_\_

Manufacturer/Phone No.: \_\_\_\_\_

Service Rep./Phone No.: \_\_\_\_\_

Date: \_\_\_\_\_ Hours on Site: \_\_\_\_\_

*Purpose: To verify installation, that proper adjustments have been made, that the equipment or system is ready for plant startup and operation and warranty is valid.*

At a minimum, the following items (if applicable) must be checked:

	Yes	No	NA
Rotation			
Alignment			
Speed			
Noise level			
Initial adjustments			
Initial calibration			

List additional items checked: (See Detailed Specification Section)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_

---

(List and attach additional pages, if necessary.)

Signatures (Do not initial.)

Contractor: \_\_\_\_\_

Date: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Date: \_\_\_\_\_

Engineer: \_\_\_\_\_

Date: \_\_\_\_\_

**MANUFACTURER'S CERTIFICATE  
OF  
PERFORMANCE TEST ACCEPTANCE**

Contractor: \_\_\_\_\_

Equipment Name: \_\_\_\_\_

Equipment Tag Number(s): \_\_\_\_\_

Specification Section: \_\_\_\_\_

Manufacturer/Phone No.: \_\_\_\_\_

Service Rep./Phone No.: \_\_\_\_\_

Date: \_\_\_\_\_ Hours on Site: \_\_\_\_\_

*Purpose: To certify that the equipment or system identified above has been successfully tested for performance and is ready to be accepted by the City for full-time operation.*

This certifies that the above equipment or system operated under actual performance conditions, and that the equipment or system meets the specified performance criteria.

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(List and attach additional pages, if necessary.)

Signatures (Do not initial.)

Contractor: \_\_\_\_\_

Date: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Date: \_\_\_\_\_

Engineer: \_\_\_\_\_

Date: \_\_\_\_\_

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**CONTRACTOR'S CERTIFICATE  
OF  
EQUIPMENT START-UP READINESS**

Contractor: \_\_\_\_\_

Equipment Name(s): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Equipment Tag Number(s): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Specification Section: \_\_\_\_\_

"I, the undersigned, do hereby certify that all of the necessary hydraulic structures, piping systems, and valves have been successfully tested; that all necessary equipment systems and subsystems have been checked for proper installation, started, and successfully tested to indicate that they are all operational; that the systems and subsystems are capable of performing their intended functions; and that the facilities noted above are ready for startup and intended operation."

\_\_\_\_\_  
Signature Title

\_\_\_\_\_  
Date

\_\_\_\_\_



**MANUFACTURER'S CERTIFICATE  
OF  
UNIT RESPONSIBILITY**

Manufacturer: \_\_\_\_\_

Equipment Name: \_\_\_\_\_

Specification Section(s): \_\_\_\_\_

Manufacturer/Phone No.: \_\_\_\_\_

Service Rep./Phone No.: \_\_\_\_\_

*Purpose: To certify that the equipment or system manufacturer identified above accepts unit responsibility for equipment or systems furnished.*

This certifies that the above equipment or system manufacturer accepts unit responsibility for equipment or systems furnished under the indicated specification section(s) and that the components furnished are compatible and comprise a functional unit suitable for the specified performance and design requirements.

Signatures (Do not initial.)

Contractor: \_\_\_\_\_

Date: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Date: \_\_\_\_\_

**+++ END OF SECTION 01600 +++**

**SECTION 01610  
TRANSPORTATION AND HANDLING**

**PART 1 GENERAL**

**1.01 SCOPE**

- A. The Contractor shall provide transportation of all equipment, materials and products furnished under these Contract Documents to the Work site. In addition, the Contractor shall provide preparation for shipment, loading, unloading, handling and preparation for installation and all other work and incidental items necessary or convenient to the Contractor for the satisfactory prosecution and completion of the Work.
- B. All equipment, materials and products damaged during transportation or handling shall be repaired or replaced by the Contractor at no additional cost to the City prior to being incorporated into the Work.

**1.02 TRANSPORTATION**

- A. All equipment shall be suitably boxed, crated or otherwise protected during transportation.
- B. Where equipment will be installed using existing cranes or hoisting equipment, the Contractor shall ensure that the weights of the assembled sections do not exceed the capacity of the cranes or hoisting equipment.
- C. Small items and appurtenances such as gauges, valves, switches, instruments and probes which could be damaged during shipment shall be removed from the equipment prior to shipment, packaged and shipped separately. All openings shall be plugged or sealed to prevent the entrance of water or dirt.

**1.03 HANDLING**

- A. All equipment, materials and products shall be carefully handled to prevent damage or excessive deflections during unloading or transportation. The Contractor shall regularly inspect lifting belts, spreader bars, shackles, etc. to ensure the integrity of those items.
- B. Lifting and handling drawings and instructions furnished by the manufacturer or supplier shall be strictly followed. Eyebolts or lifting lugs furnished on the equipment shall be used in handling the equipment. Shafts and operating mechanisms shall not be used as lifting points. Spreader bars or lifting beams shall be used when the distance between lifting points exceeds that permitted by standard industry practice.
- C. Under no circumstances shall equipment or products such as pipe, structural steel, castings, reinforcement, lumber, piles, poles, etc., be thrown or rolled off of trucks onto the ground.
- D. Slings and chains shall be padded as required to prevent damage to protective coatings and finishes.

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**PART 2 PRODUCTS**

**(NOT USED)**

**PART 3 EXECUTION**

**(NOT USED)**

**+++ END OF SECTION 01610 +++**

**SECTION 01612  
STORAGE AND PROTECTION**

**PART 1 – GENERAL**

**1.01 SCOPE**

- A. The work under this Section includes, but is not necessarily limited to, the furnishing of all labor, tool, and materials necessary to properly store and protect all materials, equipment, products and the like as necessary for the proper and complete performance of the Work.
- B. The Contractor shall store materials, supplies, and equipment at the site in such orderly fashion and in such locations as approved by the Engineer that will not unduly interfere with the progress of the Work or the work of any other contractors, or activities of City personnel.

**1.02 STORAGE AND PROTECTION**

A. Storage

- 1. Maintain ample way for foot traffic at all times, except as otherwise approved by the Engineer.
- 2. All property damage by reason of storing of material shall be properly replaced at no additional cost to the City.
- 3. Packaged materials shall be delivered in original unopened containers and so stored until ready for use.
- 4. All materials shall meet the requirements of these Specifications at the time that they are used in the Work.
- 5. Store products in accordance with manufacturer's instructions.

B. Protection

- 1. Use all means necessary to protect the materials, equipment and products of every section before, during, and after installation and to protect the installed work and materials of all other trades.
- 2. All materials shall be delivered, stored, and handled to prevent the inclusion of materials and damage by water, breakage, vandalism or other cause.
- 3. Substantially constructed weather tight storage sheds, with raised floors, shall be provided and maintained as may be required to adequately protect those materials and products stored on the site which may require protection from damage by the elements.
- 4. In the event of damage, immediately make all repairs and replacements necessary for the approval of the Engineer and at no additional cost to the City.
- 5. Store material in accordance with manufacturer's recommendations.

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6. Unless otherwise permitted in writing by the Engineer, building products and materials including but not limited to: cement, grout, plaster, gypsum board, particleboard resilient flooring, acoustical tile, paneling, finished lumber, insulation, and wiring shall be stored indoors in a dry location. Building products such as rough lumber, plywood, concrete block and structural tile may be stored outdoors under a properly secured waterproof covering.
7. Tarps and other coverings shall be supported above the stored equipment or materials on wooden strips to provide ventilation under the cover and minimize condensation. Tarps and covers shall be arranged to prevent ponding of water.

### **1.03. EXTENDED STORAGE**

- A. In the event that certain items of major equipment such as air compressors, pumps, and mechanical aerators have to be stored for an extended period of time, the Contractor shall provide satisfactory long-term storage facilities which are acceptable to the Engineer. The Contractor shall provide all special packaging, protective coverings, protective coatings, power, nitrogen purge, desiccants, lubricants and exercising necessary or recommended by the manufacturer to properly maintain and protect the equipment during the period of extended storage.
- B. (Not used)

### **PART 2 – PRODUCTS – NOT USED**

### **PART 3 – EXECUTION – NOT USED**

**+++ END OF SECTION 01611 +++**

**SECTION 01640  
MANUFACTURER SERVICES**

**PART 1 – GENERAL**

**1.01 SCOPE**

- A. The work under this Section defines the minimum scope of services to be provided by the Contractor using factory representatives of the manufacturers of the equipment to be installed during installation, start-up, and operator training.
- B. Equipment manufacturers assigned unit responsibility for systems comprised of several components shall provide the services of factory representatives from each component manufacturer to perform the duties required under these Specifications. The equipment manufacturer assigned unit responsibility shall be responsible for coordinating the activities of the system component manufacturers.

**1.02 DEFINITIONS**

- A. Man-Day: One person for 8 hours within regular Contractor working hours.
- B. (Not Used)

**1.03 SUBMITTALS**

- A. In addition to all submittal requirements, the following specific information shall be provided:
  - 1. Preliminary Training Plan: Submit within 120 days after Notice to Proceed.
  - 2. Training Schedule: Submit not less than 30 days prior to start of equipment installation and revise as necessary for acceptance.
  - 3. Final Training Plan: Submit after training coordination meeting.
  - 4. Training Materials:
    - a. Submit written outlines of proposed training sessions not less than 30 days prior to scheduled training.
    - b. Furnish complete training materials, to include operation and maintenance data as required in this section. Provide 12 extra copies of all training materials to Owner.
    - c. Quality Control Submittals: When specified in the individual Specifications, submit:
    - d. Qualifications and resume of Manufacturer's Representative performing specified services.
    - e. Manufacturer's Certificate of Proper Installation: On form appended to this section.
- B. (NOT USED)

#### **1.04 QUALIFICATION OF MANUFACTURER'S REPRESENTATIVE**

- A. Qualification of the representatives for installation, start-up, and operator training purposes shall be appropriate for the equipment being installed and shall be subject to the approval of the Engineer. For instances where equipment has significant process complexity, furnish the services of engineering personnel knowledgeable in the process involved and the function of the equipment. Authorized representatives of the manufacturer shall be factory trained and experienced in the technical applications, installation, operation, and maintenance of respective equipment, subsystem, or system. Additional qualifications may be specified elsewhere.
- B. References in various equipment sections using the terms “factory representative” or “field representative” shall mean an employee of the equipment manufacturer who is completely knowledgeable of the construction, installation, operation and maintenance of the equipment. A Sales representative does not qualify. Any field or factory representative, not an active employee of the manufacturer, must provide documentation/certification from the manufacturer stating that the individual, by name, has been formally trained in the installation, operation, and maintenance of the equipment and is authorized to make the required certification to perform the required services.
- C. No substitute representatives will be allowed unless prior written approval by Engineer has been given.

#### **1.05 COORDINATION**

- A. The Contractor shall coordinate the visits of factory representatives during installation, start-up, and operator training in accordance with the requirements of Section 01650 of these Specifications.
- B. The Contractor shall notify the Engineer 72 hours prior to any impending visit by factory representatives to allow the Engineer to be present.
- C. The Contractor shall coordinate the visits of all factory representatives for operator training with the City. The Contractor shall provide the Engineer and City with a training schedule no later than thirty (30) days prior to the start of the training period.
- D. Only if approved by the Engineer, the period of service on more than one item furnished by the same manufacturer may run concurrently.

#### **1.06 FULFILLMENT OF SPECIFIED MINIMUM SERVICES**

- A. Where manufacturers' services are specified, furnish manufacturer's qualified representative. Where time is necessary in excess of that stated in the Specifications for manufacturers' services, additional time required to perform the specified services shall be considered incidental work.
- B. The Manufacturer's Qualified Representative shall be responsible to perform the following but not limited to:

## River Intake Pump Station

1. Schedule manufacturer's services to avoid conflicting with other onsite testing or other manufacturer's onsite services.
2. Determine that all conditions necessary to allow successful testing have been met before scheduling services.
3. Ensure only those days of service approved by Engineer will be credited to fulfill the specified minimum services.
4. If specified, manufacturer's onsite services shall be 8 hours minimum and include as a minimum:
5. Provide assistance during product (system, subsystem, or component) installation to include observation, guidance, and instruction of Contractor's assembly, erection, installation, or application procedures.
6. Be responsible for inspection, checking, and adjustment as required for product(s) (system, subsystem, or component) to function as warranted by manufacturer and necessary to furnish written approval of installation.
7. Revisit the site as required to correct problems and until installation and operation are acceptable to Engineer.
8. Provide resolution of assembly or installation problems attributable to, or associated with, respective manufacturer's products and systems.
9. Provide assistance during functional and performance testing and startup demonstration, and until product acceptance by the Owner.
10. Training of Owner's personnel in the operation and maintenance of respective product as required.
11. Completion of Manufacturer's Certificate of Proper Installation (form enclosed at end of this section) with applicable certificates for proper installation and initial, interim, and final test or service.

### **1.07 TRAINING PLAN**

- A. Preliminary Training Plan: If specified, and within 120 days after Notice of Award, submit for each proposed course:
  1. Title and objectives.
  2. Training schedule.
  3. Prerequisite training and experience of attendees.
  4. Recommended types of attendees (e.g., managers, engineers, operators, maintenance).
  5. Course description and outline of course content.
  6. Duration.
  7. Location (e.g., training center or site).



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8. Format (e.g., lecture, self-study, demonstration, hands-on).
  9. Instruction materials and equipment requirements.
- B. Final Training Plan: Submit the following after training coordination meeting, if specified.
1. Updated versions of course descriptions from preliminary training plan.
  2. List of Attendees for each course.
  3. Schedule of training courses including dates, durations, and locations of each class.
  4. Detailed course schedule for each day showing time allocated to each topic.
  5. Resumes of instructors providing the training.

### **1.08 TRAINING SCHEDULE**

- A. List specified equipment and systems with respective manufacturers that require training services of manufacturers' representatives and show:
1. Estimated dates for installation completion.
  2. Estimated training dates to allow for multiple sessions when several shifts are involved.
- B. Adjust training schedule to ensure training of appropriate personnel as deemed necessary by Owner, and to allow full participation by manufacturers' representatives. Adjust schedule for interruptions in operability of equipment.
- D. Coordinate with Progress Schedules as specified in Section 01650, FACILITY STARTUP.

### **1.09 TRAINING CITY'S PERSONNEL**

- A. Furnish trained, articulate personnel to coordinate and expedite training, to be present during training coordination meetings with Owner, and familiar with operation and maintenance manual information.
- B. Furnish manufacturers' representatives for detailed classroom and hands-on training to Owner's personnel on operation and maintenance of specified product (system, subsystem, component) and as may be required in applicable Specifications.
- C. Manufacturer's Representative: Familiar with plant operation and maintenance requirements as well as with specified equipment.
- D. Pre-startup Training:
1. Coordinate training sessions with Owner's operating personnel and manufacturers' representatives.
  2. Complete at least 7 days, but no more than 14 days, prior to actual startup.
- E. Post-Startup Training: Furnish and coordinate training of Owner's operating personnel by respective manufacturer's representatives. Manufacturer's representative shall be required for a follow-up visit of one day.

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- F. Taping of Training Sessions: The Owner will provide audio/video taping of all training sessions. Manufacturer's trainer is to provide appropriate props, such as, charts, photographs and samples in large enough sizes to be video-taped. All trainers are to provide their full cooperation to the Owner's video technician.

**1.10. INSTALLATION INSPECTION SERVICES**

- A. The Contractor shall furnish the services of a competent factory representative to inspect the installation of each piece of equipment prior to start-up and functional testing in accordance with the requirements of these Specification. The time required shall be shown in the equipment sections of these Specifications, but shall be no less than one 8 hour day.
- B. The factory representative shall certify that the equipment has been installed in accordance with the manufacturers' recommendations and is ready for start-up.

**1.11. START-UP SERVICES**

- A. The Contractor shall furnish the services of a competent factory representative to supervise the start-up, functional testing, and field performance testing for each item or system installed in accordance with Section 01650 and the equipment sections shown in Divisions 2 through 16 of these Specifications. The time required shall be shown in the equipment sections, but shall be no less than one 8 hour day.
- B. (Not Used)

**1.12. OPERATOR TRAINING SERVICES**

- A. The Contractor shall furnish the services of a factory representative to train the City's personnel in the operation and maintenance of each item installed under these Specifications. The time required shall be shown in the equipment sections, but shall be no less than one 8 hour day.
- B. (Not Used)

**1.13. SUPPLEMENTS**

- A. The supplements listed below, following "END OF SECTION," are part of this Specification.
  - 1. Manufacturer's Certificate of Proper Installation.
  - 2. Manufacturer's Instruction Certification Form.
- B. (Not Used)

**PART 2 - PRODUCTS (NOT USED)**

**PART 3 - EXECUTION (NOT USED)**

# River Intake Pump Station

**CITY OF ATLANTA WATER SUPPL PROGRAM PHASE 1  
MANUFACTURER'S CERTIFICATE OF PROPER INSTALLATION**

OWNER \_\_\_\_\_

EQPT SERIAL NO: \_\_\_\_\_

EQPT TAG NO: \_\_\_\_\_

EQPT/SYSTEM: \_\_\_\_\_

PROJECT NO: \_\_\_\_\_

SPEC. SECTION: \_\_\_\_\_

SITE LOCATION:

I hereby certify that the above-referenced equipment/system has been:

(Check Applicable)

<input type="checkbox"/>	Installed in accordance with Manufacturer's recommendations.
<input type="checkbox"/>	Inspected, checked, and adjusted.
<input type="checkbox"/>	Serviced with proper initial lubricants.
<input type="checkbox"/>	Electrical and mechanical connections meet quality and safety standards.
<input type="checkbox"/>	All applicable safety equipment has been properly installed.
<input type="checkbox"/>	System has been performance tested, and meets or exceeds specified performance requirements. (When complete system of one manufacturer)
<input type="checkbox"/>	System has been started up and meets or exceeds performance requirements.

I, the undersigned Manufacturer's Representative, hereby certify that I am (i) a duly authorized representative of the manufacturer, (ii) empowered by the manufacturer to inspect, approve, and operate his equipment and (iii) authorized to make recommendations required to assure that the equipment furnished by the manufacturer is complete and operational, except as may be otherwise indicated herein. I further certify that all information contained herein is true and accurate.

Date: \_\_\_\_\_, 20\_\_\_\_

Manufacturer:

---

By Manufacturer's Authorized Representative:

---

(Authorized Signature)

CITY OF ATLANTA (Spec Writer - Insert Project Name)  
MANUFACTURER'S INSTRUCTION CERTIFICATION FORM

Contract No.: \_\_\_\_\_ Specification Section:  
\_\_\_\_\_

Equipment Name: \_\_\_\_\_

Contractor: \_\_\_\_\_

Manufacturer of Equipment Item: \_\_\_\_\_

The undersigned manufacturer certifies that a service engineer has instructed the City operating personnel in the proper maintenance and operation of the equipment designated herein.

Operations Check List (check appropriate spaces)

Startup procedure reviewed \_\_\_\_\_

Shutdown procedure reviewed \_\_\_\_\_

Normal operation procedure reviewed \_\_\_\_\_

Others: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Maintenance Check List (check appropriate spaces)

Described normal oil changes (frequency) \_\_\_\_\_

Described special tools required \_\_\_\_\_

Described normal items to be reviewed for wear \_\_\_\_\_

Described preventive maintenance instructions \_\_\_\_\_

Described greasing frequency \_\_\_\_\_

Others: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_  
Manufacturer

\_\_\_\_\_

Signature of Authorized Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of City's Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Contractor's Representative

+++ END OF SECTION 01640 +++

**SECTION 01650  
FACILITY STARTUP**

**PART 1 - GENERAL**

**1.1 DEFINITIONS**

- A. Pre-Operational Checkout (Step 1): Are those documented physical checks (tests) that must occur to insure that an item of equipment or equipment system is ready for functional testing. Example components of pre-operational checkout /testing include but are not limited to the following:
1. Pressure and/or leakage tests, water-tightness of concrete structures, and pipe testing.
  2. Electrical testing, resistance testing in accordance with NETA - section 16T. Also, Phase/motor rotation checks.
  3. Instrument calibration and loop tests. Pre-operational check-out of instrumentation system controls.
  4. Pre-operational checkout of mechanical and HVAC equipment to include alignment, lubrication, and other checks as recommended by the manufacturer.
  5. Air-tightness integrity of building sections that are to be fire-rated.

- B. Functional Test: (Step 2): A test or tests, in the presence of the Engineer and Owner, to demonstrate that the installed equipment or system meets manufacturer's installation and adjustment requirements and other requirements.

The testing of the individual items of equipment within a system will be performed under simulated conditions to determine contract compliance. This test will utilize plant effluent, potable water, or another acceptable substitute test media. The equipment will be operated long enough to gather information (data) on noise, temperature, vibration, performance characteristics, and to make initial adjustments of any applicable controls. Initial baseline data will be gathered on equipment with motors greater than 1 horsepower including amperage, bearing temperatures, and vibration.

The instrumentation and control field testing (loop checks from the field devices to PLC or distributed control systems as well as field calibrations), will be accomplished during the pre-operational checkout and functional testing stages as defined above.

- C. Operational Test (Step 3): A test, performed in the presence of the Engineer and Owner, of all components within a system collectively to insure that the system and all of its integral components function as intended. Water and/or other temporary media supplied by the Contractor will be circulated through the completed facility/system for 5 days with systems being operated under various loading conditions as proposed by the Contractor and approved by the City's Engineer.

The instrumentation and control system automatic function for the overall system will be verified and documented during the operational testing stage as described above.

- D. Punchlist: All items that could affect, or be affected by, the full time operation of the system (as deemed critical by the City Engineer) must be complete prior to the Operational Test



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phase.

- E. Acceptance Test (Step 4): The start-up and operation of the systems installed, under actual operating conditions, as part of the actual plant process. The acceptance test period is 30 days. The Owner's O&M staff will be responsible for running the system with the Contractor's support team being available for assistance 24/7. Upon completion of this commissioning period the Contractor may apply for a Substantial Completion certificate.
- F. Performance Test: Any special tests, performed in the presence of the Engineer and Owner, called for by the specific equipment or system specification which are to be performed in addition to the installation and acceptance tests noted in this start-up specification (pre-operational checkout, functional testing, operational testing, and acceptance testing).
- G. System: The overall process, or a portion thereof, that performs a specific function. A system may consist of two or more subsystems as well as two or more types of equipment. Examples of systems on this Project are as follows:
  - 1. Pumps, motors, and controls.
  - 2. Instrumentation and control system(s).
- H. Substantial Completion: The date certified by the City Engineer when all or a part of the work as identified in the Engineer's certification, has been properly installed per the contract documents and manufacturer recommendations, deemed operational through the completion of the Pre-operational checkout, Functional Test, Operational Test, has all test documents with Operation and Maintenance manuals delivered, is sufficiently completed in accordance with the requirements of the Contract Documents and has been demonstrated through the 30 day Acceptance Test thus proving that the identified portion of the work can reliably be utilized for the purposes for which it is intended.

## 1.2 SUBMITTALS

Submittals shall be made in as required and in addition, the following specific information shall be provided

- A. Administrative Submittals:
  - 1. Functional and performance test schedules and plan for equipment, units, and systems at least 14 days prior to start of related testing. Include test plan, procedures, and log format.
  - 2. Schedule and plan of facility startup activities at least 21 days prior to commencement.
- B. Quality Control Submittals:
  - 1. Manufacturer's Certificate of Proper Installation as required.
  - 2. Test Reports: Functional and performance testing, in format acceptable to Engineer and certification of functional and performance test for each piece of equipment or system specified.
  - 3. Certifications of Calibration: Testing equipment.
  - 4. Resumes of manufacturer's representatives that will be present onsite during startup testing activities.

### 1.3 CONTRACTOR FACILITY STARTUP RESPONSIBILITIES

#### A. General:

1. The Contractor shall provide, at no expense to the City, all power, fuel, compressed air supplies, water, and chemicals; as well as all labor, temporary piping, heating, ventilating, and air conditioning or bypass pumping, for any areas where the Improved Facilities are not complete and operable at the time of Acceptance Testing and its prerequisites. Contractor shall provide all other items and work required to complete Acceptance Testing and its prerequisites. Temporary facilities shall be maintained until permanent systems are in service.
2. The Contractor shall also provide all necessary qualified operations personnel and manufacturers field service personnel of the major equipment suppliers on an eight hour per day basis at the facilities and on a 24 hour per day basis locally during the operational and acceptance test period.
3. At no time during startup shall the Contractor allow the facility to be operated in a manner which subjects equipment to conditions that are more severe than the maximum allowable operating conditions for which the equipment was designed.

#### B. Tie-Ins or Modifications To The Existing Systems

1. Anytime the Contractor ties into or modifies an existing system, a detailed work plan shall be required. Submittal of this work plan must be a minimum of 30 days in advance of commencement of the subject work. This work plan shall include a detailed description of the work, a step-by-step plan of the modification or tie-in, a detailed timeline schedule, a detailed list of materials and equipment required, demonstrated communications capacity, and a listing of any gates or valves which must be operated. Working drawings shall be submitted as required for any permanent or temporary structural modifications. A temporary safety plan covering the period of the work, and a listing of contingency plans and supplies, including but not limited to spill prevention planning and spill containment kits, shall be required. A coordination meeting with the City's plant operating staff, the Contractor, the Engineer and the Designer must be held at least 7 days prior to the commencement of the modification or tie-in. The day before the commencement of the modification or tie-in, a final coordination meeting shall be held giving final detailed work assignments to all parties involved.
2. The City and Engineer have the right to require, at no additional cost to the City, stand-by equipment on any item(s) deemed critical enough to delay the work. The Contractor shall have available stand-by personnel to supplement the committed forces should problems arise. The Contractor is responsible for meeting all OSHA standards including entrance and exit safety, confined space entry, fall protection, scaffolding, rigging, etc.

#### C. Contractor's Startup Quality Assurance Manager

1. The Contractor shall appoint an operations engineer or equally qualified operations specialist as Startup Manager to manage, coordinate, and supervise all aspects of the Contractor's startup and testing program including, but not limited to those components of the program as listed with this appendix. The Startup Manager shall have at least

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five (5) years of total experience, or experience on at least five separate projects, in managing the startup commissioning of mechanical, electrical, instrumentation, HVAC, and piping systems. Operations engineers shall be graduates from a minimum 4-year course in mechanical, civil or a related program of study. Operations specialists shall have equivalent documented experience in plant operation and maintenance. Contractor shall submit the Startup Manager's resume for review and approval a minimum of six months prior to any testing, or prior to 50% completion of the first constructed system.

### 2. (Not Used)

## D. Contractor's Testing Team

1. Contractor's Testing Team shall include at a minimum the Quality Assurance Manager, qualified Mechanical/Equipment Foreman, qualified Electrical Journeyman, qualified Instrument Technician, and qualified/Certified Plant Operations personnel.
2. Contractor is responsible to have the appropriate personnel, procedures, and test forms at the test site when performing a scheduled checkout/testing activity that is to be witnessed by the City Engineer.

## E. Test Equipment

1. All test equipment (gauges, meters, thermometers, analysis instruments, and other equipment) used for calibrating or verifying the performance of equipment installed under this contract shall be calibrated to within plus or minus two (2) percent of actual value at full scale. Test equipment employed for individual test runs shall be selected so that expected values as indicated by the detailed performance specifications will fall between 60 and 85 percent of full scale. Pressure gages shall be calibrated in accordance with ANSI/ASME B40.1. Thermometers shall be calibrated in accordance with ASTM E77 and shall be furnished with a certified calibration curve.
2. Test instruments shall be calibrated to references traceable to the National Bureau of Standards and shall have a current sticker showing date of calibration, deviation from standard, name of calibration laboratory and technician, and date recalibration is required.
3. Calibration equipment/test instruments utilized for start-up and testing shall be documented to include identification (by make, manufacturer, model, and serial number) of the test equipment, date of original calibration, subsequent calibrations, calibration method, and test laboratory as well as documentation of current calibration.
4. All analysis instruments, sensors, gauges, and meters used for performance testing shall be subject to recalibration to confirm accuracy after completion, but prior to acceptance of each performance test. All analysis instruments, sensors, gages, and meters installed under this contract shall be subject to recalibration prior to Acceptance.
5. Test equipment used to simulate inputs and read outputs shall have a rated accuracy at the point of measurement at least three times greater than the component under

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test. Buffer solutions and reference fluids shall be provided as necessary for tests of analytical equipment.

### **1.4 OWNER/ENGINEER FACILITY STARTUP RESPONSIBILITIES**

#### A. General:

1. Review Contractor's test plan and schedule.
2. Witness each functional, operational (portions of) and performance test.
3. Coordinate other plant operations, if necessary, to facilitate Contractor's tests.

#### B. Startup Test Period:

1. Operate process units and devices, with support of Contractor.
2. Provide sampling, labor, and materials as required and provide laboratory analyses.
3. Make available spare parts and special tools and operation and maintenance information for Owner-furnished equipment.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 – EXECUTION**

### **3.1 START-UP PROGRAM IMPLEMENTATION**

#### A. Start-Up Meetings

1. The Contractor shall schedule and conduct regular periodic start-up meetings (separate from regular progress meetings). The start-up meetings will be held at least every 10 days (once start-up planning commences) and may be scheduled at a more frequent interval by the City Engineer if necessary. Start-up meetings shall be held at a location designated by the Contractor and approved by the City Engineer.
2. Start-up meetings shall be attended by the City Engineer, Contractor, Sub-contractors as appropriate to the agenda, suppliers as appropriate to the agenda, and others as required.
3. The meeting agenda shall generally include review and approval of minutes of previous meeting, review of start-up progress since the previous meeting, field observations, problems, and conflicts, problems which impede Start-Up Schedule, delivery schedules, corrective measures and procedures to regain the start-up schedule, revisions to Start-Up Schedule, progress and schedule of the preceding work period, coordination of schedules, review of start-up submittal schedules and status of start-up related requests for information, and any other business deemed appropriate.

#### B. Start-up and Testing Schedule

1. The Contractor shall produce an overall testing schedule setting forth the sequence contemplated for performing the test work. The schedule shall be in bar chart form, plotted against calendar time, shall detail the equipment and systems to be tested, and

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shall be coordinated with the Construction Schedule. The testing schedule shall show the contemplated start date, duration of the test, and completion of each test.

2. The preliminary test schedule shall be submitted with the overall Start-up Acceptance Test Plan. The City Engineer will not witness any testing work until the Contractor has submitted a schedule to which the City Engineer takes no exception. The test schedule shall be updated weekly, and presented at each start-up meeting, showing actual dates of test work, indicating systems and equipment testing completed satisfactorily and meeting the requirements of the Contract Standards, and also re-forecast the upcoming testing and reflect any schedule adjustments accompanied by written reason for the change. The Contractor's baseline start-up and testing schedule is to be submitted with the overall test plan.

### C. Documentation

1. The Contractor shall develop a records-keeping system to document all activities associated with Acceptance Testing and its prerequisites.
2. Equipment and system documentation shall include date of test, equipment number or system name, nature of test, test objectives, test results, test instruments employed for the test and signature spaces for witness by the City Engineer, the Contractor's Start-Up/Quality Assurance Manager, and the Equipment Manufacturer. A separate file shall be established for each system, organized by start-up phase (i.e., pre-operational, functional, operational, acceptance test phase), and will include sections for each item of equipment. These files shall include the following information and documentation as a minimum. Test plan and documentation organization shall be as follows:

#### a. Test Plan Organization

- i. Index.
- ii. Schedule
- iii. Step 1 & 2: Each type of equipment will have its own section within the system and include the following:
  - a. The detailed pre-operational test procedures
  - b. The detailed functional test procedures.
  - c. Customized mechanical equipment, customized electrical, and customized instrumentation pre-operational and functional test forms as applicable.
  - d. Other pre-operational test documentation as required for piping and mechanical equipment.
- iv. Step 3: A separate section will be created for the system operational testing and include the following:
  - a. The detailed 5 day operational test procedure.
  - b. A detailed operational system check/sign-off sheet (based on system tests, control checks, and interlock checks to be performed).

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- c. System operational test completion sign-off form.
  - v. Step 4: Another section is to be designated for the Acceptance Testing and include the following:
    - a. Detailed work plans, communications plan, safety plan, and contingencies, as well as all other requirements.
    - b. 30 day test overview and proposed spreadsheet forms to be utilized by the Contractors staff to record appropriate operational and performance data on a regular interval for the 30 days.
    - c. System acceptance test completion/sign-off form.
6. The forms attached to this Appendix are samples showing the required format and level of detail for documentation. The Contractor is advised that these are samples only and are not specific to this project nor to any item of equipment or system to be installed under this contract. The Contractor shall develop test documentation forms specific to each item of equipment and system installed under this contract. Acceptable example documentation forms for all systems and items of equipment shall be produced and submitted for review and approval by the City Engineer [**as a condition precedent to the Contractor's receipt of progress payments in excess of 60 percent of the contract amount**]. Once the City Engineer has reviewed and taken no exception to the forms proposed by the Contractor, the Contractor shall produce customized forms for each item of equipment and system and include these individual forms in the overall test plan that will be submitted for approval.
7. The complete test plan and all its sections are to be submitted (60 days prior to any testing) and approved, Code 1 or Code 1C, prior to the start of any testing.

### 3.2 TEST PLAN IMPLEMENTATION

- A. This program will be implemented in 4 distinct steps (phases). These steps are the Pre-Operational Checkout, the Functional Testing, the Operational Testing, and the Acceptance Testing.
- B. (Not used)

### 3.3 STEP 1 - PRE-OPERATIONAL CHECKOUT AND TESTING

- A. The first step involves the **Pre-operational checkout**. This would include multi-discipline work completion and physical checkout. The **Pre-operational Completion Verification and Pre-operational** test reports include the following required testing. Examples of these documented tests include, but are not limited to:
  1. Wire insulation megohm reports for all 120V and greater wire.
  2. Phasing, ratio, polarity, ground resistance, current injection, insulation resistance, over potential test, and circuit breaker contact resistance reports for medium voltage switchgear.
  4. Insulation power factor and resistance test reports for surge arresters.

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5. Megger reports for Unit Substations, Three Winding Transformers, and 4160V motor control centers.
6. Megger reports and ground connection tests.
7. Loop Status Report and Component Calibration forms.
8. Equipment installation checkout forms.

### B. Equipment – Pre-Operational Checkout

Equipment pre-operational checks and tests shall include, but are not limited to, the following:

1. Check for proper installation, alignment, support, and anchorage per the applicable manufacturers operation and maintenance manual and in accordance with the contract documents.
2. Check the equipment for proper adjustment, packing of seals, lubrication, drive connection, motor connection, and belt/chain tension per the applicable manufacturers operation and maintenance manual and in accordance with the contract documents.
3. Check the associated process, seal water, drain, and vent pipe connections for proper routing and connection. Check to insure the pipe testing was performed and signed as completed for all the associated piping.
4. Insure that the equipment is clean and free of any construction debris that could potentially cause a malfunction.
5. Insure that all safety guards, signage, and other safety measures such as hearing protection, etc., are in place.
6. Have the manufacturer's representative perform all pre-operational tests per the manufacturers' recommendations and review the equipment installation and sign the Manufacturer's Installation portion of the certification form. If the manufacturer's representative brings his own checklist, obtain a copy of the completed form and attach it to the Contractors completed forms. Note that the manufacturer must also fill out the contract approved checkout form (their own form will not serve as a substitute).
7. All gates and valves associated with the equipment system must be checked for proper installation, adjustment, and lubrication per the manufacturer's recommendations.

### C. Concrete Tanks – Pre-Operational Checkout

1. All water-retaining concrete structures shall be tested for watertightness in accordance with ACI 350.1R. The maximum allowable leakage rate shall be 0.075% over a 24-hour period.

### D. Electrical Pre-Operational Checks/Tests

Prior to energizing electrical circuits, use a 1,000-volt megohmmeter to measure insulation resistance on conductors and insulated parts of electrical equipment. All measurements shall meet or exceed the appropriate ICEA, NEMA, or ANSI standard. Any insulation resistance less than 10 megohms is unacceptable. Record results, as well as ambient temperature. See attached form for example.

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1. Measure phase-to-ground insulation resistance for all circuits 120 volts and above, with the exception of lighting circuits. Measurements may be made with motors and other equipment connected, except that solid state equipment shall be disconnected unless the equipment is normally tested by the manufacturer at voltages in excess of 1000 volts DC.
  2. Complete Test Form for each installed motor. Measure the insulation resistance of all motors before connection. Measure the insulation resistance for all motors at the time of delivery as well as when connected. Insulation resistance values less than 10 megohms are not acceptable.
  3. Adjust and make operative all protective devices. Perform a functional check of the control circuit prior to energization of the equipment.
  4. Review all associated electrical terminations, switches, and breakers for satisfactory installation.
- E. Individual Component/Instrument Calibration Pre-Operational Check/Test
1. Each instrument and final element shall be field calibrated in accordance with the manufacturer's recommended procedure. Instruments shall then be tested in compliance with ISA S51.1 and the data entered on the applicable test report form. Alarm trips, control trips, and switches shall be set to initial values specified in the design at this time. Final elements shall be checked for range, dead band, and speed of response.
  2. Calibration of analysis instruments, sensors, gauges, and meters installed under this contract shall proceed on a system-by-system basis. No equipment or system operational, performance or acceptance tests shall be performed until instruments, gages, and meters to be installed in that particular system have been calibrated and the calibration work has been witnessed by the City's Engineer.
  3. Testing of instrument process piping/tubing, wiring and individual components shall be completed and documented on the approved test forms provided to the City Engineer as part of the pre-operational testing phase and prior to commencement of individual loop testing conducted during the pre-operational functional test phase.
  4. Any component which fails to meet the required tolerances shall be repaired by the manufacturer or replaced, and the above tests repeated until the component is within tolerance.
  5. System instrumentation equipment supplied and installed must also be reviewed for proper installation and termination as part of the pre-operational checkout.
- F. Pre-Operational Checkout Summary
1. The pre-operational checkout and testing for each item shall be carried out in accordance with the Contractors submitted and approved procedures and documented on the Contractors approved pre-operational test forms.
  2. The Contractor shall complete the pre-operational testing requirements listed above, at a minimum, for each item of mechanical, electrical, instrumentation, and HVAC equipment prior to beginning any functional testing with regard to the equipment or



the systems in which the equipment functions.

### 3.4 STEP 2 - FUNCTIONAL TEST

#### A. General

1. The second step in the program is the **Functional Test**. This is the functional testing of the equipment. These tests begin for each item of equipment only after the **Pre-operational Checks** have been completed for all components for the particular equipment.
2. The functional testing for each item of equipment shall be carried out in accordance with the Contractors submitted and approved procedures and documented on the Contractors approved functional test forms.
3. Once 1) all affected equipment has been subjected to the required pre-operational testing procedures; and 2) the City Engineer has witnessed and has not found deficiencies in that portion of the work, individual items of equipment and systems may be started and operated under simulated operating conditions to determine as nearly as possible whether the equipment and systems meet the Contract Standards. If available, plant process media may be employed for the testing of all liquid systems except gaseous, oil, or chemical systems. If not available, potable water shall be employed as the test medium. Test media for these systems shall either be the intended fluid or a compatible substitute. The equipment shall be operated for a sufficient period of time to determine machine operating characteristics, including noise, temperatures and vibration; to observe performance characteristics; and to permit initial adjustment of operating controls. When testing requires the availability of auxiliary systems such as looped piping, electrical power, compressed air, control air, or instrumentation which have not yet been placed in service, the Contractor shall provide acceptable substitute sources, capable of meeting the requirements of the machine, device, or system at no additional cost to the City. Disposal methods for test media shall be subject to review by the City Engineer. During the functional test period, the Contractor shall obtain baseline operating data on all equipment with motors greater than 1 horsepower to include amperage, bearing temperatures, and vibration. The baseline data shall be collected for use in the CMMS.
4. Test results shall be within the tolerances set forth in the detailed specification sections of the Contract Documents and as indicated in the Contractors functional test plan and the manufacturers criteria. If no tolerances have been specified, test results shall conform to tolerances established by recognized industry practice. Where, in the case of an otherwise satisfactory functional test, any doubt, dispute, or difference should arise between the City Engineer and the Contractor regarding the test results or the methods or equipment used in the performance of such test, then the City Engineer may order the test to be repeated at the Contractors expense. Where the results of any functional test fail to comply with the Contract Standards for such test, then such repeat tests as may be necessary to achieve the Contract Standards shall be made by the Contractor at his expense.

- B. The **Functional Test** reports (test documentation) include the required testing. Examples of these types of reports include, but are not limited to:

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1. The Functional Field Test of valves.
  2. The cycling/functions check of the sluice gates, slide gates, weir gates, stop logs, and stop plates.
  3. The leakage testing of sluice gates, slide gates, weir gates, stop logs, and stop plates in accordance with AWWA specifications.
  4. Vibration, noise, and capacity testing of Pumps.
  5. Air distribution and leakage test of any diffused air systems.
  6. Loop functional test for Instrumentation and Control.
- C. Process/Mechanical/Equipment – (Functional Testing)
1. During the **Functional Verification Check and Testing** process, the Contractor and the various Manufacturers' Technical representatives shall examine and record the initial start-up performance of the components provided by their respective firms in accordance with the Contractors approved functional test procedure.
  2. The initial operation, testing and adjustment shall be as required to prove that the equipment has been installed properly and operates under the conditions specified.
  3. Upon completion of this work, the manufacturer's field service technician shall complete the Contractors approved functional test form as well as their own signed report to record the results of his/her inspection, operation, adjustments and tests. The report shall include detailed descriptions of the points inspected, tests and adjustments made, quantitative results if such are specified, and suggestions for precautions to be taken to ensure proper maintenance.
- D. Electrical - (Functional Testing)
1. The Contractors' electrician shall be present during all testing to confirm the electrical, provide troubleshooting assistance, repair as needed, and assist in gathering baseline data such as motor amperages.
  2. Energize each control circuit and operate each control, alarm or malfunction device and each interlock in turn to verify that the specified action occurs. The Contractor shall submit a description of his proposed functional electrical test procedures as part of the testing plan. Lockout/tagout energized areas as needed during testing.
  3. Verify that motors are connected to rotate in the correct direction. Verification may be accomplished by momentarily energizing the motor, provided the Contractor confirms that neither the motor nor the driven equipment will be damaged by reverse operation.
- E. Instrumentation and Control – (Functional Testing)
1. The Contractors' instrumentation representative shall be on site full time during the functional test phase to perform loop checks and to support the Contractors start-up team as needed. Any packaged equipment or manufacturer supplied control panels must be field tested to verify all control interlocks and control functions during this phase of testing by the equipment supplier. Note that the Contractors functional test procedure for each piece of equipment shall define each interlock to be tested.

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2. Each instrument loop shall be tested. This testing shall check operation from transmitter to readout components. Signals shall be generated utilizing the primary measuring elements where possible. Signals shall be injected only if primary element is unavailable.
3. If any output device fails to indicate properly, corrections to the loop shall be made as necessary and the test repeated until all instruments operate properly.

### F. Functional Testing Summary

1. The functional testing for each item of equipment, electrical, and instrumentation shall be carried out in accordance with the Contractors submitted and approved procedures and documented on the Contractors approved functional test forms.
2. (Not Used)

## 3.5 STEP 3 – OPERATIONAL TESTING

- A. The third step in the program is the Operational Testing. This step begins after all Pre-operational checks and Functional tests have been satisfactorily completed. The Contractor shall plan his activities to allow for City witnessing of all tests and shall provide twenty-four (24) hours advance notice of all testing activities.
- B. The Contractors operational test plan shall be a detailed procedure to confirm all System Automatic Mode functions, verify all system interlocks, and reconfirm all equipment functions and controls. All design and performance criteria will be demonstrated and documented during this 5 day period. The Contractors manufacturer, electrical, and instrumentation representatives will be on site on an 8 hour a day basis and locally on a 24 hours a day basis during this period.
- C. In the event of failure to demonstrate satisfactory performance of the system on the first or any subsequent attempt, all necessary alterations, adjustments, repairs and replacements shall be made. When the system is again ready for operation, it shall be brought on line and a new test shall be started. This procedure shall be repeated as often as necessary until the system has operated continuously to the satisfaction of the Owner and Engineer, for the specified duration.

## 3.6 STEP 4 – ACCEPTANCE TESTING

- A. The fourth step in the program is Acceptance Testing. The acceptance test period shall not begin until all new systems and equipment have successfully completed the operational test period.
- B. The Operations and Maintenance staff shall receive spare parts, safety equipment, tools and maintenance equipment, lubricants, approved operation and maintenance data and the specified operation and maintenance instruction prior to the startup with plant process media. All valve tagging shall also be complete prior to this startup.
- C. As part of the acceptance test plan the Contractor shall submit detailed work plans, communications plan, safety plan, contingencies, and other requirements. Also a 30 day test overview and proposed spreadsheet forms to be utilized by the Contractors operations staff to record appropriate operational and performance data on a regular interval for the

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30 days.

### D. **Prerequisites**

1. Prior to the City's issuance of a Certificate of Substantial Completion for all work, the Contractor shall perform Acceptance Testing. Acceptance Testing and the Acceptance Test Plan shall comprehensively cover all potential modes of operation, including failure scenarios, as well as the operation of ancillary systems, to demonstrate full functionality of the Improved Facilities. Any failures of process, equipment or systems shall result in re-starting the acceptance testing period. The testing period shall be a minimum of 30 days of continuous operation, during which the facility must meet the following criteria:
2. Continuous satisfactory operation at the rated capacity;
3. Operation without violating the Contract Standards;
4. Operation without creating a materially unsafe condition, nuisance condition or unacceptable risk to personnel, facilities or the public;
5. Operation without producing Biosolids products, air or water emissions, traffic, noise, odors, or other environmental impacts that the City, in its sole discretion, determines to be unacceptable to public safety, health or welfare.
6. All portions of the acceptance test phase will be carried out by qualified/certified operations personnel (supplied by the Contractor) that have a thorough knowledge of the process and can fully implement and document the facility performance as well as the Contractors acceptance test plan.

### E. Instrumentation Acceptance Test

1. The instrument loop acceptance test shall fully demonstrate stable operation of the loop under normal operating conditions. This test shall be witnessed by a City Engineer and performed and documented by the Instrumentation System Supplier.
2. Tuning parameters (proportional gain, integral time constant, and derivative time constant) for each control loop shall be adjusted to provide 1/4 amplitude damping unless otherwise specified and witnessed during system supplier factory testing.

### F. Flow Meters

1. Liquid flow meters, including all open channel flow meters and all meters installed in pipelines with diameters greater than 2 inches shall be calibrated insitu using either the total count or dye dilution methods. Gas flow meters installed in piping systems with diameters greater than 6 inches shall be calibrated insitu using the pitot tube velocity averaging method. Flow meter calibration work shall be performed by individuals skilled in the techniques to be employed. Calibration tests for flow metering systems shall be performed over a range of not less than 10 percent to at least 75 percent of system full scale. At least five confirmed valid data points shall be obtained within this range and witnessed by a City Engineer. Confirmed data points shall be validated by not less than three test runs with results which agree within plus or minus 2 percent.

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- G. In the event of failure to demonstrate satisfactory performance of the system on the first or any subsequent attempt, all necessary alterations, adjustments, repairs and replacements shall be made. When the system is again ready for operation, it shall be brought on line and a new test shall be started. This procedure shall be repeated as often as necessary until the system has operated continuously to the satisfaction of the Owner and Engineer, for the specified duration.
- H. All completed operational test forms will be placed into the master record test plan binder and provided to the City of Atlanta prior to acceptance.

**+++ END OF SECTION 01650 +++**

**SECTION 01664  
TRAINING**

**PART 1 – GENERAL**

**1.01 DESCRIPTION**

- A. Reference sections 01640, MANUFACTURER’S SERVICES, 01650, FACILITY STARTUP and 13000 INSTRUMENTATION, CONTROL AND MONITORING SYSTEM GENERAL REQUIREMENTS
- B. This section contains requirements for training the City's personnel, by persons retained by the CONTRACTOR specifically for the purpose, in the proper operation and maintenance of the equipment and systems installed under this Contract.

**1.02 QUALITY ASSURANCE**

- A. Where required by the detailed specifications, the CONTRACTOR shall provide on-the-job training of the City's personnel. The training sessions shall be conducted by qualified, experienced, factory-trained representatives of the various equipment manufacturers. Training shall include instruction in both operation and maintenance of the subject equipment.

**1.03 SUBMITTALS**

- A. The following information shall be submitted to the City’s Engineer in accordance with paragraph GC-31 of the GENERAL CONDITIONS. The material shall be reviewed and accepted by the City’s Engineer as a condition precedent to receiving progress payments in excess of 75 percent of the Contract amount and not less than 3 weeks prior to the commencement of training.
  - 1. Lesson plans for each training session to be conducted by the manufacturer's representatives. In addition, training manuals, handouts, visual aids, and other reference materials shall be included.
  - 2. Subject of each training session, identity and qualifications of individuals to be conducting the training, and tentative date and time of each training session.

**PART 2 - PRODUCTS**

**2.01 GENERAL**

- A. Where specified, the CONTRACTOR shall conduct training sessions for the City's personnel to instruct the staff on the proper operation, care, and maintenance of the equipment and systems installed under this contract. Training shall take place at the site of the work after the equipment has been installed and tested and under the conditions

## River Intake Pump Station

specified in the following paragraphs. Approved operation and maintenance manuals shall be available at least 30 days prior to the date scheduled for the individual training session.

### **2.02 LOCATION**

- A. Training sessions shall take place at the site of the work.

### **2.03 LESSON PLANS**

- A. Formal written lesson plans shall be prepared for each training session. Lesson plans shall contain an outline of the material to be presented along with a description of visual aids to be utilized during the session. Each plan shall contain a time allocation for each subject.
- B. One complete set of originals of the lesson plans, training manuals, handouts, visual aids, and reference material shall be the property of the City and shall be suitably bound for proper organization and easy reproduction. The CONTRACTOR shall furnish ten copies of necessary training manuals, handouts, visual aids and reference materials at least 1 week prior to each training session.

### **2.04 FORMAT AND CONTENT**

- A. Each training session shall be comprised of time spent both in the classroom and at the specific location of the subject equipment or system. As a minimum, training session shall cover the following subjects for each item of equipment or system:
  - 1. Familiarization:
    - a. Review catalog, parts lists, drawings, etc., which have been previously provided for the plant files and operation and maintenance manuals.
    - b. Check out the installation of the specific equipment items.
    - c. Demonstrate the installed unit and indicate how all parts of the specifications are met.
    - d. Answer questions.
  - 2. Safety:
    - a. Using material previously provided and installed equipment, review safety references.
    - b. Discuss proper precautions around equipment.

## River Intake Pump Station

3. Operation:
  - a. Using material previously provided and installed equipment, review reference literature.
  - b. Explain all modes of operation (including emergency).
  - c. Check out City's personnel on proper use of the equipment.
4. Preventive Maintenance:
  - a. Using material previously provided and installed equipment, review preventive maintenance (PM) lists including:
    1. Reference material.
    2. Daily, weekly, monthly, quarterly, semi-annual, and annual jobs.
  - b. Show how to perform PM jobs.
  - c. Show City's personnel what to look for as indicators of equipment problems.
5. Corrective Maintenance:
  - a. List possible problems.
  - b. Discuss repairs; point out special problems.
  - c. Open up installed equipment and demonstrate procedures, where practical.
6. Parts:
  - a. Show how to use previously provided parts list and order parts.
  - b. Check over spare parts on hand. Make recommendations regarding additional parts that should be available.
7. Local Representatives:
  - a. Where to Order Parts: Name, address, and telephone.
  - b. Service Problems:
    1. Who to call.
    2. How to get emergency help.
8. Operation and Maintenance Manuals:



## River Intake Pump Station

- a. Review any other material submitted.
- b. Update material, as required.

### **2.05 VIDEO RECORDING**

- A. The City will retain the services of a commercial video taping service to record each training session. After taping, the material may be edited and supplemented by the City with professionally produced graphics to provide a permanent record. The CONTRACTOR shall advise all manufacturers providing training sessions that the material will be video taped and shall make available to the City's video taping CONTRACTOR such utility services and accommodation as may be required to facilitate the production of the video tape record.

## **PART 3 – EXECUTION**

### **3.01 GENERAL**

- A. Training shall be conducted in conjunction with the operational testing and commissioning periods. Classes shall be scheduled such that classroom sessions are interspersed with field instruction in logical sequence. The CONTRACTOR shall arrange to have the training conducted on consecutive days, with no more than 6 hours of classes scheduled for any one day. Concurrent classes shall not be allowed. Contractor/Manufacturer is to plan for up to three classes in any 24 hour period to ensure all shifts are properly trained
- B. Acceptable operation and maintenance manuals for the specific equipment shall be provided to the City prior to the start of any training. Video taping shall take place concurrently with all training sessions.
- C. The following services shall be provided for each item of equipment or system as required in individual specification sections. Additional services shall be provided, where specifically required in individual specification sections.
  1. As a minimum classroom equipment training for operations personnel will include:
    - a. Using slides and drawings, discuss the equipment's specific location in the plant and an operational overview.
    - b. Purpose and plant function of the equipment.
    - c. A working knowledge of the operating theory of the equipment.
    - d. Startup, shutdown, normal operation, and emergency operating procedures, including a discussion on system integration and electrical interlocks, if any.

## River Intake Pump Station

- e. Identify and discuss safety items and procedures.
  - f. Routine preventative maintenance, including specific details on lubrication and maintenance of corrosion protection of the equipment and ancillary components.
  - g. Operator detection, without test instruments, of specific equipment trouble symptoms.
  - h. Required equipment exercise procedures and intervals.
  - i. Routine disassembly and assembly of equipment if applicable (as judged by the City on a case-by-case basis) for purposes such as operator inspection of equipment.
2. As a minimum, hands-on equipment training for operations personnel will include:
    - a. Identify location of equipment and review the purpose.
    - b. Identifying piping and flow options.
    - c. Identifying valves and their purpose.
    - d. Identifying instrumentation:
      - a. Location of primary element.
      - b. Location of instrument readout.
      - c. Discuss purpose, basic operation, and information interpretation.
    - e. Discuss, demonstrate, and perform standard operating procedures and routine checks.
    - f. Discuss and perform the preventative maintenance activities.
    - g. Discuss and perform startup and shutdown procedures.
    - h. Perform the required equipment exercise procedures.
    - i. Perform routine disassembly and assembly of equipment if applicable.
    - j. Identify and review safety items and perform safety procedures, if feasible.
  3. Classroom equipment training for the maintenance and repair personnel will include:
    - a. Theory of operation.

## River Intake Pump Station

- b. Description and function of equipment.
  - c. Startup and shutdown procedures.
  - d. Normal and major repair procedures.
  - e. Equipment inspection and troubleshooting procedures including the use of applicable test instruments and the "pass" and "no pass" test instrument readings.
  - f. Routine and long-term calibration procedures.
  - g. Safety procedures.
  - h. Preventative maintenance such as routine lubrication; normal maintenance such as belt, seal, and bearing replacement; and up to major repairs such as replacement of major equipment part(s) with the use of special tools, bridge cranes, welding jigs, etc.
4. Hands-on equipment training for maintenance and repair personnel shall include:
- a. Locate and identify equipment components.
  - b. Review the equipment function and theory of operation.
  - c. Review normal repair procedures.
  - d. Perform startup and shutdown procedures.
  - e. Review and perform the safety procedures.
  - f. Perform City approved practice maintenance and repair job(s), including mechanical and electrical adjustments and calibration and troubleshooting equipment problems.

+++ END OF SECTION 01664 +++

SECTION 01780

ASSET MANAGEMENT RECORDS

**PART 1 - GENERAL**

1.01 SCOPE:

The work under this Section includes gathering and electronically recording financial and technical information needed to support the Owner's Fixed Asset Registry and Computerized Maintenance Management System (CMMS).

1.02 FIXED ASSETS:

- A. The Contractor shall generate the financial information necessary to support the Owner's Fixed Asset Registry, CMMS and submit the information periodically, as directed by the Engineer.
- B. Financial information (Purchase/Salvage/Disposal Price) shall be provided for the following categories of assets:
  - 1. Equipment - All equipment with a purchase value of \$5,000 or more and all equipment that has been assigned an "equipment" or "tag" number in contract documents. The term "equipment" includes but is not limited to: all process equipment, HVAC equipment, instrumentation, valves and gates (including actuators), tanks, electrical panels (including switchgear, MCCs, VFDs, panel boards, automatic transfer switches, heat trace panels, and the like), factory and field control panels, patch panels, control system panels (including PLC and DCS cabinets, marshalling (I/O) cabinets, etc.), roll-up doors, cranes and hoists, copiers, maintenance equipment, shelving, cabinets, laboratory equipment, furniture and A/V equipment. The asset value of the equipment shall be the Contractor's actual purchase price without installation, taxes, overheads, or mark-ups. The Contractor shall obtain a breakdown of equipment values from its vendors and suppliers, where possible, and use its best efforts to provide or estimate the actual purchase price. In addition, the Contractor shall provide an estimate of the cost of installation of each equipment item (e.g., setting, aligning, grouting, etc.)
  - 2. Structure – The cost of structures (typically those structures that require individual building permits) including all labor associated with the structure and all materials (including piping, raceway, wiring, supports, and appurtenances) incorporated into the structure. The structure cost shall include all improvements to the structure and, as applicable, the cost of demolition or other changes to the structure, as directed by the Engineer.
  - 3. Site Improvements – The cost of site improvements shall include all

earthwork, manholes / handholes, culverts and drainage structures, piping, ductbank and wiring not incorporated in a structure, roads, curbs, sidewalks, grassing and landscaping, demolition, and any other improvements to the site. The site improvements cost shall include all improvements to the site and, as applicable, the cost of demolition or other changes to the site, as directed by the Engineer.

4. Special Items – Certain portions of the construction may have a different useful life (from an accounting standpoint). An example of this is roofing on a structure. These special items, as directed by the Engineer, shall be listed separately. The Contractor shall also provide an estimate of the installation cost of the special item.
  5. General Costs - The Contractor shall provide, as a separate line item when directed by the Engineer, the contractor's general costs (general conditions, field engineering, management, supervision, overhead, profit, mobilization, demobilization, permits, bonds, insurance, etc.), associated with the Project.
  6. Salvage Items - The Contractor shall provide, as a separate line item when directed by the Engineer, description of items removed from service and returned to the City as Salvage associated with the Project.
  7. Disposed Items - The Contractor shall provide, as a separate line item when directed by the Engineer, description of items removed from service and disposed associated with the Project.
- C. The Contractor shall provide the required financial information in a format acceptable to the Engineer, with the cost information displayed individually, distributed, or rolled up as directed by the Engineer. See Part 1.06 for examples.
- D. Information to be included as part of fixed asset reporting shall include, as applicable:
1. Tag Number (equipment number, structure number, other unique identification number, as applicable, and as directed by the Engineer)
  2. Structure Name (for site improvements use "Site Improvements")
  3. Description (equipment description or description of asset)
  4. Manufacturer
  5. Vendor (or supplier)
  6. Model Number
  7. Serial Number
  8. Purchase Price (cost as defined above, if applicable)
  9. Installed Date (usually the date of Substantial Completion) or Date removed from service
  10. Extended Warranty Information (if applicable)

1.03 COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM:

- A. In addition to the Fixed Asset information described above, the Contractor shall collect information needed to support data input for the Owner's Computerized Maintenance Management System (CMMS) and submit the information periodically, as directed by the Engineer. Both the Fixed Asset and CMMS data information will be submitted monthly as a requirement of the payment application process.
- B. The Contractor will collect equipment information on all installed equipment that has an associated preventative maintenance in the vendor's O&M manuals.
- C. The Contractor shall take digital photos of all equipment nameplates and electronically file the information by Structure Name and Tag Number. Data (such as serial numbers) must be collected or verified from equipment after it is in its installed location.
- D. A substantial part of the data needed for the CMMS is provided on the equipment nameplates, however, the Contractor may need to refer to submittals, operations and maintenance manuals, and/or other manufacturer information to obtain dimensions, weights, etc., that are not included on nameplates.
- E. Part 1.05 below provides examples of information needed for various types of equipment. Multiple forms may be needed for a single piece of equipment. Actual information required will be as directed by the Engineer.

1.04 INFORMATION SUBMITTALS:

- A. The Contractor shall record in a Microsoft Excel spreadsheet file, the data collected for the Asset Registry and CMMS to the Owner through the Engineer.
- B. The format of a typical Asset – CMMS Spreadsheet is as shown in the first two exhibits under Part 1.06 with each asset on a separate row and the various data fields in columns (only the first nine columns of a 100+ column spreadsheet are shown). Due to the nature of instrumentation, a separate detailed Instrumentation Spreadsheet (which allows multiple model / serial numbers and other unique information to be associated with a single instrument) is also shown in the third exhibit under Part 1.06. The total cost for instrumentation from the Instrumentation Spreadsheet, in the example, is entered as a line item in the Asset – CMMS Spreadsheet.
- C. A separate Asset – CMMS Spreadsheet shall be prepared for each structure or portion of the Project, including site improvements, as directed by the Engineer.
- D. A database with a single table and forms similar to those shown in Part 1.05 is a suggested means for data entry, with such database table exported to an MS Excel spreadsheet to produce the required spreadsheet for each structure or portion of the Project. The creation of the database is not required.

- E. To the extent available, the Contractor should obtain a list(s) of equipment as described in Part 1.02 Paragraph B.1 above from the Engineer for importation into the database or spreadsheet(s).
- F. The Contractor shall submit to the Engineer, a draft of the Asset – CMMS Spreadsheet for each structure or portion of the Project, by the 50% construction complete stage of the structure or portion of the Project, for review as to form and completeness of the asset list. If requested by the Engineer, the Contractor shall submit copies of the spreadsheet periodically (but no more than once a month), as a work in progress for the Engineer’s review. Failure to submit the spreadsheets, as requested by the Engineer, may result in delayed processing of the most current pay request (until the spreadsheet is submitted and accepted).
- G. After an O&M has been accepted with no exceptions taken, the preventative maintenance detailed in the O&M manual shall be entered in an Excel spreadsheet for importation into the City’s CMMS. The Contractor will submit copies of the spreadsheet as part of the CMMS Spreadsheet submittal as a work in progress for the Engineer’s review. Failure to submit the spreadsheets, as requested by the Engineer, may result in delayed processing of the most current pay request (until the spreadsheet is submitted and accepted).
- H. The Contractor shall submit, to the Engineer, a preliminary copy of the Asset - CMMS Spreadsheet for any structure or portion of the Project a minimum of sixty (60) days prior to the anticipated Substantial Completion date for that structure or portion of the Project, with all information complete, except for the date of Substantial Completion. The final Asset - CMMS Spreadsheet for each structure or portion of the Project shall be submitted as part of the requirement for Substantial Completion. Failure to submit the spreadsheet as described above may result in delay in achieving Substantial Completion.
- I. At the end of the Project, all Asset -CMMS Spreadsheets pertaining to the work must be complete, submitted to and accepted by the Engineer in order to achieve Final Completion of the Project. The total of all spreadsheets for the Project must equal the total Contract Price.

1.05 EXAMPLES OF TYPICAL DATA AND SUGGESTED DATABASE TABLES:

River Intake Pump Station

General : Form

## General

**Search**

TAG\_NO:

StructureTitle:

Equipment Description:

Manufacturer:  InstalledDate:

Vendor:  WarrantyExpdate:

MODEL:  PurchasePrice:

SerialNumber:  ProRateExtendWarranty:

Record:       of 952



River Intake Pump Station

Motor Data 1 : Form

### Motor Data

Search

TAG\_NO:

EquipmentDescription:

MotorManufacturer:  MotorEnclosure:

MotorModel:  MotorFrame:

MotorSerial:  MotorType:

MotorHorsepower:  EVOLT:

MotorSpeed:  E\_PHASE:

MotorServiceFactor:  MotorAmps:

MotorInsulation:  MotorDesignTemp:

MotorNoiseLevel:  MotorDriveType:

MotorWeight:

Record:       of 952

Gearbox Data 1 : Form

### Gearbox Data

#Name?

Search

TAG\_NO:

EquipmentDescription:

GearReducerManuf  GearReducerType:

GearModel:  GearReducerRatio:

GearSerial:  GearHP:

GearWeight:  GearTorque:

GearSpeed:

Record:       of 952

River Intake Pump Station

Actuator Data : Form

#Name?

### Actuator Data

Search

TAG\_NO:

EquipmentDescription:

ActuatorManuf:  ActuatorBase:

ActuatorModel:  ActuatorCoupling:

ActuatorSize:

ActuatorSerialNo:  ActuatorSpeed:

ActuatorTempCode:  ActuatorTorque:

NEMAEnclosure:  Lubrication:

ActuatorMotorRating:  ActuatorElectClass:

E\_VOLT:  E\_AMPs:

E\_PHASE:

ActuatorWeight:

Record:  1 of 952

Electrical Equip Data : Form

#Name?

### Electrical Equipment Data

Search

TAG\_NO:

EquipmentDescription:

EVOLT:  Type:

E\_PHASE:  E\_AMPs:

Source:  NEMAEnclosure:

Record:  1 of 952



River Intake Pump Station

Other Equipment Data : Form

#Name?

### Other Equipment Data

**Search**

TAG\_NO:

EquipmentDescription:

Type:  E\_Weight:

E\_CAPACITY:

**Gates and Valves** **Conveyors**

Width:  ScrewDiameter:

Height:  ScrewLength:

ValveSize:  FlightSize:

Actuator?

**Fans / Blowers**

GearBox?  E\_Speed:

ConstructionMatl:

**Related Equipment Data**

E1Type:  E2Type:

E1Manufacturer:  E2Manufacturer:

E1ModelNo:  E2ModelNo:

E1SerialNo:  E2SerialNo:

Record:  1 of 952

1.06 ASSET REGISTRY CMMS SPREADSHEET EXAMPLES:

1	TAG_NO	StructureTitle	EquipmentDescription	Manufacturer	Vendor	MODEL	SerialNumber	PurchasePrice	InstalledDate
2	06	06 - FINE SCREENING - LIME	FSL Structure	Pizzagalli	Pizzagalli	N/A	N/A	\$6,300,000	5/25/2010
3	06inst	06 - FINE SCREENING - LIME	Instrumentation (see Invensys details)	Various	Invensys	N/A	N/A	\$62,200	5/25/2010
4	06roof1	06 - FINE SCREENING - LIME	Standing Seam Roof	Berrage	Pierre	N/A	N/A	\$85,000	5/25/2010
5	06roof2	06 - FINE SCREENING - LIME	Built-up Roof	Johns - Mansville	Dakota	N/A	N/A	\$40,000	5/25/2010
6	ACC-0601	06 - FINE SCREENING - LIME	Air Cooled Condenser	Liebert	Shumate	PFH067AH	N/A	\$50,000	5/25/2010
7	AHU-0601	06 - FINE SCREENING - LIME	DX Air Handling Unit	Liebert	Shumate	BU060E	N/A	\$75,000	5/25/2010
8	ATS-0601	06 - FINE SCREENING - LIME	Automatic Transfer Switch	Eaton	Mayer	ATV3KDA30300KJU	LAT04380-002	\$2,405	5/25/2010
9	Door-06-101B	06 - FINE SCREENING - LIME	Fine Screen Roll-up Door	APD	APD	Pro GHX	193718	\$10,000	5/25/2010
10	Door-06-102B	06 - FINE SCREENING - LIME	Line Roll-up Door	APD	APD	Pro GH4X	193715	\$10,000	5/25/2010
11	EUH-0601	06 - FINE SCREENING - LIME	Electric Unit Heater	TPI Corporation	Shumate	P3P5505T 43WD5T01	N/A	\$2,000	5/25/2010
12	EUH-0602	06 - FINE SCREENING - LIME	Electric Unit Heater	TPI Corporation	Shumate	P3P5505T 43WD5T01	N/A	\$2,000	5/25/2010
13	F-0601	06 - FINE SCREENING - LIME	FRP axial supply fan	Hartzell	Shumate	A35-366-E-FGFM3	0921759	\$10,000	5/25/2010
14	F-0602	06 - FINE SCREENING - LIME	Propeller Wall exhaust Fan	Loren Cook	Shumate	240AW-24AB	050SC58531-00/0000701	\$5,000	5/25/2010
15	F-0603	06 - FINE SCREENING - LIME	Propeller Wall exhaust Fan	Loren Cook	Shumate	AWB-24A6B	050SC58531-00/0002101	\$5,000	5/25/2010
16	F-0604	06 - FINE SCREENING - LIME	Propeller wall exhaust fan	Loren Cook	Shumate	160AW-16A17D	050SL58531-00/0003501	\$5,000	5/25/2010
17	F-0605	06 - FINE SCREENING - LIME	Propeller wall exhaust fan	Loren Cook	Shumate	AWD-20A11DA	050SL58531-00/0004801	\$5,000	5/25/2010
18	FCP-06C11	06 - FINE SCREENING - LIME	Silo No. 1 Truck Fill Panel	RDP Technologies	TDH Company	0803	N/A	\$10,000	5/25/2010
19	FCP-06C12	06 - FINE SCREENING - LIME	Line System No. 1 FCP	RDP Technologies	TDH Company	N/A	UL# 979572	\$10,000	5/25/2010
20	FCP-06D11	06 - FINE SCREENING - LIME	Silo No. 2 Truck Fill Panel	RDP Technologies	TDH Company	0803	N/A	\$10,000	5/25/2010
21	FCP-06D12	06 - FINE SCREENING - LIME	Line System No. 2 FCP	RDP Technologies	TDH Company	N/A	UL# 979571	\$10,000	5/25/2010
22	FCP-06E31	06 - FINE SCREENING - LIME	Compressed Air FCP	Quincy	Pizzagalli	N/A	5623	\$5,000	5/25/2010
23	FCP-06E51	06 - FINE SCREENING - LIME	Lime Unloading Blower FCP	Benshaw Controls	Aerzen	N/A	E20814175-3	\$5,000	5/25/2010
24	FV-06C24	06 - FINE SCREENING - LIME	Pebble Lime Flow Valve #1	Bray	RDP	30-119	03663468	\$2,000	5/25/2010
25	FV-06C29	06 - FINE SCREENING - LIME	Slaked Lime Flow Valve #1	Bray	RDP	30-119	03730145	\$2,000	5/25/2010
26	FV-06D24	06 - FINE SCREENING - LIME	Pebble Lime Flow Valve #2	Bray	RDP	30-119	03663469	\$2,000	5/25/2010
27	FV-06D29	06 - FINE SCREENING - LIME	Slaked Lime Flow Valve #2	Bray	RDP	30-119	03730140	\$2,000	5/25/2010
28	G-06A01	06 - FINE SCREENING - LIME	Fine Screen No. 1 Inlet Gate	Fontaine	Fontaine	2537272KCW/FE	2535070966221-1	\$20,000	5/25/2010
29	G-06A02	06 - FINE SCREENING - LIME	Fine Screen No. 2 Inlet Gate	Fontaine	Fontaine	2537272KCW/FE	2535070966221-2	\$20,000	5/25/2010
30	G-06A31	06 - FINE SCREENING - LIME	Fine Screen No. 1 Outlet Gate	Fontaine	Fontaine	2537299KCW/FE	2535070966231-1	\$20,000	5/25/2010
31	G-06A32	06 - FINE SCREENING - LIME	Fine Screen No. 2 Outlet Gate	Fontaine	Fontaine	2537299KCW/FE	2535070966231-2	\$20,000	5/25/2010
32	G-06A43	06 - FINE SCREENING - LIME	Fine Screen Inlet Box Gate	Fontaine	Fontaine	2035454KCW	2035070966211-1	\$20,000	5/25/2010
33	H-0601	06 - FINE SCREENING - LIME	480V Panelboard	Eaton	Mayer	PRL3A	LAT04380-022	\$787	5/25/2010
34	H-0602	06 - FINE SCREENING - LIME	480V Panelboard	Eaton	Mayer	PRL2A	LAT04380-019	\$578	5/25/2010
35	H-0603	06 - FINE SCREENING - LIME	480V Panelboard	Eaton	Mayer	PRL3A	LAT04380-020	\$578	5/25/2010
36	HTMP-0601	06 - FINE SCREENING - LIME	Heat Trace Monitoring Panel	Cleveland Electric Compar	Cleveland Electric Compar	N/A	N/A	\$1,000	5/25/2010
37	L-0601	06 - FINE SCREENING - LIME	208/120V Panelboard	Eaton	Mayer	PRL1A	LAT04380-016	\$253	5/25/2010
38	L-0602	06 - FINE SCREENING - LIME	208/120V Panelboard	Eaton	Mayer	PRL1A	LAT04380-017	\$311	5/25/2010
39	LCP-06	06 - FINE SCREENING - LIME	DCS Cabinet / System	Invensys	Invensys	N/A	N/A	\$120,000	5/25/2010
40	LCT-0601	06 - FINE SCREENING - LIME	Lighting Contactor	Cleveland Electric Compar	Cleveland Electric Compar	N/A	N/A	\$2,500	5/25/2010
41	M-06A11	06 - FINE SCREENING - LIME	Drum Screen No. 1	Eimco-Brackett Green	Eshelman Company	N/A	N/A	\$600,000	5/25/2010
42	M-06A21	06 - FINE SCREENING - LIME	Drum Screen No. 2	Eimco-Brackett Green	Eshelman Company	N/A	N/A	\$600,000	5/25/2010
43	M-06A51	06 - FINE SCREENING - LIME	Sampler	Teledyne ISCD	Pizzagalli	4700	209G01282	\$3,000	5/25/2010
44	M-06C11	06 - FINE SCREENING - LIME	Silo No. 1 Vent Filter	Donaldson Torit	RDP Technologies	TBV200	2761598-1-Unit1	\$10,000	5/25/2010
45	M-06C12	06 - FINE SCREENING - LIME	Lime Feeder No. 1	RDP Technologies	TDH Company	0900	N/A	\$20,000	5/25/2010
46	M-06C13	06 - FINE SCREENING - LIME	Bin Activator No. 1	Metalfab Inc.	RDP Technologies	CD18-2000	908012	\$20,000	5/25/2010
47	M-06C22	06 - FINE SCREENING - LIME	Lime Slaker No. 1 Mixer	RDP Technologies	TDH Company	N/A	N/A	\$30,000	5/25/2010
48	M-06C31	06 - FINE SCREENING - LIME	Grit Separator No. 1	Kason	RDP Technologies	K40-1-SS	M8035	\$20,000	5/25/2010
49	M-06C42	06 - FINE SCREENING - LIME	Lime Slurry Tank No. 1 Mixer	Sharpe Mixers	RDP Technologies	2E5-25	50763-2	\$30,000	5/25/2010
50	M-06D11	06 - FINE SCREENING - LIME	Silo No. 2 Vent Filter	Donaldson Torit	RDP Technologies	TBV200	2761598-1-Unit2	\$10,000	5/25/2010
51	M-06D12	06 - FINE SCREENING - LIME	Lime Feeder No. 2	RDP Technologies	TDH Company	0900	N/A	\$20,000	5/25/2010
52	M-06D13	06 - FINE SCREENING - LIME	Bin Activator No. 2	Metalfab Inc.	RDP Technologies	CD18-2000	908012	\$20,000	5/25/2010
53	M-06D22	06 - FINE SCREENING - LIME	Lime Slaker No 2 Mixer	RDP Technologies	TDH Company	N/A	N/A	\$30,000	5/25/2010

1	A	B	C	D	E	F	G	H	I
	TAG_NO	StructureTitle	EquipmentDescription	Manufacturer	Vendor	MODEL	SerialNumber	PurchasePrice	InstalledDate
54	M-06D31	06 - FINE SCREENING - LIME	Grit Separator No. 2	Kason	RDP Technologies	K40-1-SS	M8036	\$20,000	5/25/2010
55	M-06D42	06 - FINE SCREENING - LIME	Lime Slurry Tank No. 2 Mixer	Sharpe Mixers	RDP Technologies	2E5-25	50763-1	\$30,000	5/25/2010
56	M-06E21	06 - FINE SCREENING - LIME	Air Compressor	Gardner Denver	Pizzagalli	CBSPLA, PL Series-3 - 30HPS	D066770	\$10,000	5/25/2010
57	M-06E31	06 - FINE SCREENING - LIME	Compressed air dryer	Quincy	Pizzagalli	RNC25A1	R60J225B01A2NC09023	\$5,000	5/25/2010
58	M-06E51	06 - FINE SCREENING - LIME	Lime Unloading Blower	Aerzen	Pizzagalli	AMUSA GM035S-00	907444	\$10,000	5/25/2010
59	M-06F71	06 - FINE SCREENING - LIME	Fine Screen Monorail / Hoist	Acco	Pizzagalli	C2W03	532/20/13354	\$30,000	5/25/2010
60	MAU-0601	06 - FINE SCREENING - LIME	Direct-fired makeup air unit	Reznor	Shumate	RDF2-80-3	BID827AN01696MV7	\$50,000	5/25/2010
61	MCC-0601	06 - FINE SCREENING - LIME	Motor Control Center	Eaton	Mayer	Freedom Series 2100	LAT04380 IT.013	\$53,045	5/25/2010
62	P-06B11	06 - FINE SCREENING - LIME	Screenings Transfer Pump No. 1	Haigh Engineering	Eimco-Brackett Green	Macipump 350	35454-H26215	\$10,000	5/25/2010
63	P-06B12	06 - FINE SCREENING - LIME	Screenings Transfer Pump No. 2	Haigh Engineering	Eimco-Brackett Green	Macipump 350	35454-H26214	\$10,000	5/25/2010
64	P-06B21	06 - FINE SCREENING - LIME	Screenings Transfer Pump No. 3	Haigh Engineering	Eimco-Brackett Green	Macipump 350	35454-H26213	\$10,000	5/25/2010
65	P-06B22	06 - FINE SCREENING - LIME	Screenings Transfer Pump No. 4	Haigh Engineering	Eimco-Brackett Green	Macipump 350	35454-H26216	\$10,000	5/25/2010
66	P-06E01	06 - FINE SCREENING - LIME	Lime Slurry Feed Pump No. 1	Watson Marlow	Watson Marlow	SFX 40	26779	\$25,000	5/25/2010
67	P-06E02	06 - FINE SCREENING - LIME	Lime Slurry Feed Pump No. 2	Watson Marlow	Watson Marlow	SFX 40	26780	\$25,000	5/25/2010
68	P-06E03	06 - FINE SCREENING - LIME	Lime Slurry Feed Pump No. 3	Watson Marlow	Watson Marlow	SFX 40	26789	\$25,000	5/25/2010
69	P-06E41	06 - FINE SCREENING - LIME	Lime Slur Additive Meter Pump No. 1	Watson Marlow	Watson Marlow	520UN/R2	110358	\$5,000	5/25/2010
70	P-06E42	06 - FINE SCREENING - LIME	Lime Slur Additive Meter Pump No. 2	Watson Marlow	Watson Marlow	520UN/R2	110359	\$5,000	5/25/2010
71	T-0601	06 - FINE SCREENING - LIME	Dry Type Transformer	Eaton	Mayer	H48M28T 30EE	J08D00184	\$910	5/25/2010
72	T-0602	06 - FINE SCREENING - LIME	Dry Type Transformer	Eaton	Mayer	H48m47T 30EE	J08L00574	\$830	5/25/2010
73	T-0603	06 - FINE SCREENING - LIME	Dry Type Transformer	Eaton	Mayer	H48M28F15EE	J08D00112	\$830	5/25/2010
74	T-06B10	06 - FINE SCREENING - LIME	Screenings Conditioning Tank No. 1	Haigh Engineering	Eimco-Brackett Green	1000 ACE Package	N/A	\$5,000	5/25/2010
75	T-06B20	06 - FINE SCREENING - LIME	Screenings Conditioning Tank No. 2	Haigh Engineering	Eimco-Brackett Green	1000 ACE Package	N/A	\$5,000	5/25/2010
76	T-06C11	06 - FINE SCREENING - LIME	Lime Silo No. 1	Imperial Industries	RDP Technologies	606512-0x34-11	I50392-1	\$200,000	5/25/2010
77	T-06C21	06 - FINE SCREENING - LIME	Lime Slaker No. 1	Tekkem	RDP Technologies	PRS-200B	N/A	\$50,000	5/25/2010
78	T-06C41	06 - FINE SCREENING - LIME	Lime Slurry Tank No. 1	RDP Technologies	TDH Company	N/A	N/A	\$35,000	5/25/2010
79	T-06D11	06 - FINE SCREENING - LIME	Lime Silo No. 2	Imperial Industries	RDP Technologies	606512-0x34-11	I50392-2	\$200,000	5/25/2010
80	T-06D21	06 - FINE SCREENING - LIME	Lime Slaker No. 2	Tekkem	RDP Technologies	PRS-200B	N/A	\$50,000	5/25/2010
81	T-06D41	06 - FINE SCREENING - LIME	Lime Slurry Tank No. 2	RDP Technologies	TDH Company	N/A	N/A	\$35,000	5/25/2010
82	T-06D51	06 - FINE SCREENING - LIME	Sulfamic Acid Feed Tank	Snyder Industries	Pizzagalli	N/A	N/A	\$15,000	5/25/2010
83	V-06A13	06 - FINE SCREENING - LIME	Screen No. 1 Spray Water Valve	Hayward	SIP	True Union	N/A	\$2,000	5/25/2010
84	V-06A23	06 - FINE SCREENING - LIME	Screen No. 2 Spray Water Valve	Hayward	SIP	True Union	N/A	\$2,000	5/25/2010
85	V-06A41	06 - FINE SCREENING - LIME	EQE / Fine Screen 30" Isolation Valve	DeZurik	Ecotech	9492401R001	854451-2	\$30,000	5/25/2010
86	V-06A42	06 - FINE SCREENING - LIME	Primary Sed. / Fine Screen 42" Flow Control	DeZurik	Ecotech	9492400R001	854451-1	\$50,000	5/25/2010
87	V-06A61	06 - FINE SCREENING - LIME	EQE / Fine Screen 18" Flow Control Valve	DeZurik	Ecotech	N/A	Tag# 1380279	\$50,000	5/25/2010
88	V-06A62	06 - FINE SCREENING - LIME	EQE / Fine Screen 12" Flow Control Valve	DeZurik	Ecotech	N/A	Tag# 1380278	\$20,000	5/25/2010
89	V-06B31	06 - FINE SCREENING - LIME	FSCR from Tank No. 1 to Inlet Box	Hayward	SIP	True Union	N/A	\$5,000	5/25/2010
90	V-06B32	06 - FINE SCREENING - LIME	FSCR to Liquid Separators No. 1 and 3	Hayward	SIP	True Union	N/A	\$5,000	5/25/2010
91	V-06B33	06 - FINE SCREENING - LIME	FSCR from Tank No. 2 to Inlet Box	Hayward	SIP	True Union	N/A	\$5,000	5/25/2010
92	V-06B34	06 - FINE SCREENING - LIME	FSCR to Liquid Separators No. 2 and 4	Hayward	SIP	True Union	N/A	\$5,000	5/25/2010
93	VFD-06E01	06 - FINE SCREENING - LIME	Lime Slurry Feed Pump No. 1 VFD	Benshaw Controls	Watson Marlow	N/A	E200814273A-1	\$3,000	5/25/2010
94	VFD-06E02	06 - FINE SCREENING - LIME	Lime Slurry Feed Pump No. 2 VFD	Benshaw Controls	Watson Marlow	N/A	E200814273A-2	\$3,000	5/25/2010
95	VFD-06E03	06 - FINE SCREENING - LIME	Lime Slurry Feed Pump No. 3 VFD	Benshaw Controls	Watson Marlow	N/A	E200814273A-3	\$3,000	5/25/2010
96	WCP-0601	06 - FINE SCREENING - LIME	DCS Workstation	Invensys	Invensys	N/A	N/A	\$5,000	5/25/2010
97	WL-0601	06 - FINE SCREENING - LIME	Fixed Wall Louver	Ruskin	Shumate	ELF6375X	N/A	\$2,250	5/25/2010
98	WL-0602	06 - FINE SCREENING - LIME	Combination wall louver	Ruskin	Shumate	ELC6375DAX	N/A	\$2,250	5/25/2010
99	WL-0603	06 - FINE SCREENING - LIME	Combination wall louver	Ruskin	Shumate	ELC6375DAX	N/A	\$2,250	5/25/2010
100	WL-0604	06 - FINE SCREENING - LIME	Fixed Wall Louver	Ruskin	Shumate	ELF6375X	N/A	\$2,250	5/25/2010
101	WL-0605	06 - FINE SCREENING - LIME	Combination wall louver	Ruskin	Shumate	ELC6375DAX	N/A	\$2,250	5/25/2010
102	WL-0606	06 - FINE SCREENING - LIME	Combination wall louver	Ruskin	Shumate	ELC6375DAX	N/A	\$2,250	5/25/2010
103	WL-0607	06 - FINE SCREENING - LIME	Combination wall louver	Ruskin	Shumate	ELC6375DAX	N/A	\$2,250	5/25/2010
104	WL-0608	06 - FINE SCREENING - LIME	Combination wall louver	Ruskin	Shumate	ELC6375DAX	N/A	\$2,250	5/25/2010
105								<b>\$9,502,227</b>	

	A	B	C	D	E	F	G	H	I	J	K	L	M
	TAG	Instrument Type	Building	Manufacturer	Model	Serial No	Description	Total Price	Accuracy	Range	Min Value	Max Value	Eng Units
1	AE/JA1T-06F10	Gas Detector	06 - Fine Screen / Lime	Draeger	6810098 - Methane	ARZK-0284	Draeger Polytron IR 334 - Methane		< 2% LEL	0-100% LEL	0% LEL	100% LEL	% LEL
2	AE/JA1T-06F10	Accessory	06 - Fine Screen / Lime	Draeger	6809750	N/A	Draeger Splash Guard		N/A	N/A	N/A	N/A	N/A
3	AE/JA1T-06F10	N/A	06 - Fine Screen / Lime	Draeger	SC04085	N/A	Stainless Steel Tags 1" x 2.5"		N/A	N/A	N/A	N/A	N/A
4	AE/JA1T-06F10	Splash Guard	06 - Fine Screen / Lime	Draeger	6809780	N/A	Calibration Adapter for Splash Guard		N/A	N/A	N/A	N/A	N/A
5	AE/JA1T-06F10	Digital Display	06 - Fine Screen / Lime	Precision Digital	PD677-N-EX	0902-97861-1-19	4-20mA Digital Display		N/A	0-100%	0%	100%	%
6	AE/JA1T-06F10	N/A	06 - Fine Screen / Lime	Precision Digital	PDA-S5TAG	N/A	Stainless Steel TAG		N/A	N/A	N/A	N/A	N/A
7	AE/JA1T-06F10	Accessory	06 - Fine Screen / Lime	Draeger	6809450	N/A	Field Verification Cell		N/A	N/A	N/A	N/A	N/A
8	AE/JA1T-06F10	N/A	06 - Fine Screen / Lime	Precision Digital	PDN-CALDATA	N/A	Calibration Services	\$ 3,000	N/A	N/A	N/A	N/A	N/A
9	AE/JA1T-06F15	Gas Detector	06 - Fine Screen / Lime	Draeger	6810098 - Methane	ARZK-0177	Draeger Polytron IR 334 - Methane		< 2% LEL	0-100% LEL	0% LEL	100% LEL	% LEL
10	AE/JA1T-06F15	Accessory	06 - Fine Screen / Lime	Draeger	6809750	N/A	Draeger Splash Guard		N/A	N/A	N/A	N/A	N/A
11	AE/JA1T-06F15	N/A	06 - Fine Screen / Lime	Draeger	SC04085	N/A	Stainless Steel Tags 1" x 2.5"		N/A	N/A	N/A	N/A	N/A
12	AE/JA1T-06F15	Splash Guard	06 - Fine Screen / Lime	Draeger	6809780	N/A	Calibration Adapter for Splash Guard		N/A	N/A	N/A	N/A	N/A
13	AE/JA1T-06F15	Accessory	06 - Fine Screen / Lime	Draeger	6809450	N/A	Field Verification Cell		N/A	N/A	N/A	N/A	N/A
14	AE/JA1T-06F15	Digital Display	06 - Fine Screen / Lime	Precision Digital	PD677-N-EX	0902-97861-1-2	4-20mA Digital Display		N/A	0-100%	0%	100%	%
15	AE/JA1T-06F15	N/A	06 - Fine Screen / Lime	Precision Digital	PDA-S5TAG	N/A	Stainless Steel TAG		N/A	N/A	N/A	N/A	N/A
16	AE/JA1T-06F15	N/A	06 - Fine Screen / Lime	Precision Digital	PDN-CALDATA	N/A	Calibration Services	\$ 3,000	N/A	N/A	N/A	N/A	N/A
17	AE/JA1T-06F20	H2S Gas Detector	06 - Fine Screen / Lime	Draeger	4543070	ERAC-0174	Polytron ZXP TOX w/o Sensor and Relays		1.0 PPM	0-50 PPM	1.0 PPM	50.0 PPM	PPM
18	AE/JA1T-06F20	H2S Gas Detector	06 - Fine Screen - Lime	Draeger	6809610	ARAA-0217	H2S Electrochemical Sensor		1.0%	0-50 PPM	0%	100%	PPM
19	AE/JA1T-06F20	Accessory	06 - Fine Screen - Lime	Draeger	4509315	N/A	Splash Guard		N/A	N/A	N/A	N/A	N/A
20	AE/JA1T-06F20	Mounting Kit	06 - Fine Screen - Lime	Draeger	4520315	N/A	Wall Mounting Kit w/ 15ft. Cable		N/A	N/A	N/A	N/A	N/A
21	AE/JA1T-06F20	N/A	06 - Fine Screen - Lime	Draeger	SC04085	N/A	Stainless Steel Tags 1" x 2.5"		N/A	N/A	N/A	N/A	N/A
22	AE/JA1T-06F20	N/A	06 - Fine Screen - Lime	Draeger	SC04004	N/A	Warranty for Polytron ZXP TOX for 48 months	\$ 3,000	N/A	N/A	N/A	N/A	N/A
23	AE/JA1T-06F25	H2S Gas Detector	06 - Fine Screen - Lime	Draeger	4543070	ERAC-0408	Polytron ZXP TOX w/o Sensor and Relays		1.0 PPM	0-50 PPM	1.0 PPM	50.0 PPM	PPM
24	AE/JA1T-06F25	H2S Gas Detector	06 - Fine Screen - Lime	Draeger	6809610	ARAA-0162	H2S Electrochemical Sensor		1.0%	0-50 PPM	0%	100%	PPM
25	AE/JA1T-06F25	Accessory	06 - Fine Screen - Lime	Draeger	4509315	N/A	Splash Guard		N/A	N/A	N/A	N/A	N/A
26	AE/JA1T-06F25	Mounting Kit	06 - Fine Screen - Lime	Draeger	4520315	N/A	Wall Mounting Kit w/ 15ft. Cable		N/A	N/A	N/A	N/A	N/A
27	AE/JA1T-06F25	N/A	06 - Fine Screen - Lime	Draeger	SC04085	N/A	Stainless Steel Tags 1" x 2.5"		N/A	N/A	N/A	N/A	N/A
28	AE/JA1T-06F25	N/A	06 - Fine Screen - Lime	Draeger	SC04085	N/A	Stainless Steel Tags 1" x 2.5"		N/A	N/A	N/A	N/A	N/A
29	AF/JA1T-06F25	N/A	06 - Fine Screen - Lime	Draeger	5704004	N/A	Warranty for Polytron ZXP TOX for 48 months	\$ 3,000	N/A	N/A	N/A	N/A	N/A
30	FE/1T-06A02	Mass Flow Transducer/Disp	06 - Fine Screen - Lime	KROHNE Inc	VN304H454300010100010	A0962701	IFC300F - Electromagnetic Flow Transducer		N/A	N/A	N/A	N/A	GPM
31	FE/1T-06A02	N/A	06 - Fine Screen - Lime	KROHNE Inc	42" - 48 months	N/A	Additional warranty		N/A	N/A	N/A	N/A	N/A
32	FE/1T-06A02	Mass Flow Sensor	06 - Fine Screen - Lime	KROHNE Inc	VN164*W5AD03112011000	A0962701	Ophiflux 2000 - 42" Mag Flow Meter	\$ 28,000		0-300 GPM	0 GPM	300 GPM	GPM
33	FE/1T-06A60	Mass Flow Transducer/Disp	06 - Fine Screen - Lime	KROHNE Inc	VN304H454300010100010	TBA	IFC300F - Electromagnetic Flow Transducer		N/A	N/A	N/A	N/A	GPM
34	FE/1T-06A60	N/A	06 - Fine Screen - Lime	KROHNE Inc	24" - 48 months	N/A	Additional warranty		N/A	N/A	N/A	N/A	N/A
35	FE/1T-06A60	Mass Flow Meter	06 - Fine Screen - Lime	KROHNE Inc	VN154N45AD031120110000	TBA	Ophiflux 2000 - 24" Mag Flow Meter	\$ 11,000		0 GPM	0 GPM	0 GPM	GPM
36	FSL-06F30	Thermal Flow Switch	06 - Fine Screen - Lime	Fluid Components Int. Inc	FLT93S-1B1A4FWC1B03000	304169	Thermal Flow Switch - 25"		+/- 5%	0-20 GPM	0 GPM	20 GPM	SFPS
37	FSL-06F30	N/A	06 - Fine Screen - Lime	Fluid Components Int. Inc	NIST-CAL	N/A	N.I.S.T. Cert Calibration	\$ 2,600		N/A	N/A	N/A	N/A
38	FSL-06F35	Thermal Flow Switch	06 - Fine Screen - Lime	Fluid Components Int. Inc	FLT93S-1B1A4FWC1B03000	304170	Thermal Flow Switch - 25"		+/- 5%	0-20 GPM	0 GPM	20 GPM	SFPS
39	FSL-06F35	N/A	06 - Fine Screen - Lime	Fluid Components Int. Inc	NIST-CAL	N/A	N.I.S.T. Cert Calibration	\$ 2,600		N/A	N/A	N/A	N/A
40	LE/LIT-06A12A	Ultrasonic Level Transducer	06 - Fine Screen - Lime	Siemens Corporation	7ML5033-1AA003B Z Y15	PBD/3230217	MultiRanger 100 (Single Point Unit)		0.25%	0-50 ft	1 ft	50 ft	ft
41	LE/LIT-06A12A	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1930-1B1	N/A	Stainless Steel TAG		N/A	N/A	N/A	N/A	N/A
42	LE/LIT-06A12A	Ultrasonic Level Sensor	06 - Fine Screen - Lime	Siemens Corporation	7ML1100-0BA20	911175	ST-H Level Transducer (2" NPT - PTFE Face - 10m Cable)		N/A	0-20 ft	1 ft	26 ft	ft
43	LE/LIT-06A12A	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1B1	N/A	Submergence Shield Kit		N/A	N/A	N/A	N/A	N/A
44	LE/LIT-06A12A	Mounting Plate	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1B1	N/A	FMS-210 Channel Bracket, Wall Mount	\$ 1,500		N/A	N/A	N/A	N/A
45	LE/LIT-06A12B	Ultrasonic Level Transducer	06 - Fine Screen - Lime	Siemens Corporation	7ML5033-1AA003B Z Y15	PBD/3230209	MultiRanger 100 (Single Point Unit)		0.25%	0-50 ft	1 ft	50 ft	ft
46	LE/LIT-06A12B	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1930-1B1	N/A	Stainless Steel TAG		N/A	N/A	N/A	N/A	N/A
47	LE/LIT-06A12B	Ultrasonic Level Sensor	06 - Fine Screen - Lime	Siemens Corporation	7ML1100-0BA20	911174	ST-H Level Transducer (2" NPT - PTFE Face - 10m Cable)		N/A	0-20 ft	1 ft	26 ft	ft
48	LE/LIT-06A12B	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1B1	N/A	Submergence Shield Kit		N/A	N/A	N/A	N/A	N/A
49	LE/LIT-06A12B	Mounting Plate	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1B1	N/A	FMS-210 Channel Bracket, Wall Mount	\$ 1,500		N/A	N/A	N/A	N/A
50	LE/LIT-06A22A	Ultrasonic Level Transducer	06 - Fine Screen - Lime	Siemens Corporation	7ML5033-1AA003B Z Y15	PBD/3230 ???	MultiRanger 100 (Single Point Unit)		0.25%	0-50 ft	1 ft	50 ft	ft
51	LE/LIT-06A22A	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1930-1B1	N/A	Stainless Steel TAG		N/A	N/A	N/A	N/A	N/A
52	LE/LIT-06A22A	Ultrasonic Level Sensor	06 - Fine Screen - Lime	Siemens Corporation	7ML1100-0BA20	911176	ST-H Level Transducer (2" NPT - PTFE Face - 10m Cable)		N/A	0-20 ft	1 ft	26 ft	ft
53	LE/LIT-06A22A	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1B1	N/A	Submergence Shield Kit		N/A	N/A	N/A	N/A	N/A
54	LE/LIT-06A22A	Mounting Plate	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1B1	N/A	FMS-210 Channel Bracket, Wall Mount	\$ 1,500		N/A	N/A	N/A	N/A
55	LE/LIT-06A22B	Ultrasonic Level Transducer	06 - Fine Screen - Lime	Siemens Corporation	7ML5033-1AA003B Z Y15	PBD/3230214	MultiRanger 100 (Single Point Unit)		0.25%	0-50 ft	1 ft	50 ft	ft
56	LE/LIT-06A22B	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1930-1B1	N/A	Stainless Steel TAG		N/A	N/A	N/A	N/A	N/A
57	LE/LIT-06A22B	Ultrasonic Level Sensor	06 - Fine Screen - Lime	Siemens Corporation	7ML1100-0BA20	911117	ST-H Level Transducer (2" NPT - PTFE Face - 10m Cable)		N/A	0-20 ft	1 ft	26 ft	ft
58	LE/LIT-06A22B	N/A	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1B1	N/A	Submergence Shield Kit		N/A	N/A	N/A	N/A	N/A
59	LE/LIT-06A22B	Mounting Plate	06 - Fine Screen - Lime	Siemens Corporation	7ML1830-1B1	N/A	FMS-210 Channel Bracket, Wall Mount	\$ 1,500		N/A	N/A	N/A	N/A
60								\$ 62,200					

+++END OF SECTION+++

**SECTION 01800  
MAINTENANCE**

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

- A. Contractor will be required to maintain stored and installed equipment and materials until Final Acceptance of the Work. Work included, but is not limited to:
  - 1. Perform all required maintenance.
  - 2. Repair and maintain protective coatings.
  - 3. Repair and replace scratched and damaged materials and equipment.
  - 4. Maintain and operate new equipment placed into service.
- B. Work per this Section starts on the date the equipment and materials are received and continued until the Date of Final Acceptance.
- C. Contractor will monitor equipment storage and subsequently the operation and material functionality on a continual basis during the specified time period. Any deterioration of materials or malfunction of equipment will be followed by swift repair action to minimize the damage. Such repair may include repair and technical services by an independent Contractor if the Engineer deems the Contractor's efforts are ineffective in correcting the problem.
- D. All costs for maintenance and repair of stored and installed equipment and materials, including costs from an independent Contractor, during the specified time period will be the sole responsibility of the Contractor.

**+ + + END OF SECTION 01800 + + +**