

## 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 shall use Primavera Project Management software (P6) or latest version, and a hardware system commensurate with the size of the project. The system shall be capable of handling, processing, printing, and plotting all data required to satisfy the requirements of this section. All electronic files submitted to Owner or Engineer shall be compatible with Primavera Project Management (P6) or latest version. Any and all costs incurred by the Contractor in researching, training and/or educating its personnel in CPM Scheduling and/or Primavera 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 for acceptance a final CPM Baseline Construction Schedule, a Final Schedule of Values including Allowance Items, allocated to the CPM Schedule activities, and written narrative to further explain the plan as set forth in its CPM logic network and schedule within 45 days of the Notice to Proceed. Requirements for the final CPM Baseline Construction and Final Schedule of Values are further described hereinafter. Contractor's Application for Payment will not be approved until the final CPM Baseline 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 an orderly progression of work from Notice to Proceed to Final Completion and 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 required work to complete, (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. Lag relationships, or durations between activities, shall be limited to 10 calendar days and used only upon acceptance by the Engineer.

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- I. 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
- J. 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
- K. 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 Baseline 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 Baseline 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 Baseline 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. This meeting is to take place within five (5) calendar days upon return of reviewed submittal. 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 ten (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 (P6) or latest 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 monthly the following:
  1. A CPM timescaled logic network, computer generated schedule using Primavera Project Management (P6) 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. Written narrative report describing the logic and reasoning of the schedule. Refer to section SC-16.16 for a complete list of narrative report requirements.
  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, within ten (10) days after Notice to Proceed and/or 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 (excluding allowances) 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 )
  5. 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 SC16.7.A 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.
- D. 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.
- E. 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.
- F. 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:
- a. Except for Allowance Accounts identified in Section 01200, each account shall include a directly proportional amount of the Contractor's overhead and profit.
  - b. For accounts on which progress payments will be requested for materials suitably stored on site, break down the value into:
    - i. The cost of each material delivered and unloaded.
    - ii. Paid invoices will be required for materials.
- G. 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.
- H. A new account will be added to the Schedule of Values for approved Change Order work. Payment for Time and Materials Change Order work (CO) shall be based upon the General and Special Conditions of these Specifications.

- I. 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 termination 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 each month. Refer to Specification Section SC-16.16 for the requirements of the narrative report.
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. Should it become apparent by the Engineer, that delays to the critical path have resulted in the current monthly update and that these delays are through no fault of the Owner or Engineer and that the Contract completion will not be met, the Contractor shall submit to the Engineer for review a written statement of the steps it intends to take to remove or mitigate the delay to the schedule. The Contractor shall promptly provide such level of effort to bring work back on schedule.
- C. 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.. Under no circumstances will the addition of construction forces, increasing the working hours or any other method, manner, or procedure to recover delays to the CPM Construction Schedule be considered justification for contract modifications or extra work.

#### 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-16.13 Time Allowance for Inclement Weather

- A. The Contractor in the planning and scheduling of its baseline schedule shall consider and include corresponding time for normal weather occurrences in all weather sensitive schedule activities. The amount of time allowed for this inclement weather is defined under GC-24.6. Any activity which could be impacted by normally anticipated inclement weather (precipitation, high or low temperature, wind, etc.), due to the time period which the Contractor has scheduled the work, shall include an adjustment to include the anticipated weather impact from normal weather conditions. "Abnormal Inclement weather" is a lost workday, caused by abnormal inclement weather conditions, and is defined as a day in which the Contractor's workforce cannot work 50 percent or more of the day thereby resulting in a delay to the critical path. The Contractor shall notify the Engineer in writing when a lost workday has occurred due to abnormal inclement weather in accordance with the Contract Specifications requirements. If the number of actual inclement weather delay days exceeds the number of contract allowed inclement weather days, the Contractor will notify in writing the Engineer in accordance with the requirements of GC-26.2 Delays and Extensions of Time of the Contract Specifications Such delays shall not entitle the Contractor to any additional compensation. The sole remedy of the Contractor shall be to seek a non-compensable extension of time.

#### SC-16.14 Ownership of Schedule Float and Early Completion:

- A. Project float, total float, slack time or contingency within the CPM Construction Schedule (i.e., the difference in time between the projected early completion date and the required Contract completion date), and free float or critical path float within the overall CPM Construction Schedule is for the exclusive use of the Owner. The use of float suppression techniques such as preferential sequencing, special lead/lag logic restraints, extended activity times or imposed dates shall be cause for rejection of the CPM Construction



Schedule and any revisions of updates. The use of float time shall be allowed as directed by the Engineer.

- B. Owner initiated changes that extend or shorten the Contract time shall be the sole basis to adjust the Contract completion date. Delays to the Project critical path for which no justified request for time extensions has been made in accordance with the General Conditions and the General Requirements shall be deemed to be the responsibility of the Contractor.
- C. Contractor agrees that there will be no basis for any Contract modification in regards to an extension of time for project delays, problems or change orders that only result in a loss of shared float in the CPM Construction Schedule.
- D. Any delays to the Contractors proposed early completion date shall be non-compensable and is considered COA-owned Project float which is for the exclusive use of the Engineer.

SC-16.15 Final Schedule As-Built Update:

- A. As a condition precedent to any release of retention, the last update to the CPM Construction Schedule submitted shall be identified by the Contractor as the As-Built Construction Schedule. This As-Built Construction Schedule shall reflect the exact manner in which the project was actually constructed including start and completion dates, activities, sequences and logic ties.
- B. This schedule submission shall be accompanied by a certification signed by an officer of the company and the Contractor's Project Manager and Project Scheduler, stating "To the best of our knowledge, the enclosed final update of the CPM Construction Schedule accurately reflects the actual start and actual completion dates and logical relationship ties of all activities contained herein and represents an accurate depiction of the way in which the project was constructed."

SC-16.16 Requirements of Written Narrative Monthly Progress Report:

Prepare a monthly written narrative progress report to be submitted in conjunction with the required updated CPM Construction Schedule as outlined below.

The narrative report shall contain the following format:

1. The Contractors submittal letter.
2. Schedule report indicating each activity on the CPM Construction Schedule that has been:
  - a. Completed during the reporting activity period.
  - b. In progress during this reporting period.
  - c. Scheduled for the next reporting period.
3. Analysis, by critical path of each negative path describing:

- a. The nature of the critical path.
- b. Impacts on other activities, milestones and completion dates.
- c. Recommendations on recovery of the critical path delays.
4. Current and anticipated delays:
  - a. Cause of the delay.
  - b. Corrective measures and schedule adjustments to correct the delay
  - c. Impact of the delay on other activities, milestones and completion dates.
5. Change in construction sequence, logic changes, relationship changes, duration changes and the rationale with such changes.
6. Pending issues and status of other items:
  - a. Permits.
  - b. Contract Modifications.
  - c. Time extension requests.
  - d. Long-lead procurement items.
7. Tabular schedule reports tabulated by:
  - a. Contractor early start activities.
  - b. Total float / early start.
  - c. Area / early start.
  - d. Activity number.
8. Added or deleted activities.
9. Out of Sequence Report describing the necessity of each item activity relationship shown to be out of sequence.
10. Illogical Progress / Restraint Reports.
11. Contract completion date status.
12. Ahead of schedule and number of days.
13. Behind schedule and number of days.
14. Summary of project cost data by appropriate breakdown including budget quantity, cost, percent complete, actions taken to date, actions taken this period, estimate to complete and variances.
15. Summary of project status including cumulative information to date, variances and forecasted completion.
16. Other project or scheduling concerns.
17. Review and update of CPM Schedule.
18. Safety reports and any code violations or warnings.
19. Computer disk containing the latest CPM Construction Schedule update.
20. Provide a list of all equipment supplied to project site, shutdown notices, permits, inspections and dates, approvals, etc.

#### 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.

- Groundwater or soils of unnatural color
- Spills or leaks of chemicals, solvents, or petroleum products.
- Unusual odors
- 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

96"

Atlanta City Council	
Felicia A. Moore	Council President
Carla Smith	District 1
Amir R. Farokhi	District 2
Antonio Brown	District 3
Cleta Winstow	District 4
Natalyn Mosby Archibong	District 5
Jennifer N. Ide	District 6
Howard Shook	District 7
J.P. Matzigkell	District 8
Dustin Hills	District 9
Andrea L. Boone	District 10
Marci Collier Overstreet	District 11
Joyce Sheperd	District 12
Michael Julian Bond	Post 1 A-Large
Matt Westmoreland	Post 2 A-Large
Andre Dickens	Post 3 A-Large

Department of Watershed Management  
Mikita K. Browning  
Interim Commissioner




CITY OF ATLANTA DEPARTMENT OF  
**watershed  
management**

Keisha Lance Bottoms, Mayor

**Project Name Goes Here**

Cost: \$0.00

DWM Project Hotline Number:  
**404-546-3200**



@ATLWatershed  
[www.atlantawatershed.org](http://www.atlantawatershed.org)

Department of Watershed Management | A Project of the Five-Year Capital Improvement Plan

48"