PROJECT MANUAL

PROJECT: W. JACKSON MIDDLE SCHOOL ATHLETIC FIELD
SITE LOCATION: JACKSON COUNTY, GA

November 2015

PREPARED FOR:
JACKSON COUNTY BOARD OF COMMISSIONERS

Jackson County
67 Athens Street
Jefferson, GA 30549

PREPARED BY:

BM&K Construction & Engineering
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Specifications

Division 2	**Existing Conditions**
02 41116	Structure Demolition
Division 3	**Concrete**
03 3000	Cast-In-Place Concrete
Division 26	**Electrical**
26 5668	Exterior Athletic Lighting
Division 31	**Earthwork**
31 0000	Earthwork
31 1000	Site Clearing
31 2000	Earth Moving
31 2290	Multi-Purpose Field Grading and Preparation
31 2301	Excavating Backfilling and Compacting for Structures
31 3220	Geotextiles
Division 32	**Exterior Improvements**
32 12116	Asphalt Paving
32 1813	Synthetic Grass Surfacing
32 31113	Vinyl Coated Chain Link Fence
32 3223	Segmental Retaining Wall
Division 33	**Utilities**
33 4100	Storm Drain Piping
33 4600	Subdrainage

Section 00020
Invitation for Bids

Sealed Bids are requested by Jackson County Board of Commissioners for the construction of **W. Jackson Middle School Athletic Field,** located on **Gum Springs Church Road** as indicated on the Location Plans project approved.

The address of the site for the proposed turf field is approximately 400 Gum Springs Church Road, Jackson County. The field is located in front of the current W. Jackson Middle School.

Bids will be received by the Jackson County Board of Commissioners, 67 Athens Street, Jefferson, GA 30549, until 2:00 p.m., local time on **January 8th, 2016.** and thereafter opened and read aloud.

A representative of the Jackson County Board of Commissioners will be present at the Jackson County Administration Building located at 67 Athens Street, Jefferson, GA 30549 to physically receive each bid submitted by any interested Bidder. To be considered a valid and responsive Bid submitted by the date and time set forth by these Bidding Documents, the representative of the Jaekson Board of Commissioners must have received and physically hold the Bid by the time and date set forth. Thereafter, all interested Bidders are invited to attend the opening and reading of the submitted Bids at a location within the Jackson County Administration Building as determined available by the representative of the Jackson County Board of Commissioners.

THIS WILL BE A BID OPENING AND READING ONLY. No determination as to the most responsive Bid, from the most responsible Bidder will be made until a thorough evaluation has been conducted by Jackson County; including receipt and evaluation of any additional information, of any kind, from any Bidder(s).

No bid may be withdrawn after the closing time for the receipt of bids for a period of ninety (90) calendar days.

All Bidders and other interested parties are advised that review and approval for award of the work of this Project will be phased. First, all bids will be tabulated and reviewed by Jackson County and the project consultants for completeness, accuracy and conformance to the bidding requirements of the project and Jackson County. Next, the respective bids will be reviewed for determination of the selection and approval of which Additive Alternate(s) can be selected and added to the Base Bid Proposal amount, based upon availability of funds under the allocated budget. Thereafter, Jackson Board of Commissioners will approve the recommended Base Bid and selected Additive Alternate(s) amount, and recommend approval by the Jackson County Board of Commissioners.

Following approval action, the Notice of Award Letter shall be sent to the recommended apparent low Bidder/Contractor for execution of the Jackson County Construction Agreement, and return with all required bonds, insurance and other forms and attachments. Upon acceptance of these bonds, insurance and other forms and attachments, the Jackson County Construction Agreement shall be executed by Jackson County, returned to the contractor and the formal Notice to Proceed issued to commence the project.

Additional information regarding this Invitation for Bids, or how to obtain a copy of these Bidding Documents, may be obtained through Jackson County's web site at http://www.jacksoncountygov.com , unless otherwise posted.

Work to be done: The work to be performed consists of:

Construction of a new synthetic turf field for W. Jackson Middle School, including a 10-ft track, retaining walls, lighting, perimeter fencing, and drainage system and all other amenities and infrastructure shown in the contract documents.

All work shall be performed according to the requirements of the construction project manual, drawings and specifications prepared by the Project Architect Engineer.

The Instructions to Bidders, Bid Information and Forms, Project Manual, Specifications, Drawings, Bid Bond,

Performance and Labor & Material Payment Bond requirements and other Documents related to the bidding and construction of the Work of this Project may be examined at no cost at the following locations:

By contacting the Project Engineer for PDF plan download via Dropbox:

BM&K Construction & Engineering
P.O. Box 787
Braselton, GA 30517
706.824.0514
Lisa Ashcraft, Administrative Assistant
lisa@bmandkinc.com

If there are any questions or issues regarding access to the PDF plans, please contact:

Don Clerici, PE
President
don@bmandkinc.com

ALL requests for documents by any interested party or Bidder must be filed through the Project Architect or Engineer for the interested party or Bidder to become a documented Planholder-of- Record. All information regarding the Bidding of this Project, including the issuance of any and all Addenda will be issued ONLY through the County's web site, as noted above, or through the Engineer's Dropbox site, as noted and described above. Each and all interested Bidder, or other interested parties, are fully responsible for the downloading and printing of all bidding and design documents, for the preparation and submittal of a Bid Proposal, as set forth and required by the Bidding Documents of this Project.

ONLY FULL & COMPLETE SETS OF BIDDING DOCUMENTS WILL BE ISSUED. NO PARTIAL SETS OF BID DOCUMENT WILL BE ISSUED. No exceptions will be made to this requirement.

A Pre-Bid Conference will be held at the project site, at the address indicated above, at 10:00a.m., on December 28th, 2015; followed by a tour of the site.

PRE-PROPOSAL CONFERENCE: MANDATORY

Respondents are strongly encouraged to attend the Pre-Proposal Conference. Each respondent is required to have visited the project site. The respondent's representative to have visited the site shall hold a senior management or construction position within the respondent's proposed project team. Documented attendance at the Mandatory Pre-Bid Conference by such a single representative of the interested Bidder/Contractor, in the name of the firm that will sign and submit the Bid Proposal, shall meet this requirement for having visited the project sites.

Contractors interested in making a submittal for this project that are required to attend the Mandatory Pre-Proposal Conference that arrive more than fifteen (15) minutes after the published starting time for the Mandatory Pre-Bid Conference at the designated location tour will not be allowed to submit a proposal for this project. It is currently anticipated that the Mandatory Pre- proposal Conference to visit the project site will run in the range of one, maybe two hours.

Representative(s) of each Bidder/Contractor must be present for the entire period of the Mandatory Pre-Bid Conference.

Confirmation of attendance during the Mandatory Pre-Bid Conference by the times set forth and required will be documented by signature to the Formal Attendance Form controlled by the County. All interested Bidder/Contractors are encouraged to arrive early and to sign the Formal Attendance Form for the Mandatory Pre-proposal Conference. Only one person from each interested Consultant is required to sign the Formal Attendance Forms, and that person must be the attendee for the entire Mandatory Pre-proposal Conference.

All interested parties, including members of the general public are also invited to attend. Those other parties attending for "Information Purposes ONLY" may be required to sign a separate Attendance Form, and are not required to attend the entire meeting. Bidders/Contractors attending the Mandatory Pre-Proposal Conference to become eligible to obtain and submit a Bid Proposal are solely responsible for signing the correct attendance form not later than the time set forth above.

BONDS:

BID BOND: Each bidder shall submit with its Bid Proposal a Bid Bond in an amount not less than five percent (5%) of the submitted base bid amount. For additional information regarding Bid Bond requirements, please reference Section 00410 BID BOND REQUIREMENTS.

PERFORMANCE AND LABOR & MATERIAL PAYMENT BONDS: The successful Bidder will be required to furnish to Jackson County Performance and Labor & Material Payment Bonds, each in the amount of one-hundred percent (100%) of the Contract Amount, within ten (10) calendar days of the written notice of award of the contract by Jackson County. The required Performance and Labor & Material Payment Bonds shall be issued by a Surety Company licensed to do business in the State of Georgia and listed in the Department of the Treasury Circular 570, latest edition. The Surety Company shall have an A.M. Best Company minimum rating of "A" with a financial size of VII "7" or better. Additional information regarding submission of the Performance and Labor & Material Payment Bonds requirements are more fully explained under SECTION 00610 PERFORMANCE AND LABOR & MATERIAL PAYMENT BONDS REQUIREMENTS. All interested Bidders are encouraged to carefully review these bonding requirements prior to submitting a Bid for consideration by Jackson County.

All other required Contract Documents, including, but not limited to execution of acknowledgement of the contract assignment, execution of the Construction Agreement, and the furnishing of all required insurance forms, certificates and polices, must be fully completed and executed by the assigned Contractor and his/her Surety, and submitted to Jackson County within the required time period, for review and approval by Jackson County, and its legal and insurance counsel, before execution of the Construction Agreement by Jackson County, for issuance by Jackson County of the written Notice to Proceed.

Contractor's Qualifications Statement Form: Each Bidder shall submit with their Bid a properly executed and signed Contractor's Qualifications Statement form, as set forth under SECTION 00860, CONTRACTOR'S QUALIFICATIONS STATEMENT, including an audited and reviewed financial statement less than twelve (12) months old. In addition, in conducting its review of all or any Bid submitted, Jackson County may require all or any Bidder to furnish additional or supplementary evidence, satisfactory to Jackson County, that the Bidder and its proposed sub-subcontractors, vendors and suppliers, if any, have sufficient means, capacity and experience in the type(s) of work called for to assure Jackson County of completion of the contract in a satisfactory manner.

The Project will be administered by Jackson County through its Capital Projects Office.

JACKSON COUNTY RESERVES THE SOLE RIGHT TO REJECT ANY OR ALL BIDS, TO WAIVE INFORMALITIES AND TO RE-SOLICIT BIDS.

Issued By: Jackson County Board of Commissioners
67 Athens Street, Jefferson, GA 30549
Telephone (706) 367-6350

END OF SECTION

Section 00100
Instructions to Bidders

1. **Addenda and Interpretations:** No interpretations of the meaning of the Bidding information, Project Manual, Drawings, Specifications or other pre-Bid documents will be made to any Bidder orally. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request that shall reach the Architect or Engineer no later than ten (10) working days prior to the Bid Submission Date as defined in SECTION 00020 INVITATION FOR PROPOSALS.

   All requests for clarification or interpretation shall be in writing and signed to identify the requesting party. Such written requests shall be directed to the attention of the Project Architect Engineer, at the contact information indicated above, and maybe emailed, hand delivered, mailed or faxed. Telephone inquiries will not be accepted or acknowledged by the Project Architect Engineer, or by Jackson County.

   Only communications that are in writing and signed and properly directed to the responsible party by the date indicted and required will be recognized by Jackson County as duly authorized expressions on behalf of proposers or Bidders. Any and all such interpretations and any supplemental instructions will be issued ONLY in the form of written Addenda, if any Addenda are issued.

   If any Addenda are issued to this request for Bids, the Architect Engineer will attempt to notify all prospective Bidders who have formally requested and secured Bidding documents, as noted and listed on the Project Architect's Registry of Plan holders-of-Record. It shall he the responsibility of each Bidder, prior to submitting the Bid, to contact the Project Architect Engineer, or to visit Jackson County's web page, to determine if Addenda were issued and to make such Addenda a part of the Bid. The Project Architect Engineer and Jackson County shall not be responsible for oral interpretations given by any Employee or representative of the Project Architect or Engineer, or hy others. The issuance of an Addendum or Addenda is the only official method whereby interpretation, clarification or additional information can be given regarding the requirements of the Work of this Project. The failure of any Bidder to receive any Addendum or Addenda shall not relieve the Bidder of any obligation under the requirements of the Requests for Bids for this Project. All Addenda shall be acknowledged on the Bid Proposal Form, and become part of the Contract Documents.

2. **Site Examination:** The Bidder shall visit and examine the location of the Work and inform himself/herself fully as to its conditions; the conformation of the ground; the character, quality and quantity of the products needed preliminary to and during the prosecution of the Work to be done under the Contract. Failure by the Bidder to visit and to examine the site, or to become familiar with any or all local conditions and requirements affecting the Work and the progress of any other work that maybe ongoing at or near the site of the Project will not relieve the successful Bidder of his/her obligation to furnish all products and labor necessary to carry out the provisions of the Construction Agreement for this Project.

   If the Bidder desires a site visit, other than at the time of the Pre-Bid Conference, the Bidder shall notify Jackson County, through the Project Architect or Engineer, in writing of the date and time the Bidder proposes to examine the location of the work. The Bidder shall confine his/her examination to the specific areas designated for the proposed construction, including easements and public right-of-ways. The Bidder may enter the site only with the express consent of the Jackson County Board of Commissioners, if work has already commenced. The Bidder is solely responsible for any damages or injury caused by the Bidder's visitation to and examination of the site.

3. **Bid:** All Bids must he made on the Bid Proposal Form contained herein. The Bid shall be enclosed in a sealed envelope, addressed to Jackson County and labeled "Bid for the Project Name." The Bidder's Georgia Contractor's State license number must also be written on the face of the Bid envelope and a copy of the license must be included in the Bid. The Bidder must complete and execute, and submit with the Bid at the time and place set forth by these requirements, all attachments, exhibits and statements as

listed or otherwise required by the Bidding documents and the Bid Proposal Form.

Any Bid received after the stated time and date will not be considered. It shall be the sole responsibility of the Bidder to have his/her Bid delivered to the location and place indicated above, for receipt on or before the above stated time and date. If a Bid is sent by express or overnight courier or U.S. Mail, the Bidder shall be solely responsible for its timely delivery at the location required. Bids whose delivery is delayed or routed in error by express or overnight courier or U.S. Mail will not be considered, will not be opened by Jackson County and arrangements shall be made for their return at the Bidder's request and expense. **ELECTRONIC OR FAX TRANSMITTAL(S) OF BIDS WILL NOT BE ACCEPTED.**

4. **Bid and Contract Security:** A Bid Bond is required for all Bids submitted to Jackson County. Bidders shall carefully review the required Bid form for Bid Bond submittal requirements. In addition, each Bidder is reminded of the requirements that Performance and Labor & Material Payment Bonds are required by Jackson County.

5. **Right to Reject Bids:** Jackson County Board of Commissioners reserves the sole right to reject any or all Bids and to waive informalities. No Bids will be accepted or received by Jackson County after the time set for opening of Bids. Any unauthorized conditions, limitations or provisions attached to the Bid by the submitting Bidder, except as provided herein, will render it non-responsive and may cause its rejection. Any Bid determined by Jackson County to be an Unbalanced Bid will be rejected. Any Bidder may withdraw his/her Bid, either personally or by written request, at any time prior to the scheduled closing time for receipt and opening and reading of Bids. Any written requests for withdrawal must be in the possession of Jackson County prior to the closing time for receipt and opening and reading of Bids.

6. **Public Bid Opening(s):** All properly received Bids will be publicly opened and read aloud by Jackson County at the time and place indicated in the Bidding documents. Any submitting Bidder or other interested party may be present at the opening and reading of the Bids. Such opening shall be a reading only. No determination of award of any Bid shall be made at that time.

7. **Determination of Successful Bidder:** The Contract will be awarded by Jackson County based upon the most responsive Bid from the most responsible Bidder, if awarded, as determined solely by the review and evaluation conducted by Jackson County.
   - **Responsibility:** The determination of the Bidder's responsibility will be made by Jackson County, based on whether the Bidder, as a minimum:
     - Maintains a permanent place of business,
     - Has the appropriate and adequate technical experience,
     - Has adequate capacity, personnel and equipment to do the work properly and expeditiously,
     - Has suitable financial means to meet obligations incidental to the work,
     - Has a satisfactory performance record with Jackson County, and other public and private agencies or authorities, and/or other clients. The Bidder shall furnish to Jackson County all such information and data for this purpose as Jackson County may request. Jackson County reserves the right to reject any Bid if the evidence submitted by, or investigation of, the Bidder fails to satisfy Jackson County that the Bidder is properly qualified to carry out the obligations of the Contract; or if the Bidder fails or refuses to supply the requested data or information in the manner and time set forth by Jackson County

   - **Responsiveness:** The determination of responsiveness will be made by Jackson County based on a consideration of whether the Bidder has submitted a complete Bid Proposal Form and accompanying required documents, or later requested documentation, without irregularities, excisions, special conditions, or alternative Bids for any item unless specifically requested in or allowed by the Bid Proposal Form.

- **Busiuess License:** Prior to commencement of the services to be provided hereunder, if Contractor's place of business is located witbin Jackson County, Contractor shall apply to the County for a business license, pay the applicable business license fee, and maintain said business license during the term of this Agreement.

8. **Employment of Unauthorized Aliens Prohibited:** As set forth by the Construction Agreement, and stated herein, it is the policy of Jackson County that unauthorized aliens shall not be employed to perform work on County contracts involving the physical performance of services. Therefore, Jackson County shall not enter into a contract for the physical performance of services within the State of Georgia, unless the Contractor shall provide evidence on County-provided forms, included and attached thereto to the Construction Agreement as Exhibits (affidavits regarding compliance with the E-Verify program to be sworn under oath under criminal penalty of false swearing pursuant to O.C.G.A. § 16-10-71) that it and Contractor's subcontractors, vendors and suppliers have within the previous twelve (12) month period conducted a verification of the social security numbers of all employees who will perform work on the County contract to ensure that no unauthorized aliens will be employed. The Jackson County Manager or his/her designee shall be authorized to conduct an inspection of the Contractor's and Contractor's subcontractors', vendors' and suppliers' verification process to determine that the verification was correct and complete. The Contractor and Contractor's subcontractors, vendors, and suppliers shall retain all documents and records of its verification process for a period of three (3) years following completion of the Construction Agreement. This requirement shall apply to all contracts for the physical performance of services where more than three (3) persons are employed on the County Constrnction Agreement.

The Jackson County Manager or his/her designee shall further be authorized to conduct periodic inspections to ensure that no County Contractor or Contractor's subcontractors, vendors and suppliers employ unauthorized aliens on County contracts. By entering into a Construction Agreement with the County, the Contractor and Contractor's subcontractors, vendors and suppliers agree to cooperate with any such investigation by making its records and personnel available upon reasonable notice for inspection and questioning. Where a Contractor or Contractor's subcontractors, vendors and suppliers are found to have employed an unauthorized alien or aliens, the County Manager or his/her designee may order the Contractor to immediately terminate or require its subcontractors, vendors and suppliers to terminate that person's employment immediately and to report same, in writing, with a copy to the County Manager or his/her designee, to the Department of Homeland Security. The Contractor's failure to immediately terminate the employee, or otherwise cooperate with the investigation may be sanctioned by termination of the contract by Jackson County, and the Contractor shall be liable for all damages and delays occasioned by the County thereby.

Compliance with the requirements of O.C.G.A. § 13-10-91 and Rnle 300-10-1-.02 is mandatory.

Contractor agrees that, in the event the Contractor employs or contracts with any subcontractor(s) in connection with this Agreement, the Contractor will secure from the subcontractor(s) such subcontractor(s') indication of the above employee-number category that is applicable to the subcontractor.

The above requirements shall be in addition to the requirements of State and federal law, and shall be construed to be in conformity with those laws.

12. **Notice of Award of Contract:** As soon as possible, and within ninety (90) days after receipt of Bids, Jackson County shall notify the successful Bidder in writing of its intent to award the contract for the Work. **This Notice of Award of Contract is <u>NOT</u> a Notice to Proceed.**

Should Jackson County require additional time to award the contract, the time may be extended by mutual agreement between Jackson County and the anticipated, proposed successful Bidder. If an Award of Contract has not been made within ninety (90) days from the Bid date or within the extension mutually agreed upon, the Bidder may withdraw the Bid without further liability or penalty on the part of either party.

13. **Execution of Contract Documents:** Upon written notification of its intent to award the Contract, Jackson County shall furnish the successful Bidder with the required number of copies of the Agreement and other forms for bonds and insurance, for execution by the Contractor.

Within ten (10) calendar days after receipt, the Contractor shall return the Construction Agreement and all other documents, honds and required insurance certificates, properly executed by the Contractor. Attached to each document shall he an original power-of- attorney for the person executing the certificates of insurance for the required insurance coverage. The Contractor shall furnish to Jackson County, Performance and Lahor & Material Payment Bonds, and shall also attach an original power-of-attorney affidavit from the Contractor's surety. Failure by the Contractor to furnish the Performance and Labor & Material Payment Bonds to Jackson County, or the failure or inability to suhmit the above required bonds and affidavit, within the specified time period may be cause for rejection of the contractor's Bid by Jackson County. Distribution of the completed, executed documents will be made by Jackson County upon review, acceptance and execution, and only then and thereafter shall Jackson County issue the written Notice to Proceed to the Contractor.

Should the Contractor and/or surety fail to execute and deliver the documents within the time and to the party specified, Jackson County shall have the right to reject the Bid, and to promptly take action to review and award the contract to the next most responsive Bid from the most responsible Bidder. If Jackson County fails to execute the documents within the time limit specified, the Contractor shall have the right to withdraw its Bid without penalty.

Should an extension of any of the time limits stated above be required, this shall be done only by mutual written agreement between the parties.

Any agreement or contract resulting from the acceptance of a submitted Bid shall be on a Jackson County approved document form. Jackson County reserves the sole right to reject any agreement that does not conform to the requirements for agreements and contracts.

14. **Inspection and Testing for Asbestos Content of Building Materials (ACBM): NOTICE!**

a. Building materials which are scheduled to be incorporated into the work under the agreement shall first either be certified by the Manufacturer to be asbestos free or be inspected and tested by accredited parties (at the Contractor's cost) and certified to be free of asbestos content in accordance with regulations and standards by EPA and AHERA.

b. "Asbestos" means the Asbestiform varieties of: Chrysotile (Serpentine), Crocidolite (Riebecrite), Ammosite (cummingtonitegrunerite), Anthophyllite, Tremolite and Actinolite. Materials shall not be incorporated into the work prior to the receipt of either manufacturer certification or accredited laboratory test results indicating the building material is asbestos free. Copies of the test reports shall be furnished to Jackson County

c. Jackson County reserves the right to inspect and take samples at random at the job site. Materials containing asbestos shall be removed immediately at the Contractor's expense using current EPA, AHERA protocol for the removal of asbestos containing materials.

END OF SECTION

Section 00210
Specific Date Construction Schedule

PART ONE - GENERAL

1.1 DESCRIPTION:

A. A Specific Date Construction Schedule for the work of this project is stated below. All dates shall be considered preliminary until such time as the "Notice of Award" is made, or as may be amended at the time of issuance of the Project's written Notice to Proceed to the Contractor.

B. The Coutractor is specifically advised by these Bid Documents, and the Contractor specifically acknowledges, accepts and agrees to notification that **the Project has received its necessary final Land Disturbance and Building reviews, permits and approvals to proceed with construction,** and that the anticipated date to receive the necessary permits and approvals to allow construction to proceed in the field is confirmed to be immediately to the Contractor and its authorized representative, upon award of the contract. **THE LDP AND BUILDING PERMIT FEES FOR THIS PROJECT HAVE BEEN WAIVED; the Contractor need NOT include monies for such permits in the bid proposal price submitted to Jackson County.**

C. Accordingly, thc Contractor specifically acknowledges and accepts the proposed specific date schedule for anticipated events planned to occur is, at this time, preliminary and subjective, and the Contractor agrees that the bidding and awarding of the work of this Project prior to receipt of necessary permits is pro- active in the early establishment of the construction team to jointly and mutually support efforts to promptly conclude and coordinate the final project design as relates to the project's work and to seek and receive the needed permits and approvals for construction, and that this process and any extension of the anticipated calendar days time period to complete the permit/approval process shall NOT form the basis of a delay and/or acceleration claim by the Contractor for additioual compensation, or for additional time for performance beyond that which may be granted to the Contractor at execution of the Construction Agreement and the issuance of the Notice to Proceed to adjust the preliminary schedule to form the final schedule when the project 's necessary permits are received.

D. The time duration for specific performance of the contract, from the date of Notice to Proceed, to selected milestone dates, and to the dates for Substantial and Final Completion have been established below in the specific date schedule for construction in terms of calendar days, not dates specific, therein fixing the schedule duration for performance of the work of this Project by the Contractor.

E. If the anticipated dates for Notice of Award and/or Notice to Proceed are modified, then all subsequent dates shall be modified by the same number of calendar days; however the total time duration for specific construction performance by the awarded Contractor shall remain as per the established number of calendar days, unless otherwise stated in an Addendum or by a properly executed change order.

PART TWO- EXECUTION

2.1 GENERAL: The schedule dates for Work of the Project shall be adhered to and are the last acceptable dates unless they are modified and mutually agreed to in writing by the Construction Agreement between Jackson County and the Contractor, by the written Notice to Proceed, or by an executed written change order. All dates indicate midnight unless otherwise stipulated. The Contractor shall be responsible for maintaining all emergency egress routes in accordance with governing code criteria and security for the building and site.

2.2 PROPOSED AND ANTICIPATED CONSTRUCTION SCHEDULE:

- **NOTICE OF AWARD:** Within Ninety (90) days from date of receipt of Bids by Jackson County, the award of the work of this Project may be awarded by Jackson County to the Contractor. The Notice of Award is NOT the Notice to Proceed, and the Contractor is advised NOT to proceed with the work of the Project until and unless the Notice to Proceed has been issued confirming execution of the Construction Agreement and acceptance of the Contractor's accompanying insurance and bond forms.

- **NOTICE TO PROCEED:** Pending the prompt return hy and from the Contractor of the Construction Agreement and accompanying insurance certificates and Performance and Labor & Material Payment Bonds, the Notice to Proceed shall be issued by Jackson County to the Contractor to commence performance of the work of this Project, per the agreed upon schedule for the Project. Failure by the Contractor(s) to effect a prompt return of the required documents shall not form the basis for an extension to the required completion dates for the work of this Project.

- **PRE-CONSTRUCTION PLANNING AND PREPARATION SERVICES:** Within three (3) calendar days from date of Notice to Proceed issued by Jackson County, representatives of the Contractor, the Project Architect Engineer and Jackson County shall meet for the coordination for receipt of the project's permit for construction to proceed. This activity shall be known as Pre- construction Planning and Preparation, aud shall conclude upon issuance of the project's permit to allow construction to commence by the Contractor.

- **SPECIFIC PERIOD AND SEQUENCE OF WORK FOR CONSTRUCTION PERFORMANCE, MILESTONE DATE(S) AND SUBSTANTIAL COMPLETION:**

    1. **PRE-CONSTRUCTION PLANNING AND PREPARATION SERVICES COMPLETION DATE:** The Contractor shall complete Pre-construction Planning and Preparation services and mobilize on the project site not later than five (5) calendar days from the date of issuance of the Project's permit.

    2. **PERIOD OF PERFORMANCE FOR CONSTRUCTION OF THE PROJECT:** The period of time established for construction of the Project is **TWO HUNDRED SEVENTY (145) CALENDAR DAYS;** commencing

    on the Date of the Notice to Proceed letter by and from Jackson County, to the Date of Substantial Completion, as defined and determined by and in the Contract Documents.

    3. **PROJECT SUBSTANTIAL COMPLETION DATE:** All work to be performed under this Project by the Contractor shall be commenced, performed and substantially completed by this date in accordance with the Construction Agreement, the letter of Notice to Proceed and the Construction Documents for the work of this Project.

    4. **PROJECT FINAL COMPLETION: FORTY-FIVE (45) CALENDAR DAYS** from date of the Project's Substautial Completion, as established by Jackson County and the Project Arcbitect Engineer, and accepted by the Contractor.

END OF SECTION

Section 00215
Climatalogical Data

Part 1 - General

1.1 Description:

A. The Contractor agrees that said Work shall be executed regularly, diligently and uninterruptedly at such rate of progress as shall ensure full completion of the entire project and its many and separate components and subcontractors, vendors and suppliers, thereof within the time specified.

B. It is expressly understood and agreed that the Contractor has visited the site where the work of the Project is to be performed, has considered all contingencies and factors affecting the Contractor's ability to perform all the Work within the time specified, including among others, delays caused by inclement weather (temperature and all forms of precipitation) and other possible delays caused by the climitalogical conditions prevailing in the general localities and recording stations of Jackson County, Georgia.

C. After consideration of these factors, the Contractor has made allowances for such factors before determining and submitting his Bid and executing the Construction Agreement agreeing to the completion times and durations specified in the Contract Documents, and does, further, agree that all things considered, such completion durations are a reasonable time for completion of all Work to be performed hereunder, without the need for any extension of time or any other reasons than those specified below.

D. The Project's completion time shall not be extended for normal inclement weather for the named locale. Inclement weather days (for temperature and all forms of precipitation) per month have been anticipated and included in the contractual time period given for project completion. The Contractor's written and documented request to Jackson County, through the Project Architect Engineer, for additional time may only be granted for actual days beyond those normally anticipated for the locale, per the schedule below, and only for which work was actually, significantly impeded or precluded by the documented inclement weather.

January	4 Calendar Days
February	5 Calendar Days
March	6 Calendar Days
April	4 Calendar Days
May	3 Calendar Days
June	2 Calendar Days
July	2 Calendar Days
August	2 Calendar Days
September	2 Calendar Days
October	2 Calendar Days
November	2 Calendar Days
December	3 Calendar Days

E. The burden of proof and documentation for such request for additional time beyond the days indicated shall rest solely with the Contractor. Documentation must clearly show the additional weather days (for above normal inclement temperature and all forms of precipitation) are historically unique to the Jackson County, Georgia, area in general, and the Project's site in particular.

F. In the granting and approving of any additional time for completion of the Project, by a mutually agreed upon and properly executed Change Order, in no instance shall a change in Contract Sum be granted to the Contractor by Jackson County for any adjustments to the Contract Time due to weather.

G. Requests for time extensions for delays due to inclement weather shall be reported by the Contractor, and considered and evaluated on a quarterly basis, as determined by the Project Architect or Engineer, in consultation with Jackson County. Only those actual days lost in excess of the cumulative allowable number of inclement weather calendar days, according to the schedule and data provided, will be considered. Time extensions for time losses due to weather conditions will be considered only for full complete calendar days.

H. No deduction or reduction in the contract time shall be made due to weather conditions of temperature and precipitation below or less than the anticipated or historical forecast.

I. Bidders shall review the climitalogical information as they solely deem necessary, and draw their own individual conclusions for bidding and contracting purposes.

END OF SECTION

Section 00233
Photographic Documentation

Part 1 – General

1.1 Description

A. Section includes administrative and procedural requirements for the following:
   1. Preconstruction photographs.
   2. Periodic construction photographs.

B. Related Sections:
   1. Division 01Section "Contract Closeout" for submitting photographic documentation as Project Record Documents at Project closeout.

1.2 Informational Submittals

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Contractor, Architect or Engineer and County shall mutually determine location for each photograph to be taken each time. Once established, Contractor shall endeavor to take all future photographs from same vantage point as the Work progresses to the established Date of Substantial Completion. Include same information as corresponding photographic documentation.

B. Digital Photographs: Submit image files within 2 days of taking photographs.
   1. Digital Camera: Minimum sensor resolution of 8 Megapixels County shall establish and confirm digital photographic requirements at start of Project before first photographs are to be taken by the Contractor.
   2. Identification: Provide the following information with each image description in file metadata tag:

      a. Name of Project.
      b. Name and contact information for photographer.
      c. Date photograph was taken.
      d. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

   3. Submit 10 photographs with pay application, including photos of the site and building progress.
   4. Aerial Photos from 2 different angles shall be submitted monthly.

1.3 Quality Assurance

A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years; or as may be otherwise approved by the County.

1.4 Coordination

A. Auxiliary Services: Cooperate with photographer and provide auxiliary services requested, including access to Project site and use of temporary facilities, including temporary lighting required to produce clear, well-lit photographs.

1.5 Usage Rights

A. Obtain and transfer copyright usage rights from photographer to County for unlimited reproduction and display of photographic documentation.

B. Contractor may retain or obtain copies of all photographs taken for his own records, and may take additional photographs for his own purposes.

Part 2 – Products

2.1 Photographic Media

A. Digital Images: Provide images in JPG format, with minimum size of 8 megapixels.

B. All photographs taken for the County shall be color.

Part 3 – Execution

3.1 Construction Photographs

A. Photographer: Engage a qualified photographer to take construction photographs.

B. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted. Maintain key plan with each set of construction photographs that identifies each photographic location.

C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

1. Date and Time: Include date and time in file name for each image.
2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Architect, Engineer and County.

D. Preconstruction Photographs: Before commencement of excavation or starting construction, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.

1. Flag construction limits before taking construction photographs.
2. Take 20 photographs to show existing conditions adjacent to property before starting the Work.
3. Take 20 photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction; including where necessary all underground or covered existing conditions that are to be disturbed or might be disturbed by the Work of the Project.

E. Periodic Construction Photographs: Take as required photographs with the cutoff date associated with each Application and Certificate for Payment. Select vantage points to show status of construction and progress since last photographs were taken for each established point of photography.

F. Final Completion Construction Photographs: Take as necessary color photographs after date of Substantial Completion for submission as Project Record Documents. Architect or Engineer will inform photographer of desired vantage points.

G. Additional Photographs: Architect or County may request photographs in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum or in the allowance for construction photographs.

1. Three days' notice will be given, where feasible.
2. In emergency situations, take such photographs as are needed or necessary to document and record such emergency condition, and take additional photographs within 24 hours of request.
3. Circumstances that could require additional photographs include, but are not limited to, the following. These photographs are not subject to unit prices or unit- cost allowances or additional compensation to the Contractor by the County:
    a. Special events planned or that occur at Project site.
    b. Immediate follow-up when on-site events result in construction damage or losses.
    c. Photographs to be taken at fabrication locations away from Project site.
    d. Substantial Completion of a major phase or component of the Work.
    e. Extra record photographs at time of final acceptance.
    f. Special publicity photographs.

END OF SECTION

Section 00300
Bid Proposal Form

Part 1 - General

1.1 DESCRIPTION: Following this page is the Bid Proposal Form to be used by each Bidder for preparing and submitting a Bid for the Work of this Project.

1.2 **ONLY THE FOLLOWING FORM SHALL BE USED**. No other form or forms are acceptable. The use of any other Bid Proposal Form or modification of any kind to the required form (except where noted or required to do so, or by the Contractor's signature of the Bid Proposal Form) shall cause the Bid to be non-responsive and cause for rejection by Jackson County.

1.3 Interested Bidders are required to attend the scheduled Pre-Bid Conference, at the date and time indicated in Section 00020, Invitation for Bids. Attendance is required for the W. Jackson Middle School Athletic Field, as set forth herein, regarding each/any bidder's particular interest in this park project.

1.4 BID TIMES AND DATES Each interested Bidder shall fully acquaint themselves with the particular date and time for submittal of a Bid. Each interested Bidder shall be fully and solely responsible for the timely and proper delivery of their Bid at the required location by the time indicated.

1.5 Each Bidder shall complete, sign and otherwise properly execute the Bid Proposal Form, and shall include and attach all other forms, exhibits, statements and other documents required to be submitted with the Bid Proposal(s).

1.6 All contractors submitting a bid for the work of this project, at any individual and separate park project, shall be a registered LICENSED GEORGIA GENERAL CONTRACTOR.

1.7 **DETERMINATION OF SUCCESSFUL BIDDER:** The Contract will be awarded by Jackson County based upon the most responsive Bid from the most responsible Bidder, if awarded, as determined solely by the review and evaluation conducted by Jackson County.

A. **RESPONSIBILITY:** The determination of the Bidder's responsibility will be made by Jackson County, based on whether the Bidder, as a minimum:

(1) Maintains a permanent place of business, having the same business name over the last 10 years
(2) Has the appropriate and adequate technical **experience in projects of similar scope and size.**
(3) Has adequate capacity, personnel and equipment **experienced in projects of similar scope and size** to do the work properly and expeditiously.
(4) Has suitable financial means, including all required bonds and insurance, to meet obligations incidental to the work.

(5) **Has a satisfactory performance record with Jackson County,** and other public and private agencies or authorities, and/or other clients. The Bidder shall furnish to Jackson County all such information and data for this purpose as Jackson County may request. Jackson County reserves the right to reject any Bid if the evidence submitted by, or investigation of, the Bidder fails to satisfy Jackson County that the Bidder is properly qualified to carry out the obligations of the Contract; or if the Bidder fails or refuses to supply the requested data or information in the manner and time set forth by Jackson County.

B. **RESPONSIVENESS:** The determination of responsiveness will be made by Jackson County based on a consideration of whether the Bidder has submitted a complete Bid Proposal Form and accompanying required documents, or later requested documentation, without irregularities, excisions, special conditions, or alternative Bids for any item unless specifically requested in or allowed by the Bid Proposal Form.

C. Contractors and Bidders submitting a Bid Proposal to Jackson County for this project understand and accept the above requirements for review and selection by Jackson County, and therefore agree that should a Contractor and Bidder who has submitted a Bid Proposal be determined to not meet the above requirements, and is therefore NOT selected, such non-selection by Jackson County shall not he a cause of action by any such non-selected Contractor of Bidder.

PROJECT: W. Jackson Middle School Athletic Field

DATE:

TIME:

TO: JACKSON COUNTY BOARD OF COMMISSIONERS
Jackson County Public Development
67 Athens Street, Jefferson, GA 30549

FROM: **BIDDER'S NAME AND ADDRESS:**

_____

_____

_____

_____

INFORMATION AND INSTRUCTIONS

The undersigned, as Bidder, hereby declares that the only person or persons interested in the Bid Proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this Proposal or in the Contract to be entered into; that this Bid Proposal is made without connection with any other person, company or parties making a Bid or Proposal; and that it is in all respects fair and in good faith without collusion or fraud.

The Bidder further declares that he has visited and carefully examined the Site of the Work and has thoroughly informed himself fully in regard to all conditions pertaining to the place where the Work is to be done; that he has examined the Bid Proposal Form, Bidding Requirements and Conditions, the Project Manual, the Construction Agreement, Drawings and Specifications and any Addenda for the Work, and all other Bidding and Contract Documents relative thereto, and has read all instructions to Bidders and Conditions and Requirements furnished prior to the openings of Bids; and that he has satisfied himself relative to the work to be performed.

THEREBY, the Bidder proposes and agrees, if his Bid is accepted, to contract with Jackson County, in the form of contract specified, to execute and perform as required, to furnish all necessary materials, plant and equipment, machinery, tools, apparatus, hoisting, hauling, delivery and means of transportation and labor necessary, overhead & profit, and to complete the Work and to cooperate and coordinate its required work in full and complete accordance with the shown, noted, and reasonably intended requirements of the Construction Agreement and the Contract Documents, including but not limited to the Project Manual, Drawings and Specifications to the full and entire satisfaction of Jackson County with a definite understanding that no money will be allowed for extra work except as set forth in the Contract Documents or for the agreed upon unit prices, if any, and to perform its respective duties and responsibilities in accordance with the contract documents, and instructions and directives of Jackson County.

The Bidder agrees hereby to commence work under this Contract, with adequate project and construction management and superintending personnel and equipment, on the date to be specified in a written Notice to Proceed from Jackson County, and to fully complete all work under this Contract within the specified and agreed upon schedule.

The Bidder further declares that he understands that the quantities shown for the unit prices items, if any, are subject to both increases or decreases, and that should the quantities of any of the items of Work be increased or decreased, the Bidder proposes to do the additional work at the unit prices stated herein; and the Bidder also understands that payments will only be made on the basis of actual quantities, at the unit price Bid and the Contractor will make no claim for anticipated profits for any decrease in quantities; and that actual quantities will be mutually determined upon completion of work, at which time adjustments will be made to the contract amount by direct increase or decrease.

Jackson County reserves the sole right to select which Bid it desires, based upon those factors jackson County considers relevant and necessary for that final determination and selection, including, but not limited to price, schednle, qualifications, capacity and capabilities of the Contractor, acceptance or rejection of any alternative(s), and technical coordination elements concerning the project as a whole.

ADDENDA

Bidder acknowledges receipt of Addenda:

_____Dated:_____; _____Dated:_____;

_____Dated:_____; _____Dated:_____;

_____Dated:_____; _____Dated:_____;

_____ Dated:_____;_____Dated:_____;

1. BASE BID PRICE OR BASE BID PROPOSAL:

The undersigned, having become thoroughly familiar with terms and conditions of the proposed Contract Documents affecting the contract with and from Jackson County, hereby proposes and agrees to fully provide and to perform the work identified for the work of this Project within the time stated and in accordance with the Contract Documents, including furnishing any and all services, delivery, hoisting, hauling, labor, materials, plant and equipment, overhead & profit, and to do all the work required to perform and complete said work in accordance with the Contract Documents for the following sum or sums.

NOTE: Prior to award, and as a part of the evaluation of the Bid, the Bidder shall forward to Jackson County a complete itemized breakdown of services, materials and labor within forty-eight (48) hours of the request by Jackson County, through the Architect or Engineer to furnish such information.

THE TOTAL LUMP SUM BASE BID BELOW INCLUDES THE TOTAL COST OF THE FOLLOWING UNIT PRICES AND ALLOWANCES (if any) AS DESCRIBED AND EXPLAINED BELOW:

$_____: UNIT PRICE NO. 1: for mass rock blasting.

$_____: UNIT PRICE NO. 2: for trench rock blasting.

$_____: UNIT PRICE NO. 3: for the off-site haul-off of blasted (mass and/or trench) rock and other soils material unsuitable for use or disposal on-site

$_____: UNIT PRICE NO. 4: for excavation of unsuitable soils and replace with suitable soil material.

$_____: UNIT PRICE NO. 5: for excavation of unsuitable soils and replace with #57 stone.

W. Jackson Middle School Athletic Field: LUMP SUM BASE BID PROPOSAL: Complete for all Work of this Project: Complete for all Work of this Project; INCLUDING ALL UNIT PRICES AND ALLOWANCES; if any:

_____Dollars ($_____)

which Sum is bereinafter called the "Lump Sum Base Bid Proposal." Including the total cost of the above described uuit prices and allowances (if any) as described and explained herein.

BID BOND:
A Bid Bond, in an amount not less tban five percent (5%) of the above total submitted W. Jackson Middle School Athletic Field Bid Proposal amount is required to be submitted with this Bid Proposal.

Submission of the Bid Bond is mandatory, and is separate and apart from any requirements or acceptance of the Performance and Labor & Material Payment Bond. Any Bidder's inability to provide a Performance and Labor & Material Payment Bond shall deem that Bid Proposal to be non-responsive, and that Bidder to be non-responsihle to perform the Work of the Bid Proposal; and the Bid Proposal rejected by Jackson County, with penalty against the Bidder.

2. ALTERNATES:

The Undersigned Bidder proposes that should any of the following Alternate(s) be accepted and incorporated into the Contract, the Basc Bid will be altered in cach case as follows. See Section 01101 ATERNATES of the project documents for a complete description of Alternates.

All Bidders shall submit a valid bid proposal for each of the Alternates listed and described below. Any Bidder's failure or neglect to provide a valid bid proposal for any or each of the Alternates listed and described below, shall deem that Bid to be non- responsive, and that Bidder to be non-responsible to perform the Work of the Bid; and the Bid rejected with penalty against the Bidder.

Jackson County reserves the right to select any alternate, in any order, or to select uo alternates. All/any alternates selected by Jackson County shall be made at the time of its review of the submitted bid proposals, and such selection of any, or no alternates, shall be added to or subtracted from the submitted Base Bid proposal amount to each submitted Bid Proposal for the determination by Jackson County for award of the Base Bid contract, plus any selected alternates, to the most responsible Bidder, with the most responsive bid. **The County reserve the sole right to review and adjust the proposed design to determine the final, accepted design and cost of the proposed work.**

ALTERNATE NO. 1: The Contractor shall furnish to Jackson County all work necessary and required for the complete fabrication, delivery, assembly, construction and installation of the End Zone Logos, in accordance with and as set forth by the drawings and specifications. ALL other work associated with the site preparations and paint is included as a part of the Base Bid cost of work under this Bid proposal Form. **The County reserve the sole right to review and adjust the proposed design to determine the fiual, accepted design and cost of the proposed work.**

(ADD)_____DOLLARS

($_____) to the suhmitted Individual Separate Bid Component for the **W. Jackson Middle School Athletic Field Project.**

ALTERNATE NO. 2: The Contractor shall furnish to Jackson County all work necessary and required for the complete fabrication, delivery, assembly, construction and installation of the Center of Field Logos, in accordance with and as set forth by the drawings and specifications. ALL other work associated with the site preparations and paint is included as a part of the Base Bid cost of work under this Bid proposal Form. **The County reserve the sole right to review and adjust the proposed design to determine the final, accepted design and cost of the proposed work.**

(ADD)_____DOLLARS

($_____) to the submitted Individual Separate Bid Component for the **W. Jackson Middle School Athletic Field Project.**

3. UNIT PRICES:

The following calculations for Unit Prices are based upon preliminary quantities established by the Contract Documents times prices for each respective Unit Price Item as determined by the Bidder; and are **fully included in and a part of the base bid price proposal.**

Thereafter, the following Unit Prices are amounts to be used for work that will be **ADDED TO OR DELETED FROM** the Contract by Change Order as and when unsuitable soils & other materials occurs in the performance of the work of this Project, and in the event such additional work may also be required.

Such preliminary quantities are possible additional work; not base bid work and are not an estimated quantity of base bid work. SUCH PRELIMINARY QUANTITIES ARE IN ADDITION TO THE CONTRACTOR'S ESTIMATE OF BASE BID QUANTITIES OF WORK TO BE PERFORMED. Such preliminary quantities do not represent a unit price performance of work to be completed.

Should such anticipated additional work NOT occur, in whole or in part, the full or remaining balance of these Unit Prices shall be deleted from the contract sum amount by change order.

All Unit Prices are inclusive and complete for labor, equipment, material, mobilization and associated time for the work of each unit price for site operations, installation, applicable taxes, supervision, bonds and insurance, management & supervision, overhead and profit, and all other incidental costs; and are **applicable at any point or location at and within the Project.** Units will be measured in place hy Jackson County or the project's materials testing and consulting firm, as the work progresses or upon completion of the work.

Jackson County reserves the sole right to accept or reject these Unit Prices or to require the Work to be performed on a time and material basis with complete daily breakdowns and logs submitted, or to have the work performed for an agreed upon lump sum price.

UNIT PRICE(S): For the planned W. Jackson Middle School Athletic Field Project. **The Contractor shall provide Unit Prices as listed below.**

Such preliminary quantities are possible additional work; not base bid work and are not an estimated quantity of base bid work. SUCH PRELIMINARY QUANTITIES ARE IN ADDITION TO THE CONTRACTOR'S ESTIMATE OF BASE BID QUANTITIESOF WORK TO BE PERFORMED. Such preliminary quantities do not represent a unit price performance of work to be completed.

Should such anticipated additional work NOT occur, in whole or in part, the full or remaining balance of these Uuit Prices shall be deleted from the contract sum amount by change order.

UNIT PRICE(S): The Contractor shall provide Unit Prices as listed below aud as further detailed in Section 01 2200 Unit Prices.

Unit Price No. 1: FOR MASS ROCK BLASTING, as defined by the Contract Documents; and as measured in the field by the Owner's Materials Testing Laboratory representative:

The quantity of **FIVE HUNDRED CUBIC YARDS (500 CY)** (as established by the Contract Documents) at the following unit price of (as established by the Bidder):

_____Dollars Per Cubic Yard ($_____Per Cubic Yard) as measured in place by Jackson County: for the grand total price of:

_____Dollars ($_____)
which Sum is hereinafter ealled the "Unit Price for Mass Rock Blastiug."

UNIT PRICE NO. 2: FOR TRENCH ROCK BLASTING: as defined by the Contract Documents; and as measured in the field by the Owner's Materials Testing Laboratory representative:

The quantity of **FIVE HUNDRED CUBIC YARDS (500 CY)** (as established by the Contract Documents) at the following unit price of (as established by the Bidder):

_____Dollars Per Cubic Yard ($_____Per Cubic Yard) as measured in place by Jackson County: for the grand total price of:

_____Dollars ($_____)
which Sum is hereinafter called the "Unit Price for Trench Rock Blasting."

Unit Price No. 3:FOR EXCAVATION 1000 CY OFF-SITE HAUL-OFF OF UNSUITABLE SOILS AND REPLACE WITH SUITABLE SOIL MATERIAL, as defined by the Contract Documents:

_____ Dollars Per Cubic Yard ($_____ Cubic Yard) as measured by Jackson County

UNIT PRICE NO. 3 NOTATION: If the "unsuitable soils materials" is approved and acceptable or use on-site by the Project's Materials Testing Laboratory representative and the Project Engineers and Owner, then this Unit Price No. 1 shall NOT be utilized and the Contractor shall use and distribute on-site the materials at no additional cost to the Project or Owner.

Snch preliminary qnantities are possible additional work; not base bid work and are not an estimated qnantity of base bid work. SUCH PRELIMINARY QUANTITIES ARE IN ADDITION TO THE CONTRACTOR'S ESTIMATE OF BASE BID QUANTITIES OF WORK TO BE PERFORMED. Snch preliminary quantities do not represent a unit price performance of work to be completed.

Should such anticipated additional work NOT occur, in whole or in part, the full or remaining balance of these Unit Prices shall be deleted from the contract sum amonnt by change order.

Unit Price No. 4: FOR EXCAVATION OF 1000 CY UNSUITABLE SOILS AND REPLACE WITH #57 STONE, as defined by the Contract Documents:

_____ Dollars Per Cubic Yard ($_____ Cubic Yard) as measured by Jackson County

UNIT PRICE NO. 4 NOTATION: If the "unsuitable soils materials" is approved and acceptable for use on-site by the Project's Materials Testing Laboratory representative and the Project Engineers and Owner, then this Unit Price No. 1 shall NOT be utilized and the Contractor shall use and distribute on-site the materials at no additional cost to the Project or Owner.

Such preliminary quantities are possible additional work; uot base bid work and are not an estimated quantity of base bid work. SUCH PRELIMINARY QUANTITIES ARE IN ADDITION TO THE CONTRACTOR'S ESTIMATE OF BASE BID QUANTITIES OF WORK TO BE PERFORMED. Such preliminary quantities do not represent a unit price performance of work to be completed.

Should such anticipated additional work NOT occur, in whole or in part, the full or remaining balance of these Unit Prices shall be deleted from the contract sum amount by change order.

4. **TIME OF COMMENCEMENT AND COMPLETION:** Bidder hereby agrees to commence and to perform all necessary coordination and Work of this Project with the design work and services of Jackson County and the Architect or Engineer, to commence fabrication, to commence delivery, and to commence actual physical work on the site with an adequate force and equipment and proper supervision and management on the date to be specified in the written order of the Notice to Proceed, and to substantially complete and final complete the work by the dates stated in the Project Manual

5. **WITHDRAWAL OF BID(S):** The Undersigned acknowledges and agrees that this Bid may not be revoked or withdrawn after the time set for the opening of Bids, and will remain open for acceptance by Jackson County for a period of Ninety (90) calendar days following such time.

6. **PERFORMANCE AND LABOR & MATERIALS PAYMENT BOND:** The Contractor shall upon award furnish to Jackson County **Performance and Labor & Material Payment Bonds** to Jackson County, the Undersigned's surety will be:

_____,

and the Undersigned agrees that upon receipt of Jackson County's Notice of Award, the Contractor will, within ten (10) days of receipt of the Notice of Award with accompanying Agreement and requirements for bonds and insurance, execute the formal Contract, and will deliver all required Bonds for the faithful performance of this Contract and such other required information, representations and insurance certificates and polices. The Undersigned further agrees that if he fails or neglects to appear or execute or deliver within the specified time to execute the Contract of which this Proposal, the Bidding Documents and the Contract Documents are a part, the Undersigned will be considered as having abandoned the Contract, and Jackson County shall proceed to take action to review and recommend the next responsive and responsible Bid.

7. **VOLUNTARY ALTERNATES:** If a Bidder has determined that an alternative method, practice or specification would be beneficial to the project, the Bidder is encouraged to submit such a proposed Voluntary Alternative for consideration by Jackson County. Reference is made to SECTION 01630 SUBSTITUTIONS for guidance in submitting Voluntary Alternates information. However, the Bidder is cautioned that the base Bid proposal prices MUST fully and completely comply and meet the requirements of the Contract Documents. Unless so noted in the submittal of a Voluntary Alternate, the Bid prices received by Jackson County from the Bidder are for the requirements set forth by the documents. Submission of any Voluntary Alternates shall be submitted on the Contractor's letterhead, fully and completely presenting the alternate(s), with all required supporting documentation.

8. **CHANGES IN THE WORK:** The Bidder agrees that should additional compensation be requested, the Bidder/Contractor will submit complete itemized material and labor breakdowns for evaluation by Jackson County For deleted work, the Contractor's offered credits shall be INCLUSIVE of overhead and profit.

CONFIRMATION OF BASE BID PROPOSAL COST OF WORK: The undersigned Bidder agrees that it shall promptly after the receipt of Bids by Jackson County, and upon request by Jackson County, provide additional information to Jackson County and shall meet with Jackson County and the Architect or Engineer for purposes of confirming the Bidder's understanding and acceptance of the scope of work and the Bid submitted by the Bidder. It is further understood and agreed that should such post-Bid contact and price confirmation information and meeting(s) not confirm an agreeable contact scope of work and price, that Jackson County may, at its sole discretion, proceed to reject the Bid and take steps to re- Bid the work, in whole or in part, or to award the work to the next most responsible Bidder, with the most responsive Bid.

9. **RESPECTFULLY SUBMITTED: If**

an Individual, by: _____

Doing Business as: _____

Business Address: _____

If a Joint Venture, LLC. or Partnership:

By:_____Member of Firm: _____

By:_____Member of Firm: _____

By:_____Member of Firm: _____

Business Address:_____

If a Corporation: (Seal REQUIRED, If Bid is by Corporation)

By: _____ Title: _____

Business Address: _____

10. **ENCLOSURES AND ATTACHMENTS TO BE SUBMITTED WITH THIS BID PROPOSAL FORM (Section 00300) INCLUDE:**
    - **E-Verify Forms**
    - Non-Influence and Non-collusion Affidavit (Section 00325)
    - Bid Bond; (Section 00410)
    - Certificate of Ability to Provide Performance and Labor & Material Payment Bond (Section 00415)
    - Contractor's Certificate as Individual, or as Partnership, or as Corporation (SECTION 00420.)
    - General Contractor's License Certification or Number (Georgia) (SECTION 00425.)
    - Contractor's Authorized Permit Agent Form (SECTION 00430)
    - Certification as to Review and Acceptance of Construction Agreement (SECTION 00850)
    - Contractor's Qualifications Statement (Section 00860)

SECTION 00300
BID PROPOSAL
FORM
PROJECT
W. JACKSON MIDDLE SCHOOL ATHLETIC FIELD

END OF BID PROPOSAL FORM

END OF SECTION

Section 00325
Non-Influence and Non-Collusion Affidavit

STATE OF _____

COUNTY OF _____

_____, being first duly sworn, deposes and says that:

(1) He is_____(Owner, Partner, Officer, Representative, or Agent) of the Bidder that has submitted the attached Bid;

(2) He is fully informed respecting their preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affidavit, has in any way colluded, conspired, connived, or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which tbe attached Bid has been submitted to or refrain from bidding in connection with such Contract, or has in any collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against Jackson County or any person interested in the proposed Contract; and,

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit.

(6) Bidder has not directly or indirectly violated O.C.G.A. § 36-91-21(d). (Signed) _____

Subscribed and Sworn to before me (Name)

_____

this_____day of_____, 201____.

Title _____

(SEAL)

My Commission Expires _____
Date

END OF SECTION

Section 00400
Index of Drawings

Drawings are as listed below. Site Design plans are dated X/XX/XX, Architectural Plans are dated X/XX/XX, and are issued for bidding purposes ONLY.

THESE DOCUMENTS ARE NOT ISSUED FOR CONSTRUCTION. Upon completion of bidding and issuance of any addenda during the bidding period, final documents will be released for construction and issued to the Contractor.

SHEET NO.	SHEET TITLE
C1.0	Cover Sheet
C2.0	Existing Conditions
C3.0	Site Plan
C4.0	Grading Plan
C5.0	Utility Plan
C6.0	ES+PC Plan Phase 1
C7.0	ES+PC Plan Phase 2
C8.0	ES+PC Plan Phase 3
C9.0	ES+PC Notes
C10.0	ES+PC Notes
C11.0	ES+PC Details
C12.0 – C24.0	Miscellaneous Details
C25.0	Wall Profiles

END OF SECTION

Section 00410
Bid Bond Requirements

THE BIDDER IS REQUIRED TO SUBMIT WITH ITS BID PROPOSAL A BID BOND, in an amount not less than five percent (5%) of the total submitted Bid. Its submission is mandatory, and is separate and apart from any requirements or acceptance of Performance and Labor & Material Payment Bond.

In order for the Bid Proposal offer to be acceptable to Jackson County, the Bid Proposal must also be accompanied by a signed form stating that should Jackson County accept your Bid Proposal, Performance and Labor & Material Payment Bonds (each in an amount equal to 100% of the contract sum) shall be furnished, and that the Bidder will promptly furnish said Bonds upon written receipt of the written Notice of Award by Jackson County.

No Bid or Bid Proposal shall be considered or determined valid and responsive by Jackson County unless said Bid Bond form is properly signed by an authorized representative of the firm submitting the Bid Proposal offer, and is included with your Bid Proposal offer, and that the Bid or Bid Proposal is on forms required by Jackson County.

THE REQUIRED BID BOND FORM is American Institute of Architects (AIA) form A310, most current Edition. No Bid or Bid Proposal shall be considered by Jackson County unless the required Bid bond is properly executed by an authorized representative of the surety firm, and included with the Bid Proposal offer at the time of its submittal.

END OF SECTION

Section 00415
Certificate of Ability to Provide
Performance and Labor & Material Payment Bond

This is to certify that on this day the submitting Bidder/Proposer acknowledges that he/she has read these Bidding documents and requirements, inclusive of all Addenda, if any, and inclusive of the Construction Agreement, in their individual and collective entirety, and agrees to provide Performance and Labor & Material Payment Bonds (each in an amount equal to 100% of the contract sum) acceptable to Jackson County, and that he/she understands, accepts and agrees to fully comply with the requirements therein, and that the undersigned will promptly provide said Performance and Labor & Material Payment Bonds to Jackson County. Failure to furnish said Performance and Labor & Material Payment Bonds (each in an amount equal to 100% of the contract sum) within the time period set forth shall be cause for rejection of the submitted Bid or Bid Proposal, and give the right to Jackson County to cause the Bid Bond to be called with penalty.

The person signing below is authorized by the Bidding/Proposing company to submit the Bid/Proposal herein, and this certificate, to legally obligate the Bidder/Proposer thereto.

NAME OF BONDING COMPANY: _____

_____ DATE: _____

Signature of the Bonding Company's Authorized Agent

(Or a separate letter on the bonding company's letterhead may be submitted.)

By signing above, or by submission of a separate letter, the bonding company acknowledges they are listed on the Federal Registry and approve of the Bid Proposal amount submitted by the Bidder.

NAME OF BIDDER/COMPANY: _____

Signature: _____

Printed Name: _____

Printed Title: _____

Date: _____

(CORPORATE SEAL, REQUIRED IF CORPORATION)

County of _____ State of _____

Notary Public: _____

My Commission Expires: _____

END OF SECTION

Section 00420
Contractor Certificate:
Individual, Partnership and Corporate

Part 1 - General

1.1 Description:

A. Included within this Section of the documents are Contractor Certificates. In completing its Bid, the Bidder/Contractor shall complete the appropriate Contractor Certificate and submit with the Bid.

B. Contractor Certificates are listed below:

a. Individual Certificate,
b. Partnership Certificate,
c. Corporate Certificate.

INDIVIDUAL CERTIFICATE

STATE OF _____

COUNTY OF _____

On this _____ day of_____, 201 , before me personally

came and appeared _____ known to me to be the person deseribed berein and wbo executed the foregoing instrument and acknowledge that he/she executed the same.

Snbscribed and sworn to before me, this_____day of_____, 201 .

_____
NOTARY PUBLIC

(SEAL) My Commission Expires:

Witness: _____ _____(Date)

PARTNERSHIP CERTIFICATE

STATE OF _____

COUNTY OF _____

On this _____ day of _____, 201 , before me personally

came and appeared _____ known to me to be the person who executed the above instrument, who by being duly sworn, did depose and say that he is a general partner in the

firm of _____ and that firm consists of himself and

_____

and that he executed the foregoing instrument on behalf of said firm for the uses and purposes stated therein, and that no one except the above named members of the firms have financial interest whatsoever in said proposed Bid or contract.

_____	_____
PARTNER	PARTNER
_____	_____
PARTNER	PARTNER
_____	_____
PARTNER	PARTNER

Subscribed and sworn to before me, this _____ day of _____, 201 .

_____
NOTARY PUBLIC

(SEAL) My Commission Expires:

Witness: _____ _____ (Date)

NOTE: *If only one partner signs, a power of attorney executed by all other partners authorizing him/her to act in the name of the company/partnership MUST be attached, otherwise, ALL partners must sign and execute this Partnership Certificate for the Bid Proposal to be valid and responsive.*

CORPORATE CERTIFICATE

STATE OF _____

COUNTY OF _____

I,_____, certify that I am the Secretary of the Corporation named as Contractor in the foregoing Bid submitted herein; and that

_____, who has signed said Bid on behalf of the

Contractor was then_____of said Corporation; that said Bid herein submitted was duly signed for and on behalf of said Corporation by authority of its Board of Directors, and is within the scope of its corporate powers; and finally, that said Corporation is organized

under the laws of the State of_____.

This_____day of_____, 201 .

(SEAL, REQUIRED)

Subscribed and sworn to before me, this_____day of_____, 201 .

_____
NOTARY PUBLIC

(SEAL) My Commission Expires:

Witness: _____ _____(Date)

END OF SECTION

Section 00425
Contractor's License Certification

A license verification will be performed by the Jackson County Development Center office by visiting the State of Georgia's web site at sos.ga.gov/plb/. in addition to any other supporting documentation that may be provided by the Contractor's authorized agent personally appearing before the Development Center.

CONTRACTOR'S NAME: _____

Contractor's License Number: _____

Expiration Date of License: _____

(ATTACHED COPY OF LICENSE)

I certify that the above information is true and correct and that the classification noted is applicable to the Bid for this Project.

Signed: _____

This_____day of_____, 201____.

(SEAL, REQUIRED IF CORPORATION) NOTARY

AND WITNESS:

County of _____ State of _____

Notary Public: _____

Witness: _____

(SEAL, REQUIRED)

END OF SECTION

Section 00430
Contractor's Authorized Permit Agent Form

State Licensing Board for Residential and General Contractors:

The Authorized Permit Agent form shall be used by the Contractor, licensed as a General Contractor by the State of Georgia, to designate an individual to obtain permit(s) on his/her behalf for the Project. The Contractor shall submit an Authorized Permit Agent Form for each project that he/she designates an individual to pull permits for.

The applicable form shall be given to the permit office in the city or county in which the project is located. Do not send a copy of this form to the Board office unless you are requested or instructed to do so by the Jackson County Government.

A license verification will be performed by the Jackson County Government office by visiting the State of Georgia's web site at sos.ga.gov/plb/, in addition to any other supporting documentation that may be provided by the Contractor's authorized agent personally appearing before the Development Center.

A copy of the Authorized Permit Agent form follows this introductory page and is the form to be used, unless otherwise requested or instructed by the Jackson County Government.

END OF SECTION

Section 00610
Performance and Labor &
Material Payment Bonds Requirements

Requirements of this section pertain to the furnishing of valid Performance and Labor & Material Payment Bonds, each in the amount of 100% of the contract sum of the Construction Agreement between Jackson County and the Contractor for the scope of this Bid and contract.

No contract for work to be performed for Jackson County by the Contractor under this Bid shall be valid for any purpose unless the Contractor shall first have provided to Jackson County the required project insurance and the Performance and Labor & Materials Payment Bond with good and sufficient surety payable to, in favor of and for the protection of Jackson County, and must be accompanied by a letter stating the bonding company's current rating for verification prior to acceptance by Jackson County, before execution of the contract by Jackson County.

Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business as a surety in Georgia, and shall have an A.M. Best minimum rating of "A" with a financial size of VII "7" or better. Attestation for the corporation must be by the corporate officer; for a partnership by another partner; and for an individual by a notary with the corporate seal.

The Performance and Labor & Materials Payment Bonds shall be provided only on the forms required herein of these Bidding Documents, as set forth by the Construction Agreement. No other forms shall be acceptable by Jackson County. Failure of the Contractor to provide the required bonds in the manner and form preseribed, and within the time required, may form the basis for Jackson County to determine that the Contractor has failed to comply with contracting conditions and to determine the Bid Proposal offer from the Contractor to be non-responsive and void, therein allowing Jackson County to select another Contractor.

Each Bidding contractor interested in doing business with Jackson County is advised to carefully review the Construction Agreement, and its attachments and Exhibits to prepare itself for the prompt execution of the Construction Agreement upon presentation for execution by Jackson County in its Notice of Award, and the Contractor shall have executed and included with his Bid the Certification of Review and Acceptance of the Construction Agreement.

END OF SECTION

Section 00700
General Conditions
of The Contract for Construction

INDEX TO GENERAL CONDITIONS
OF THE CONTRACT FOR CONSTRUCTION

INDEX TO GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

END OF THE INDEX

GENERAL CONDITIONS
OF THE CONTRACT FOR CONSTRUCTION

SECTION 01 DEFINITIONS OF TERMS

Wherever used in the Contract Documents, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

"Addenda" shall mean written or graphic instruments issued to Bidders prior to the receipt of Bids by the County and the execution of this Construction Agreement which modify or interpret the Contract Documents by additions, deletions, clarifications, or corrections.

"Architect" "Engineer" or Engineer/Engineer" shall mean an individual, partnership, or corporation performing professional Architectural and/or Engineering services for and contracted to the County as an independent contractor or consultant.

"Balanced Bid" shall mean a Bid in which each of the unit prices and total amount bid for each of the listed items reasonably reflects the value of that item with regard to the entire job considering the prevailing cost of labor, material and equipment in the relevant market. An "Unbalanced Bid" is when, in the opinion of the County, any unit prices or total amounts bid on any of the listed items do not reasonably reflect such values. A Bid determined by the County to an unbalanced bid may determine the Bid to non-responsive and cause for rejection of the Bid in whole.

"Bid" shall mean the offer or Proposal of the Bidder submitted on the prescribed form setting forth the price(s) for the Work to be performed.

"Bidder" shall mean any person, firm, or corporation submitting a Bid for the Work.

"Bonds" shall mean Bid, Performance, and Labor & Material Payment Bonds and other instruments of security, furnished by the Contractor and his surety in accordance with the Contract Documents.

"Change Order" shall mean a written order to the Contractor authorizing an addition, deletion, or revision in the Work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract Scope of Work, Contract Price or Contract Time, as approved by the Board of Commissioners of Jackson County, or exempted from Board approval for Contract Price changes up to the amount of Twenty-Five Thousand Dollars ($25,000.00.)

"Contract Documents" shall consist of all Sections of Division 00 of the Bidding Requirements and Conditions of the Contract, including, but not limited to the following:

Advertisement and Invitation for Bids, Instructions to Bidders, Bid Proposal, Bid Bond, Non-Influence and Non-Collusion Affidavit, Certificate of Bidder, Construction Agreement, Performance Bond and Labor & Material Payment Bonds, Certificates of Insurance, Notice to all Bidders, General Conditions of the Contract for Construction, Supplementary Conditions; all Sections of Division 01 of the General Requirements of the Contract; All Divisions and Sections of the Technical Specifications; all Drawings; all Addenda, if any, issued prior to the receipt of Bids, all post-bid and additional information, if any, requested and accepted by the County and submitted by the Contractor in support of the County's determination for acceptance of the Contractor's Bid for award of the Contract; the letter of Notice of Award, the letter of Notice to Proceed. The intent of these documents being to define, to determine and to include

"Contract" or "Construction Agreement" shall mean this Construction Agreement and all its requirements and attachments and exhibits and references regarding the terms and conditions for the performance of the Work by the Parties to the Construction Agreement.

"Contract Price" or "Contract Sum" shall mean the total monies payable to the Contractor under the terms and conditions of the Contract Documents.

"Contract Time" or "Construction Time" shall mean the number of calendar days stated in the Contract Documents for the completion of the Work.

"Contractor" or "General Contractor" shall mean the individual, firm, or corporation undertaking the execution of the Work as an independent contractor under the terms of the Contract and acting through his or its agents or employees.

"County" shall mean Jackson County, a political subdivision of the State of Georgia, acting by and through its governing authority, the Jackson County Board of Commissioners; or its Capital Projects Office responsible for the administration of this Contract on behalf of the County.

"Day" shall mean a calendar day.

"Drawings" shall mean the part of the Contract Documents which show largely through graphical presentation the characteristics and scope of the Work to be performed and which have been prepared or approved by the Architect or Engineer.

"Field Order" shall mean a written order effecting a minor change, modification or clarification in the Work not involving an adjustment in the Contract Price or an extension of the Contract Time, issued by the Architect or Engineer to the Contractor during construction.

"Notice of Award" shall mean the written notice of the acceptance of the Bid from the County to the successful Bidder as evidenced by return receipts of registered or certified letters.

"Notice to Proceed" shall mean written communication issued by the County to the Contractor authorizing him to proceed with the Work and establishing the dates of commencement and substantial and final of the Work as evidenced by official receipt or acknowledgment of personal delivery by the Contractor.

"Owner" shall mean the County, as described and defined above herein.

"Parties" or "Parties to the Contract" shall mean the County, the first Party to the Contract, and the Contractor, the second party to the Contract, each as described and defined herein.

"Project" shall mean the undertaking of the Work to be performed as provided in the Contract Documents.

"Shall" or "Will" is mandatory; and "May" is permissive on the part of the Parties to the Contract.

"Shop Drawings" or "Submittals" shall mean all drawings, diagrams, illustrations, brochures, schedules, and other data which are prepared by the Contractor, a Subcontractor, Manufacturer, Vendor, Supplier, or Distributor, which illustrate how specific portions of the Work shall be fabricated or installed.

"Site" or "Site of the Work" or "Site of the Project" shall mean the physical location where the Project is to be constructed by the Contractor, and may be additionally defined by the limits of construction on the Site where the Contractor is performing all the Work of the Project.

"Specifications" shall mean a part of the Contract Documents consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards, and workmanship specified for this Project.

"Subcontractor", "Sub-Subcontractor", "Manufacturer", "Vendor", "Supplier", or "Distributor" shall mean an individual, firm, or corporation having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the site.

"Substantial Completion" shall mean that date determined by the Owner when the construction of the Project or an expressly stipulated part thereof is sufficiently completed, in accordance with the Contract Documents, so that the Project or the expressly stipulated part can be fully utilized for the purposes for which it is intended.

"Supplementary Conditions" shall mean a part of the Contract Documents consisting of modifications to the General Conditions.

"Superintendent" shall mean the Contractor's authorized on-job representative designated in writing by the Contractor prior to commencement of any work.

"Suppliers", "Manufacturer", "Vendor", "Supplier", or "Distributor" shall mean any person or organization who only furnishes or supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.

"Contract Time" or "Time of Performance" shall be the period of time by which the Contractor is required to perform all the Work of the Project for completion by the dates for Substantial and Final Completion.

"Work" or "work" of the Contractor or Subcontractor or Sub-Subcontractor or Manufacturer or Vendor or Supplier, or Distributor, shall include all labor, material, equipment, transportation, skill, tools, machinery and other equipment, and things useful or necessary in order to complete the Contract.

SECTION 02
APPLICABLE REQUIREMENTS

The work shall comply with the Contract Documents and with all applicable codes, laws, and regulations of the County, State, or Federal agencies which may have cognizance of any part of the Work. In the event of any conflict between the terms of this Contract and such codes, laws, and regulations, the codes, laws, and/or regulations shall prevail. If the Contractor performs any work knowing it to be contrary to such codes, laws, or regulations, and without such notice to the County, he shall assume full responsibility therefore and shall bear any and all costs necessary to correct the Work.

SECTION 03
CONTRACT SECURITY AND BONDING

The Contractor shall furnish a Contract Performance Bond and a Labor & Material Payment Bond, each equal to one hundred percent (100%) of the Contract Price. Bonds given shall meet the requirements of the law of the State of Georgia. The surety on each Bond shall be a surety company satisfactory to the County and listed in the Federal Register and licensed to write surety insurance in the State of Georgia. The required Performance and Labor & Material Payment Bonds shall be issued by a Surety Company licensed to do business in the State of Georgia and listed in the Department of the Treasury Circular 570, latest edition. The Surety Company shall have an A.M. Best Company minimum rating of "A" with a financial size of VII "7" or better.

The Performance and Labor & Materials Payment Bonds shall be provided only on the forms required herein of these Bidding Documents, as set forth by the Construction Agreement. No other forms shall be acceptable by Jackson County. Failure of the Contractor to provide the required bonds in the manner and form prescribed, and within the time required, may form the basis for Jackson County to determine that the Contractor has failed to comply with contracting conditions and to determine the Bid Proposal offer from the Contractor to be non-responsive and void, therein allowing Jackson County to select another Contractor.

SECTION 04
NOTICE AND SERVICE THEREOF

Any notice to the Contractor from the County or the Architect or Engineer relative to any part of this Contract shall be in writing and considered delivered and the service thereof completed, when said notice is posted by mail, to the said Contractor at his last given address or delivered in person to said Contractor or his authorized representative on the work site.

SECTION 05
SPECIFICATIONS

The Specifications, the Drawings accompanying them and the other Contract Documents shall be supplementary to each other, and any material, workmanship, and/or service which may he in one, but not called for in the others, shall be as binding as if indicated, called for, or implied by all.

The Contractor will be held responsible to furnish all labor and materials and the management thereof necessary for the Contractor to complete the Work as indicated by the Contract Documents.

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities, and project and construction management and supervision, necessary for the execution and completion of the Work. He shall be responsible for entire Work and every part thereof.

Each Division, Section or type of work is described separately in the Technical Specifications; however, should any item of material, equipment, work, or combinations of such be required in one section, and not be described in that section and a similar item described in another section, that description shall apply regardless of the section under which it is described, and shall be as binding as if indicated, called for, or implied by all.

Upon award of the Contract by the County, the Contractor will be supplied, free of charge, ONE (1) complete set of the Contract Drawings and Specifications, including all issued Addenda and post-bid information or data, if any; prepared by the architect/engineer. **From and based upon this set prepared by the architect/engineer, the Contraetor shall print FIVE (5) complete sets of drawings and specifications to be distributed to the Owner, at the Contraetor's expense.** All additional sets of Drawings and Specifications, and issued Addenda and post-bid information or data, needed by the Contractor and its subcontractors, vendors and/or suppliers shall be provided by the Contractor at the Contractor's expense.

SECTION 06
DRAWINGS AND SPECIFICATIONS

It is the intent of the Drawings and Specifications that the Contractor shall furnish all labor, materials, tools, equipment, and transportation, and project and construction management and supervision, necessary for the proper execution of the Work in accordance with the Contract Documents and all incidental work necessary to complete the Project in an acceptable manner, ready for use, occupancy, or operation by the County.

In case of conflict between the Drawings and Specifications, the Specifications shall govern. Figure dimensions on Drawings shall govern over scale dimensions, and detailed drawings shall govern over general drawings, and larger scaled drawings or details shall govern over the smaller scaled drawings or details.

If existing utilities or structures are indicated by the Contract Documents, no warranty is made by the County as to the accuracy or completeness of such indication or indications.

Any discrepancies found between the Drawings and Specifications and site conditions or any inconsistencies or ambiguities in the Drawings or Specifications shall be immediately reported to the Architect or Engineer, in writing, who shall promptly endeavor to correct such inconsistencies or ambiguities in writing to the Contractor. Work done by the Contractor after his discovery of such discrepancies, inconsistencies, or ambiguities shall be done solely at the Contractor's risk.

The Architect or Engineer may (without changing the scope of the Work) furnish the Contractor additional instructions and/or detail drawings, as necessary to carry out the Work required by the Contract Documents. The additional drawings and instructions thus supplied will become a part of the Contract Documents. The Contractor shall carry out the Work in accordance with the additional detail drawings and instructions, unless written exception is taken or additional information or exploration of the previously unknown or differing information becomes known to the Contractor.

Abridging: Attention is directed to the fact that the detailed Specifications and separate sections may be written in short or abridged form. In regard to every Division or Section of the Specifications and all parts thereof, mentioned therein, or indicated on the Drawings of articles, materials, operations, or methods requires that the Contractor:

A. Provide each item mentioned and indicated, of quality or subject to qualifications noted,
B. Perform according to conditions stated, each operation prescribed, and/or
C. Provide therefore all necessary labor, equipment, and incidentals.

Wording: Whenever in the Specifications or on the Drawings the words "directed," "required," "permitted," "ordered," "instructed" or words of like import are used, it shall be understood that the direction, requirement, permission, instructions or order of the County is intended, and similar words, "approved," "acceptable," "satisfactory," or words of like import shall mean approved by, acceptable to, or satisfactory to the County.

Specification Divisions and Sections: For convenience of reference and to facilitate the letting of contracts and subcontracts, these Specifications are separated into titled divisions and sections. Such separation shall not and do not operate to make the County an arbiter to establish limits to the contracts between the Contractor and Subcontractors, nor shall such separation be interpreted as superseding normal union jurisdictions.

Language: Notwithstanding the appearance of such language in the various divisions and sections of the Specifications as, "The Paving Contractor," "The Grading Contractor," etc., the Contractor is the Party to the Construction Agreement responsible to the County for the entire Work of the Contract and Project, and the execution of all work referred to in the Contract Documents.

SECTION 07
PRESENT DOCUMENTS GOVERN

The Contractor shall in no case claim a waiver of any requirements of the Drawings or Specifications on the basis of previous prior approval of material or workmanship on other jobs of the County, or any other owner or project, of like nature or on the basis of what might be considered "standard" for material or workmanship in any particular location, or by the Architect or Engineer or the County. The Contract Documents for this Project shall govern the Work of this Project.

SECTION 08
CONTRACTOR'S SHOP DRAWINGS AND SUBMITTALS

The approved Drawings will be supplemented by the preparation and submittal by the Contractor to the Architect or Engineer of such Shop Drawings and other Submittals as are defined or required by the approved Drawings or needed by the Contractor to adequately control, manage or install the Work. It is mutually agreed that all authorized alterations affecting the requirements and information given on or by the approved Drawings and Specifications shall be in writing.

Shop Drawings and Submittals to be furnished by the Contractor for any structure shall consist of such detailed drawings and other supporting submittals as may be required as necessary for the prosecution of the Work.

Shop Drawings and Submittals shall be approved by the Architect or Engineer before the work in question indicated by or in the Shop Drawing or Submittal is performed. Drawings for false work, centering, and form work may also be required, and in such cases shall be likewise subjected to submittal and approval unless approval is waived by the Contractor and Architect and Engineer, upon consultation with the County. It is expressly understood, however, that approval by the Architect or Engineer or the County, of the Contractor's Shop Drawings and Submittals does not relieve the Contractor of any responsibility for accuracy of dimensions and details. It is mutually agreed that the Contractor shall be responsible for agreement and conformity of his Shop Drawings and Submittals with the approved Drawings and Specifications, and the Shop Drawings and Submittals of the various other Subcontractors, Sub-Subcontractors, Manufacturers, Vendors, Suppliers, and Distributors contracted to and by, and under the control and management of the Contractor.

It is the responsibility of the Contractor to check, and he shall check, all Shop Drawings and Submittals before same are submitted to the Architect or Engineer for approval. Shop Drawings and Submittal which have not been checked and approved by the Contractor shall not be submitted, and will not be approved by the Architect or Engineer, and at the discretion of the Architect or Engineer may be returned to the Contractor with no action taken.

Shop Drawings and Submittals shall be submitted to the Architect or Engineer only by the Contractor who shall indicate by a signed stamp on the Shop Drawings and Submittals that the Contractor has checked the Shop Drawings and Submittals, and that the work shown on the Shop Drawings and Submittals are in accordance with the requirements of the Contract Documents, and have been checked for dimensions and relationship with work of all other trades involved. Under no conditions shall Shop Drawings and Submittals be accepted by the Architect or Engineer from anyone other than the Contractor.

The Contractor shall furnish the Architect or Engineer with at sufficient copies of all Shop Drawings and Submittals for review and approval, as mutually determined by the Contractor, Architect and Engineer and the County. The number of finally approved copies to he returned to the Contractor for his use shall also be mutually determined by the Contractor, Architect and Engineer and the County.

The Contract Price shall include the cost of furnishing all Shop Drawings and Submittals, and the Contractor will be allowed no extra compensation for such Shop Drawings and Submittals.

The approval of such Shop Drawings and Submittal by the Architect and Engineer, or the County, shall not relieve the Contractor from responsibility for deviations from the Drawings and Specifications unless the Contractor has in writing called attention to such deviations, and the Architect or Engineer, and the County, have approved the changes or deviations in writing at the time of submission, nor shall it relieve the Contractor from the responsibility for errors of any kind in Shop Drawings and Submittals.

When the Contractor does call such deviations to the attention of the Architect or Engineer, the Contractor shall state and affirm in his letter of transmittal of such Shop Drawings and Submittals whether or not such proposed or requested deviations involve any extra cost. If this is not so started or affirmed by the Contractor in writing, at time of submittal, it shall be a confirmation by the Contractor that no extra cost or time are involved for making the deviation or change, or the approval of the deviation by the Architect or Engineer, or the County.

SECTION 09
INSTRUCTIONS, CHANGES, ETC.

All changes, alterations, or instructions in regard to any feature of the Work that differ from the Drawings and Specifications must be approved in writing by Change Order in all cases, and no verbal orders will be regarded as a basis for claims for extra work.

If the Contractor claims that any instructions by the Drawings or Specifications, or by any part of the Contract Documents, involve extra cost or an extension of the contract time, the Contractor shall notify the Architect or Engineer in writing within ten (10) days after the receipt or knowledge of such instructions and in any event before proceeding to execute the Work. Thereafter, the procedure shall be the same as that described for Changes in the Work. No such claim shall be valid unless made in accordance with the terms of this section.

No claims for extra cost will be considered based on an escalation of material prices throughout the period of the Contract.

No extra work is to be performed or any changes made that involve any extra cost or extension of time unless approved by the Architect or Engineer and authorized by an agreed upon and executed Change Order to the Construction Agreement.

SECTION 10
EXAMINATION OF WORK BY CONTRACTOR

It is understood and agreed that the Contractor has, by visiting the Site, and by careful examination, satisfied himself as to the nature and location of the Work, the conformation of the ground, the character, quality, and quantity of the facilities needed preliminary to and during the prosecution of the construction of the Work, the general and local conditions, and all other matters which can in any way affect the Work or the cost or time for construction thereof under this Contract. No verbal agreement or conversation with any officer, agent, or employee of the County or the Architect or Engineer, either before or after the execution of the Contract, shall affect or modify any of the terms or obligations herein contained.

SECTION 11
MATERIALS, SERVICES, AND FACILITIES OF AND BY THE CONTRACTOR

The Contractor shall at all times employ sufficient labor and plant and equipmeut, and project and construction management and supervision services for prosecuting the Work for full eompletion in the manner and time specified. Failure by the Contractor to provide such adequate, needed and necessary lahor and plant and equipment, and project and construction management and supervision services throughout the full and entire terms and time of the Contract may result in default of the Contract. The labor and plant and equipment, and project and construction management and supervision services to be determined to he needed and necessary to be used in the prosecution of the Work hy the Contractor shall be sufficient to meet the requirements of the Work and shall be such as to produce a satisfactory quality of work, in accordance with accepted industry practices within the time and Contract Sum specified in the Contract.

Materials and equipment shall be so stored and handled as to ensure the preservation of their quality and fitness for the Work. All stored materials and equipment to be incorporated in the Work shall be located so as to facilitate prompt inspection by the Architect or Engineer. No product which has in any way become unfit for the intended purpose, as determined hy the Architect or Engineer, in consultation with the County, shall be incorporated into the Work.

Manufactured articles, materials, and equipment shall be applied, installed, connected, erected, cleaned, and conditioned as directed or instructed by the manufacturer.

Materials, supplies, and equipment to be incorporated into the Work shall he new and unused unless otherwise specifically stated in the Contract Documents. The source of supply for all such products shall be submitted to the Architect or Engineer, together with detailed descriptions thereof in the form of samples, Shop Drawings and Submittals, tests, mock-ups at the site, or other means necessary to adequately describe the items proposed. If, after trial, review or inspection by the Architect or Engineer, or the County, it is determined by the Architect or Engineer, or the County, that the sources of supply, even though previously approved or accepted by the Architect or Engineer, have not furnished products meeting the intent of the Contract Documents, the Contractor shall thereafter promptly furnish products from other approved or acceptable sources, and the Contractor shall thereafter promptly remove all or any completed Work incorporating products which have not, or do not meet the Contract requirements.

SECTION 12
REQUESTS FOR SUBSTITUTIONS

All Contractor requests for substitutions of proprietary products or of a particular manufacturer or vendor that have been indicated or the Drawings or specified or required by the Specifications to be provided or installed by the Contractor in the Work must be accompanied by written documentary proof of equality, and difference in price and deliveries, if any, in the form of certified and attested quotations from the Supplier or Suppliers of both the specified and proposed system, product, equipment or item of the Work.

The item proposed for substitution shall be equal to or superior to the specified item or items, in construction, efficiency, and utility in the opinion of the Architect or Engineer, with consultation with the County. The opinion of the Architect or Engineer, with consultation with the County, shall be final and no substitute material or article shall be purchased or installed without such written approval. The Architect or Engineer, or the County, are under no ohligation to accept for review any request for any substitution by the Contractor, and any such request or requests may at the discretion of the Architect or Engineer, or the County, be denied without explanation or consideration for review or evaluation.

In case of a difference in price, the Connty shall receive all benefits of the difference in cost involved in any substitution, when lower, and the Contract altered by Change Order to credit the County with any savings to be ohtained. However, the Connty shall not he charged for any additional cost in case of a price difference.

SECTION 13
INSPECTION AND TESTING OF MATERIALS

Unless otherwise specifically provided for, the inspection and testing of materials and finished articles to be incorporated in the Work at the site shall be made by bureaus, lahoratories, or agencies approved by the Architect or Engineer. The Contractor shall furnish evidence satisfactory to the Architect or Engineer that the material and finished articles have passed the required tests prior to the incorporation of such materials and finished articles in the Work.

The cost of such inspection and testing shall be included in the Contractor's Bid and Contract Snm, and paid by the Contractor. Reporting of all materials testing, as reqnired for the Work, shall be in accordance with the Drawings and Specifications, including reporting of all such materials testing.

At any time during the Contractor's performance of the Work, without explanation or cause, the Architect or Engineer, or the County, may order special or additional testing for any portion of the Work being constructed or to be constructed. Should such additional or special testing fail, the Contractor shall remove or repair such portions of the Work affected by the failed tests without additional compensation or extension in contract time, and shall compensate the County for all costs associated with the failed testing, including additional time and expenses of the Architect or Engineer, or the County, or other involved consultants. If such additional or special testing pass, the County shall bear the costs of the additional or special testing, but shall not be obligated to compensate the Contractor in any way for the conducting of the additional or special testing.

SECTION 14
INSPECTION OF WORK

The Contractor shall, at all times, permit and facilitate inspection or review or testing of the Work by authorized representatives of the Architect or Engineer, the County and public authorities having jurisdiction in connection with the Work of this Contract. The presence or observations of the Architect or Engineer or its representative at the site of the Work shall not be construed to, in any manner, relieve the Contractor of the Contractor's responsibility for strict compliance with the provisions of the Contract Documents.

If the specifications, County's instructions, laws, ordinances, or a public authority require any work to be specially tested or approved, the Contractor shall give the Architect or Engineer timely notice of its readiness for observation or inspection. If the inspection is by another authority, then the Architect or Engineer shall be advised of the date fixed for such inspection. Required certificates of inspection shall be secured by the Contractor. Contractor having secured all certificates of inspection will deliver same to the Architect or Engineer npon completion. If any work should he covered up without approval or consent of the Architect or Engineer, it shall, if required by the Architect or Engineer, be uncovered for examination at the Contractor's expense.

Should any disagreement or difference arise as to the estimate, quantities, or classifications or as to the meaning of the Drawings or Specifications, or any point concerning the character, acceptability, and nature of the several kinds of work, any materials and construction thereof, the decisions of the Architect or Engineer shall be final and conclusive and binding upon the Contractor

The Contractor may at his option conduct additional or other special testing to confirm his findings or determination, but only at his cost and expense, without additional time being granted by the County for the performance of the Work to be constructed by the Contractor. If such additional or special testing by the Contractor allow or provide for the Architect or Engineer to revise or amend a previous decision or determination, the County will review and may provide compensation to the Contractor for such additional or special testing in whole or in part, or none at all, without further discussion or review by the County.

SECTION 15
AUTHORITY OF THE ARCHITECT OR ENGINEER

The Contractor shall perform all of the Work herein in strict accordance with the Contract Documents, and to the entire satisfaction, approval, and acceptance of the Architect or Engineer, and the County. The Architect or Engineer shall decide all written questions relating to measurements of quantities, the character of the Work performed, and as to whether the rate of progress is such that the Work will be completed within the time limit of the Contract. All questions as to the meaning of the Drawings and Specifications shall be submitted in writing to the Architect or Engineer by the Contractor, and will be finally decided by the Architect or Engineer in a prompt and timely manner.

The review or approval by the Architect or Engineer of any materials, plants, equipment, Drawings, Specification, or of any other items executed, or proposed by the Contractor, shall be construed only to constitute a review and approval for conformance with the general design and requirements of the Contract Documents. Such review or approval shall not relieve the Contractor from the performance of the Work in accordance with the Contract Documents, or from any duty, obligations, performance guarantee, or other liability imposed upon him by the provisions of the Contract.

SECTION 16
PROHIBITED INTERESTS

No official of the County who is authorized in such capacity and on behalf of the County to negotiate, make, accept, or approve, or to take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction, or material supply contract, or any subcontract in connection with the construction of the Project, shall become directly or indirectly interested personally in this Contract or in any part hereof. No officer, employee, Architect or Engineer, attorney, engineer, or inspector of or for the County who is authorized is such capacity and on behalf of the County to exercise any legislative, executive, supervisory, or other similar functions in connection with the construction of the Project, shall become directly or indirectly interested personally in this Contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the Project.

SECTION 17
REJECTION OF WORK AND MATERIALS

All materials and equipment furnished and all work done by the Contractor that is not in accordance with the Drawings or Specifications, or the Contract Document, or that is defective will be rejected by the Architect or Engineer, or the County. All rejected materials, equipment, or work shall be removed immediately. If rejected materials, equipment, or work is not removed within forty-eight (48) hours from

the date of letter of notification by and from the Architect or Engineer, or the Connty, the Connty, or the Architect or Engineer, upon consultation with the County, shall have the right and authority to stop the Work of Contractor immediately, and/or shall have the right to arrange for the removal of said rejected materials, equipment, or work at the cost and expense of the Contractor. All rejected materials, equipment, or work shall be replaced with other material, equipment, or work which conforms with the Drawings and Specifications at no additional cost to the County.

Review, observation or inspection of the Work at any time dnring the contract time hy the Architect or Engineer, or the County, or any authorized agency or authority, shall not relieve the Contractor of any of his ohligations to fulfill his Contract and defective work shall be made good regardless of whether such work, material, or equipment has been previously reviewed, observed inspected by the Architect or Engineer and accepted or estimated for payment. The failure of the Architect or Engineer or any or authority or agency to condemn improper materials or workmanship shall not be considered as a waiver of any defect which may he discovered later, or for work actually defective. All work, material, and/or equipment shall he guaranteed against defects for a period of one year from date of Project aceeptance as estahlished by the County.

SECTION 18
WEATHER CONDITIONS

The Contractor will be required to protect all work and materials against damage or injury from the weather. If, in the opinion of the Architect or Engineer, any work or materials shall have been damaged or injured by reason of failure to protect such, all such materials or work shall be removed and replaced at the expense of the Contractor.

In visiting the Site where the Work is to be construeted, the Contractor shall have familiarized himself with the local conditions that may or could be affeeted by weather normal to the site of the Work. Such weather conditions that are determined by the Architect or Engineer, or the County, or local or area climitalogical date or information or authorities, shall not relieve the Contractor of his duty to protect the Work and to perform the Work in a timely and proper manner, as required by the Contract Documents, and shall not form the basis of any request for adjustment in contract price of contract time.

SECTION 19
ROYALTIES AND PATENTS

The Contractor shall hold and save the County and its officers, agents, servants, and employees, harmless from liability of any nature or kind, including cost and expenses for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the County, unless otherwise specifically stipulated in the Contract Documents.

SECTION 20
CONTRACTOR'S PERSONNEL

The Contractor will supervise and direct all aspects of the Work. He will be solely responsible for the means, methods, techniques, sequences, and procedures of construction. An experienced Superintendent and necessary assistants competent to supervise the particular types and parts of the Work involved shall be assigned to the Project and at the necessary time at the Project Site by the Contractor, and such Superintendent and necessary competent assistants shall be available at all times when work is in progress. The name of the Superintendent shall be submitted by the Contractor as a Key Personnel with qualifications of same prior to start of the Work and shall be subject to the approved of the Architect or Engineer, with consultation with the County, prior to start of the Work in whole or in part.

The Superintendent so named by the Contractor as that Key Personnel shall be employed by the Contractor and shall have served in a supervisory capacity on at least one Project of similar or like description and size performed by the Contractor during the previous twelve (12) calendar months, or by another Contractor during the previous twenty-four (24) calendar months. Under no circumstances shall an employee of any Subcontractor serve as the Contractor's Key Personnel Superintendent. The Contractor's Superintendent shall represent the Contractor, and all directions given to the Superintendent shall be as binding as if given to the Contractor.

Only persons skilled in the type of work which they are to perform shall be employed. The Contractor shall, at all times, maintain discipline and good order among his employees, and shall not employ on the Work any unfit person or persons or anyone unskilled in the work assigned him. If any person employed or working at the site is determined by the Contractor, or the Architect or Engineer, or the County, or a governing agency or authority, to be disruption to the performance of any part of the Project, or determined not to be skilled in the type of work which they are to perform shall be employed, they shall be immediately removed by the Contractor, without any adjustment in the contract time or Contract Sum.

SECTION 21
LINES, GRADES, AND MEASUREMENTS

Such stakes and markings as the Architect or Engineer may set or may have previously set for the benefit of the Project or for the sole benefit of the Architect or Engineer for either its or the Contractor's guidance shall be preserved by the Contractor. Failure to protect such stakes or markings, or gross negligence on the Contractor's part resulting in loss of same, may result in the Contractor being charged by the County for their replacement as compensation to the affected entity.

The Contractor shall at all time during the performance of the Work in its entirety, exercise proper care and caution to verify the grades and figures given to the Contractor before proceeding with the Work, and the Contractor shall be solely responsible for any damage or defective work caused by his failure of such care and caution. The Contractor shall provide prompt written notification to the Architect or Engineer of any errors or discrepancies discovered, and shall offer or suggest corrective action, in order that the proper corrections may be made in a prompt and timely manner.

SECTION 22
PERMITS AND INSPECTION FEES

Permits shall be secured by the Contractor and inspections will be required by the governing authority for jurisdiction where the Work is located. If the project is in Jackson County and under the jurisdiction of Jackson County, or the County has been granted delegated authority by the governing jurisdiction, the County will not charge the Contractor for such permits and inspections obtained from Jackson County, and the Contractor is advised he need not include such permits fees in his Bid or Contract Sum.

The Contractor shall include in his Bid and Contract Sum, and shall secure and pay for any permits and inspection fees required by any other governmental entity or agency, including but not limited to any City within Jackson County, or the Jackson County Water and Sewerage Authority, unless otherwise stated, set forth or required by the Bid Documents or Contract Documents.

SECTION 23
LAWS AND REGULATIONS

The Contractor's attention is directed to the fact that all applicable Federal, State, and County laws, municipal ordinances, applicable building codes, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout, and they will be deemed to be included in the Contract Documents the same as though herein written out in full.

The Contractor shall keep himself fully informed of all laws, ordinances, codes, and regulations of the Federal, State, and County in any manner affecting those engaged or employed in the Work or the materials used in the Work or in any way affecting the conduct of the Work and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over same. If any discrepancy or inconsistency should be discovered by the Contractor at any time in the performance of the Work of this Contract, or in the Drawings or Specifications, or the Contract Documents herein referred to, in relation to any such law, regulation, code, ordinance, order, or decree, the Contractor shall promptly report the same, in writing, to the Architect or Engineer.

The Contractor shall at all times observe and comply with all such laws, ordinances, codes, and regulations, and shall protect and indemnify the County and its agents against any such law, ordinance, regulation, order, or decree, whether by himself or by his employees.

SECTION 24
CONTRACTOR'S OBLIGATIONS

The Contractor shall, in a good workmanlike manner, do and perform, all work and furnish all supplies and materials, machinery, equipment, facilities, and means, project and construction management and supervision, necessary, or proper to perform and complete all the Work required by this Contract, within the time herein specified, in accordance with the provisions of this Contract and said Specifications accordance with the Drawings of the Work covered by this Contract and any and all supplemental drawings of the Work covered by this Contract, unless and except as herein otherwise expressly specified.

The Contractor shall furnish, erect, maintain, and remove such construction, plants, materials, and other such temporary works as may be required for the construction of the Work of the Project. The Contractor alone

shall be responsible for the safety, effieiency, and adequacy of his plants, appliances, and methods, and for any damage which may result from their failure or their improper construction, maintenance, or operation.

The Contractor shall observe, comply with, and be subject to all terms, conditions, requirements and limitations of the Contract and Specifications, local ordinances, codes, and State and Federal laws; and shall do, carry on, and complete the entire Work.

SECTION 25
SUBCONTRACTING

The Contractor understands and agrees that it shall be a breach of this Contract to subcontract any portion of the Work on this Project unless the Work and the Subcontractor and/or others proposed to perform it have been declared by the Contractor at the time of commencement of the Work; or the Contractor shall have obtained written approval from the County.

THE CONTRACTOR FURTHER UNDERSTANDS AND AGREES THAT ANY WORK ON THIS PROJECT WHICH THE CONTRACTOR SECURES IN VIOLATION OF THIS PROVISION SHALL BE DEEMED A GRATUITY FROM THE CONTRACTOR FOR WHICH JACKSON COUNTY SHALL NOT BE OBLIGATED TO PAY.

Nothing contained in this Contract shall create any contractual relation between any of the Contractor's named or not named Subcontractor, Sub-Subcontractor, Vendor, Suppliers or Manufacturer, and the County.

SECTION 26
ASSIGNMENTS

The Contractor shall not assign the whole or any part of this Contract or any monies due or to become due hereunder witbout the prior written consent of the County, as may be set forth by a written and properly executed Change Order.

SECTION 27
CONTRACTOR'S HOLD HARMLESS AGREEMENT

Contractor's hold harmless and indemnification of Jackson County shall be as set forth in the Construction Agreement.

SECTION 28
INSURANCE REQUIREMENTS

Contractor's insurance requirements for the project and Jackson County shall be as set forth in the Construction Agreement.

SECTION 29
LAND AND RIGHTS-OF-WAY

Prior to entering on any land or right-of-way, the Contractor shall ascertain the requirements of applicable permits or easements obtained by the County, and shall conduct his work in accordance with requirements thereof including the giving of notice. The Contractor shall be fully responsible for performing work to the requirements of any permit or easement granting entity even though such requirements may exceed or be more stringent than that otherwise required by the Contract Documents, and shall compensate the County fully for any loss or expense arising from failure of the Contractor to perform as required by such entity.

The Contractor shall provide at his own expense and without liability to the County any additional land and access thereto that the Contractor may desire for temporary construction facilities, or for storage of materials.

SECTION 30
PROTECTION OF WORK, PROPERTY AND PERSONS

The Contractor will be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the Work and other persons who may be affected thereby, all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, lakes, drainage ways, walks, pavements, roadways, structures, and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor will comply with all applicable laws, ordinances, rules, regulations, codes, and orders of any public body having jurisdiction. He will erect and maintain, as required by the conditions and progress of the Work, all necessary warning safeguards for devices and safety and protection of the Work, the public, and adjoining property. He will notify owners of adjacent utilities when prosecution of the Work may affect them. The Contractor will remedy all damage, injury, or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

The Contractor shall, prior to commencing other on-site work or off-site work, accurately locate above and below ground utilities and structures which may be affected by the Work, using whatever means may be appropriate. The Contractor shall accurately mark, or cause to have accurately marked, the location of existing utilities and structures, not otherwise readily visible, with flagging, stakes, barricades, or other suitable means, and shall preserve and protect all utilities and structures not designated for removal, relocation, or replacement in the course of construction. He shall notify the Architect or Engineer promptly on discovery of any conflict between the Contract Documents and any existing facility.

In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, or unanticipated conditions where delay would substantially impact the time or cost of work, the Contractor shall endeavor to immediately provide notification to the Architect or Engineer, or the County, but in any event the Contractor shall immediately take action and act to prevent threatened damage, injury, or loss.

Any claim for compensation or extension of time by the Contractor due to such extra work shall be submitted to the Architect or Engineer within ten (10) days of the date of commencing to perform such emergency or protective action or work or deviations in the manner prescribed by the Contract Documents for review to determine the basis for additional compensation or an extension in the Contract Time, both or either to be written and confirmed by a properly executed Change Order.

All existing utilities, both public and private, including water, gravity or force main or pressure sewer or sewerage, natural gas, electrical, cable, and telephone services, etc., shall be protected and their operation shall be maintained through the course of the Work. Any temporary shutdown of an existing service shall be arranged directly between the Contractor and the responsible agency or utility owner. The Contractor shall assume full responsibility and hold the County harmless from the result of any damage that may occur as a result of the Contractor's activities.

SECTION 31
PRIOR USE BY COUNTY

Prior to substantial and final completion of the Work or any portion or part therein for either a building or structure or the site or grounds of the Work, the County may take over operation and/or use of the in completed Project or portions thereof. Such prior use of facilities by the County shall not be deemed as acceptance of any work or relieve the Contractor from any of the requirements of the Contract Documents for the completion and full performance of the requirements of the Work of the Project.

SECTION 32
CLEANING UP

The Contractor shall at all times keep the premises of the entire Site of the Work free from and clean of any accumulation of waste materials or rubbish caused by Contractor's employees or work, including mud, dirt or debris on private or public streets, roadways and drives. Upon completion of the Work, the Contractor shall remove all his plants, tools, materials, and other articles from the property of the County.

SECTION 33
BARRICADES

The Contractor shall provide continuously burning lanterns at all barricades and at protective barriers around excavations so that the public is adequately warned of such hazards. Lanterns shall remain lighted from sundown to sunrise and at all other times when the labor forces are not on the job site.

Access to Site for workers and other parties and for the delivery of construction materials and equipment shall be only from locations approved by the County.

SECTION 34
CHANGES IN THE WORK

The County may at any time, and without prior notification to the Contractor, order changes within the scope and terms and conditions, and time and price of the Work without invalidating the Construction Agreement. If such changes increase or decrease the amount due under the Contract Documents, or in the Contract Time required for performance of the Work by the Contractor, an adjustment may be authorized by a written and properly executed Change Order.

The Architect or Engineer, also, may at any time, by issuing a Field Order make minor changes in the details of the Work, not affecting or involving the Contract Sum or Contract Time. The Contractor shall proceed with the performance of any changes in the Work so ordered by the Architect or Engineer unless the Contractor believes that such Field Order entitles or requires a change in Contract Price or Time, or both, in which event the Contractor shall give the Architect or Engineer written notice thereof within ten (10) days after the receipt of the written Field Order or other written ordered change, and the Contractor shall not execute or implement or effect such changes until or upon the receipt of an executed Change Order or further written instruction or instructions by and from the County.

The Contract Price may be changed only by a Change Order. The value of any work covered by a Change Order or of any claim for increase or decrease in the Contract Price shall be determined by one or more of the following methods in the order of precedence listed below:

A. Uuit prices previously approved, or
B. An agreed lump sum, or
C. Force Account, based upon the Contractor's written and fully documented and witnessed actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the Work.

For any Change Order based upon any of the above described methods of determining costs or value, the Contractor may add for the cost of the Contractor's general overhead and profit an amount agreed upon, but in no instance shall the amount exceed ten percent (10%) of the actual cost of such work to cover.

For any Subcontractor or Sub-Subcontractor, vendor or supplier contracted directly to the Contractor, the cost of that party's general overhead and profit shall not exceed fifteen percent (15%) of the actual cost of such work to cover.

For additional Work performed under this Contract, the reasonable allowance for overhead and profit combined, included in the total additional cost to the Owner shall not exceed the following sums or percentages:

A. For the Contractor, for any work performed directly by the Contractor's own documented workforces shall not exceed fifteen percent (15%) of the cost.
B. For the Contractor, for any work performed by the Contractor's subcontractor's own documented workforces shall not exceed seven and one half percent (7-1/2%) of the amount due the subcontractor.
C. For each subcontractor involved in the additional work, for any work performed directly by the subcontractor's own documented workforces shall not exceed fifteen percent (15%) of the cost.

Costs to which overhead and profit are to be applied are as determined by this Article.

In order to facilitate the checking of all or any quotation or proposal for additional or extra work, or for deductions or credits, all such quotations and proposals prepared and submitted by the Contractor shall be accompanied by a complete itemized cost breakdown, including labor, materials, subcontracts and purchase orders, and include and show the markups for overhead and profits in the manner described above. Where major items or portions of the additional or changes work are by subcontractors, then such subcontractor cost breakdowns shall be so organized and structured.

Notarized Statement. In addition, all proposals submitted by the Contractor shall include a notarized statement attesting to the fact that all proposed costs are a fair and reasonable estimate of the work, and submittal of this proposal for changes in the work are submitted under the laws of perjury.

SECTION 35
TIME FOR COMPLETION

It is hereby understood and mutually agreed, by and between the Contractor and the County, that the date of beginning, the rate of progress, and the time for substantial and final completion of all the Work are essential conditions of this Contract; and it is further mutually understood and agreed between and by the Parties to the Construction Agreement that the Work embraced in this Contract shall be commenced on the date to be specified in the Notice to Proceed issued by the County.

The Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterrupted at such rate of progress as will ensure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the County, that the time for the substantial and final completion of all the Work described herein by the Contract Documents is a reasonable time for the completion of the same, taking into consideration the average climate range and usual conditions prevailing in the locality of the location of the Project.

It is further agreed that time is of the essence of each and every portion of this Contract and of the Drawings and Specifications and the Contract Documents, wherein a definite portion and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an additional time mayhe allowed for the completion of any portion of the Work, the new time limit fixed by such extension shall become the essence of the Contract. Provided, that the Contractor shall not be charged with any excess cost when the delay in completion of the Work maybe due to unforeseeable causes beyond the control and without the fault or negligence of the Contractor, the County or the Architect or Engineer, including, but not restricted to, acts of God, or to the public enemy, acts of the County, acts of another contractor in the performance of the contract with the County, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually most severe weather exceeding the average climitalogical conditions in the area of the Work, as may be described and outlined by the Contract Documents for the information and understanding of the Contractor in bidding and performing the Work to be constructed.

Provided further, that the Contractor shall within ten (10) days from the beginning of each such specific weather related delay, notify the County, in writing, of the causes of the weather related delay, and the Architect or Engineer and the County shall ascertain the facts and extent of the weather related delay and provide written notification to the Contractor within a reasonable time of its decision in the matter.

Where the County has established occupancy of a facility, building, structure of site, or a usable portion thereof prior to the specific date for substantial or final completion of the specified Contract Time period or date, and where contract work items remain outstanding to be completed by the Contractor, the County, at its option, may charge the Contractor for actual cost of administering the Contract for the period subsequent to expiration of the Contract completion date.

SECTION 36
PAYMENTS TO CONTRACTOR

The Contractor shall prepare and submit to the County, through the Architect and Engineer a detailed cost breakdown of the project Contract Price within five (5) calendar days from the date of receipt of the Notice to Proceed. This detailed cost breakdown shall be based on values of parts of the Work as maybe divided according to project and construction management and supervision, overhead and profit, bonds and insurance, Work of the project as maybe self-performed by the Contractor, and the awards of subcontracts and purchase orders for the various Divisions and Sections of the Specifications, and shall be further subdivided into labor and materials.

All equipment, materials, and work covered by progress payments that shall become a permanent part or fixture of the Work shall, upon payment thereof, become the sole property of the County, but this provision shall not be construed as relieving the Contractor from the sole responsibility for the care and protection of equipment, materials, and work upon which payments have been made, or the restoration of any damaged work, and is not intended to mean or include temporary or rental structures, equipment, materials and work needed to effect the construction of the Project.

The Contract Sum for the work to be performed by the Contractor for the work shall be established in the Construction Agreement. The final Contract Sum, including authorized adjustments thereto by Change Order as provided in the Contract Documents, is the total amount due and payable to the Contractor for the performance of the Work under the Contract Documents for the work. Jackson County shall withhold as a retainage from each monthly partial application for payment from the Contractor an amount equal to ten percent (10%) of the sum requested by the Contractor for that application for payment. No reduction or release of retainage shall be made or come due the Contractor until and unless the Work of the Project has been completed and accepted by Jackson County as set forth by the Contract Documents.

Before the first Application for Payment, the Contractor shall submit a Schedule of Values allocated to the various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as Jackson County may require. This schedule shall be used as the basis for the Contractor's Applications for Payment to Jackson County.

After the Contractor has issued a Certificate, the County shall, subject to the provisions of the Construction Agreement, pay the Contractor the portion of the Contract Sum properly allocable to labor, materials, and equipment incorporated in the Work, suitably stored at the site or at some other location suitably insured agreed upon in writing by the parties as of the date the Application for Payment is submitted to Jackson County, less retainage and the aggregate of previous payments in each case.

No certification of an Application for Payment, any payment, or any partial or entire use or occupancy of the Project by Jackson County, shall constitute an acceptance of any Work not in accordanee with the Contract Documents.

Jackson County shall have any obligation to pay or to see to the payment of any monies to any subcontractor or subconsultant except as may otherwise be required by law.

The Contractor shall promptly pay each party to which it owes money for performance for the Project upon receipt of payment from Jackson County, out of the amount paid to the Contractor on account of such Contraetor's Work, the amount to which said parties are entitled, reflecting the percentage actually retained, if any, from payments to the Contractor on account of such Contractor's Work. The Contractor shall, by an appropriate agreement with each party to which it is contracted for the Project, require each and all other parties to make prompt and accurate payments to their subcontractors in a similar manner.

Applications for Payment shall be submitted by the Contractor to Jackson County, through the Project Consultant, no more frequently than monthly. Each Application for Payment shall be supported by such data substantiating the right to payment as the Jackson County may require, and reflecting retainage, if any, as provided for in the Contract Documents. The Project Consultant will review the Application for Payment submitted by the Contractor to determine the amount to be recommended for payment by the County, and shall certify its recommendation and forward a Certificate for Payment to Jackson County for review and processing.

The Contractor warrants to Jackson County that title to all Work, materials and equipment covered by an Application for Payment will pass to Jackson County either by incorporation in the construction or upon receipt of payment hy the Contractor, whichever occurs first, free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to in the Contract as "liens"; and that no Work, materials or equipment covered by an Application for Payment will have been acquired hy the Contractor, or by any other person performing Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor on such other person.

Unless otherwise provided in the Contract Documents, no payments will be made on account of materials or equipment not incorporated in the Work. Any payments for materials or equipment stored on the Project site shall be conditioned upon submission by the Contractor of hills of sale or other such procedures satisfactory to Jackson County to establish Jackson County's title to such materials or equipment or otherwise protect Jackson County's interest, including applicable insurance.

The Project Consultant will with reasonable promptness upon receipt of the Contractor's Application for Payment, review the Application for Payment and either issue a Certificate for Payment to Jackson County with a copy for distribution to the Contractor for such amounts as the Project Consultant determines are properly due, or shall notify the Contractor in writing of the reasons for withholding a Certificate for Payment.

By issuing a Certificate for Payment, it shall not thereby be deemed to be represented that the Project Consultant or Jackson County have made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, have reviewed the construction means, methods, techniques, sequences or procedures, or has made any examination to ascertain how or for what purpose the Contractor has used any monies previously paid on account of the Contract Sum.

Jackson County may decline to certify payment, and may withhold a certification for payment in whole or in part to the extent necessary to reasonably protect Jackson County, if in Jackson County's opinion, Jackson County and the Project Consultant are unable to make representations as to the accuracy of the Application for Payment to reflect the current status of the Work. If the Contractor, Project Consultant and Jackson County cannot agree on a revised amount, Jackson County may issue a Certificate for Payment for only the amount for which Jackson County is able to make such representations. Jackson County may also decline to certify payment or, because of subsequently discovered evidence or subsequent observations, Jackson County may also nullify the whole or any part of any Certificate for Payment previously issued to such extent as may be necessary, in Jackson County's opinion, to protect Jackson County from loss for several reasons including, but not limited to:

- defective Work not remedied.
- third party claims filed or reasonable evidence indicating probable filing of such claims;
- failure of the Contractor to make payments properly to subcontractors or sub- consultants, or for labor, materials or equipment;
- reasonable helief that the Work cannot be completed for the unpaid balance of the Contract Sum for the line items under discussion;
- damage to Jackson County or another contractor, or to existing site or other conditions;
- reasonable evidence that the Work will not be completed within the Contract Time; or
- persistent or repeated failure by the Contractor to carry out the Work in accordance with the Contract Documents or written direction provided by the Project Consultant or Jackson County.

When the grounds above are removed, payment may be made by Jackson County in a forthcoming monthly application for payment for amounts withheld.

When the Contractor considers that the Work, or a designated portion thereof which is acceptable to Jackson County, is substantially complete, the Contractor and Project Consultant shall prepare for Jackson County a list of items to be completed or corrected. The Contractor shall promptly proceed to complete and correct all items on the list. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Upon receipt of the list of items to be completed or corrected, Jackson County shall make an inspection to determine that the Work or designated portion thereof is substantially complete. On the basis of inspection and in consultation with the Project Consultant determines that the Work or designated portion thereof is substantially complete, the Project Consultant will then prepare a Certificate of Substantial Completion of the Work, on the latest version of AIA Document G704, Certificate of Substantial Completion, which shall establish the Date of Substantial Completion of the Work, shall state the responsibilities of Jackson County and the Contractor for security, maintenance, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall complete the items listed therein as incomplete or requiring correction. The Certificate of Substantial Completion shall be submitted to Jackson County, and the Contractor for their written acceptance of the responsibilities assigned to them in such Certificate.

Prior to and as a condition of the Certificate of Substantial Completion being issued, all Project Closeout Documents including, but not limited to project record documents (as-builts), operation and maintenance manuals, warranties and other documents, shall have been submitted to Jackson County ten (10) prior to the indicated date for review and approval by the Project Consultant for transmittal to Jackson County.

Warranties required by the Contract Documents shall commence on the Date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion of the Work or designated portion thereof. Warranties for Work that is not accepted by the County shall commence on a date when the Work is finally accepted by Jackson County.

Following issuance of the approved Certificate of Substantial Completion of the Work or designated portion thereof, and the Contractor's final completion of the Work, the Contractor shall forward to the Project Consultant a written notice that the Work is ready for final inspection and acceptance, and shall also forward to Jackson County a final Application for Payment, along with a final accounting of the Cost of the Work. The Project Consultant and Jackson County shall make such inspections and if finds the Work acceptable and fully performed, the Project Consultant shall certify the final Application for Payment, subject to review of the final accounting of the Cost of the Work, which will approve the final payment due the Contractor. This approval shall constitute a representation that, to the best of the Project Consultant's knowledge, information and belief, and on the basis of observations and inspections, the Work has been completed in accordance with the Terms and Conditions of the Contract Documents and that the entire balance found to be due the Contractor, and noted in said certified final Application for Payment, is due and payable.

Final payment, including all remaining retainage, shall not become due until the Contractor has submitted to the Project Consultant, and the Project Consultant has submitted to Jackson County notarized affidavits (AIA Document G706, Contractor's Affidavit of Payment of Debts and Claims, latest version) that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which Jackson County or Jackson County's property might in any way be responsible, have been paid or otherwise satisfied, and a Consent of Surety to Final Payment (AIA Document G707, latest version), has also been provided, and other data to be submitted as determined by Jackson County establishing payment or satisfaction of all such obligations, including receipts, releases and waivers of liens arising out of the Contract, to the extent and in such form as may be designated by Jackson County, including, but not limited to, AIA Document G706A, Contractor's Affidavit of Release of Liens, latest version.

If any Contractor refuses to furnish a release or waiver required by Jackson County, the Contractor may furnish, at the Contractor's full expense and cost, a bond satisfactory to Jackson County to indemnify Jackson County against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall immediately refund to Jackson County all monies that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

The making of final payment by Jackson County to any Contractor shall, after the Date of Substantial Completion, constitute a full, final and absolute waiver of all claims by the Contractor against Jackson County, except those arising from:

- unsettled liens;
- faulty or defective Work appearing after Substantial Completion of the Work;
- failure of the Work to comply with the requirements of the Contract Documents; and
- terms of any special warranties required by the Contract Documents.

The acceptance of final payment by the Contractor shall, after the Date of Substantial Completion of the Work, constitute a waiver by the Contractor of all claims against Jackson County, except those previously made in writing and identified by the Contractor as unsettled at the time of the final Application for Payment.

In the event Jackson County timely disputes the amount of final payment due a Contractor, the amount due shall be deemed by Jackson County to be an unliquidated sum, and no interest shall accrue or be payable on the sum finally determined to be due for any period prior to final determination of such sum, whether such determination be by agreement or by final judgment of the proper court in the event of litigation between the parties. The Contractor specifically waives and renounces any and all rights it may have and agrees that in the event suit is brought against Jackson County for any sum claimed by the Contractor under the Contract or for any extra or additional Work, no interest shall be awarded on any sum found to be due from Jackson County in the final judgment entered in such suit. All final judgments shall draw interest at the legal rate, as specified by law.

All provisions of the Construction Agreement, including without limitation those establishing obligations and procedures, shall remain in full force and effect notwithstanding the making or acceptance of final payment prior to the Date of Substantial Completion of the Work.

SECTION 37
SCHEDULES, REPORTS, AND RECORDS

The Contractor shall submit to the Architect or Engineer such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records, and other data as the Architect or Engineer may request concerning work performed or to be performed.

Prior to submittal of the first partial application and certificate for payment, the Contractor shall submit to the Architect or Engineer a detailed project construction schedule showing the order in which the Contractor proposes to carry on the Work, including milestone and interim dates at which the Contractor will start the various parts of the Work, including the estimated dates of completion of each part; and, as applicable, the dates at which special detail drawings will be required and prepared, and respective dates for submission by the Contractor of Shop Drawings and Submittals, and the beginning and completion dates for the manufacture, the testing and the installation of materials, supplies and equipment of the many parts and portions of the total Project.

The Contractor shall also submit a schedule of payments that he anticipates he will earn during the course of the Work.

At a time and date mutually acceptable to the Contractor, the Architect or Engineer and the County, the Parties shall meet at the Project site to review the Contractor's preliminary, draft application and certificate for payment for the period covering the preceding thirty (30) calendar days. Based upon the review and determination of monies to be owed and payable to the Contractor by the County set forth by the preliminary, draft application and certificate for payment, the Contractor shall promptly prepare and submit the formal application and certificate for payment to the Architect or Engineer for his signature and recommendation and transmittal to the County for payment. It is agreed by all the Parties that this proposed early review of the preliminary, draft application and certificate for payment in advance of its due date is intended to speed the review, submittal, approval and payment process for the Contractor for the Work performed and due for payment by the County.

All lien waivers and other documents required for acceptance for payment by the County need only be submitted with the submittal of the formal application and certificate for payment, but it is understood by the Contractor that the advance review does not delete or modify the requirements for the submission of such necessary waivers and other documentation for payment by the County.

SECTION 38
COUNTY'S RIGHT TO SUSPEND OR TERMINATE WORK

If the Contractor is adjudged bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the Contractor or for any of his property, or if he files a petition to take advantage of any debtor's act or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workers or suitable materials or equipment, payments to Subcontractors or others, or for labor, materials or equipment, or if he disregards laws, ordinances, rules, codes, regulations or orders of any public body having jurisdiction of the Work, or if he otherwise violates any provision of the Contract Documents, then the County may, without prejudice to any other right or remedy and after giving the Contractor and his surety a maximum of seven (7) calendar days from delivery of a written notice by the County to the Contractor, declare the Contract in default, take possession of the Project and the site, and of all materials, equipment, tools, construction equipment and machinery thereon owned or rented or leased by the Contractor, and call upon the surety of and for the Performance and Labor & Material Payment Bonds to finish the Work of the Contract Documents by whatever method deemed expedient by the surety, upon consultation with the County.

Where the Contractor's services have been so terminated by the County, the termination shall not affect any rights or remedies of the County against the Contractor then existing or which may therefore accrue. Any retention or payment of monies due the Contractor by the County will not release Contractor from liability. If the Contractor can establish or it is otherwise determined that the Contractor was not in default or that the failure to perform is excusable, any issued termination for default will be considered to have been a termination for the convenience by the County and the rights and obligations of the parties governed accordingly.

Upon seven (7) calendar days' written notice to the Contractor by the County, the County may for its own convenience and at its sole option, without cause and without prejudice to

any other right or remedy available to or for the County, elect to terminate the Contract. In such case, Contractor shall he paid, without duplication of any items:

A. For completed and acceptable work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such work;
B. For expenses sustained in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with Uncompleted Work;
C. For amounts paid in settlement of terminated contracts with Subcontractors and Suppliers;
D. Reasonable expenses directly attributable to termination including, but not limited to, fees and charges of engineers, Architect or Engineers, attorneys and other professionals, and court costs;
E. Contractor shall not be paid on account of anticipatory profits or overhead or consequential damages; and
F. Any payments made hy the County to the Contractor in prior progress payments of the Project or to its surety as outlined or set forth above, shall not exceed the total contracted Contract Sum.

SECTION 39
ACCEPTANCE OF WORK AND FINAL PAYMENT

Before final acceptance of the Work and final payment to the Contractor by the County of the withheld percentage retained by the County, the following requirements shall he complied with:

A. Final Inspection: Upon notice from the Contractor that the Work of the Project is completed, the Architect or Engineer shall make a final inspection of the Work, and shall notify the Contractor of all instances where the Work fails to comply with the Drawings and Specifications, as well as any defects the Architect or Engineer may discover. The Contractor shall immediately make such alterations as are necessary to make the Work comply with the Drawings and Specifications.
B. Contractor Inspection: Prior to calling for the inspection of the Work of the Project by the Architect or Engineer, the Contractor shall have performed a detailed inspection of the Work of the Project, and shall have made a determination of the Works' readiness for inspection hy the Architect or Engineer, and the County.
C. Final Payment: When the Work under this Contract is completed, a final payment request shall be submitted representing the original Contract Price and Change Orders to the Contract. The final payment shall not be due until the Contractor shall have completed all work necessary and reasonably incidental to the Contract, including final clean-up.

Acceptance of the Work by the Architect and Engineer, and the County, and the making of final payment by the County shall not coustitute a waiver of any claims by the County. At any time during and throughout the time for construction, and any time beyond the schedule dates for completion by the Contractor, payments otherwise due the Contractor may be withheld by the County because of defective work not remedied and unadjusted damage to others by the Contractor or Subcontractors, vendors, or laborers.

All claims for final payment must be submitted within thirty (30) calendar days after the Work has been finally completed and accepted by the County. Failure by the Contractor to present in writing said claims within that period shall constitute a waiver of the claim by the Contractor. All claims are subject to final approval and a separate audit by the Board of Commissioners of Jackson County by an independent auditor.

SECTION 40
GUARANTEE AND CORRECTION OF WORK

The Contractor shall guarantee all Work to have been accomplished in conformance with the Contract Documents. Neither the final certificate of payment nor any provision of the Contract Documents, nor partial or entire occupancy or use of the Work by the County, shall constitute an acceptance of any part of the Work not done in accordance with the Contract Documents, or relieve the Contractor of liability for incomplete or faulty materials or workmanship.

The Contractor shall promptly remedy any omission or defect in the Work and pay for any damage to other improvements or facilities resulting from such omission or defect which shall appear within a period of one (1) year from the date of final acceptance, unless a longer period is elsewhere specified. In the event that the Contractor should fail to make repairs, adjustments, or other remedy that may be made necessary by such defects, the County may do so and charge the Contractor the cost thereby incurred. The Performance and Labor & Material Payment Bonds shall remain in full force and effect through the guarantee period.

It is agreed to by the Contractor and the Architect and Engineer, and the County, that eleven (11) months from the date of substantial completion, or when the warranty period has agreed to have commenced for the Work of the Project, the and the Architect and Engineer, and the County shall walk the project to make a determination of items requiring correction under the warranty requirements of the Project.

SECTION 41
VENUE

The law of the State of Georgia shall govern the construction of this Contract. The courts of Jackson County, Georgia, shall have exclusive jurisdiction to try disputes arising under or by virtue of this Contract.

END OF GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

Section 00850
Construction Agreement

PART ONE - GENERAL

1.1 DESCRIPTION:

A. The Construction Agreement Between Jackson County and the Contractor is the Prime Agreement for Construction for the performance and payment of the construction work for the Project to be constructed by the Contractor. It is the Standard Construction Agreement of Jackson County. Any Contractor doing business with the County must enter into this Agreement.

B. The Subcontract Agreement or Purchase Order is a Subcontract or Purchase Order executed between the Contractor and the Subcontractor, Vendor and/or Supplier for the performance and payment of the construction work, or its materials, subcontracted or purchased by the Contractor for the project to be constructed by the Contractor. The Subcontract Agreement or Purchase Order forms are NOT set forth or included within these Contract Documents. However, all provisions and requirements as set forth and included in the Prime Construction Agreement shall be included by reference and made a part of any Subcontract or Purchase Order issued or executed by the Contractor.

C. Where any provisions of the referenced Prime Construction Agreement differ materially with the provisions and requirements of the Contract Documents for the work of this project, the more stringent requirement(s) shall prevail and govern, unless otherwise agreed to between the Parties to the Construction Agreement.

D. The Construction Agreement for the Work of this Project immediately follows this introductory page to this SECTION 00850 CONSTRUCTION AGREEMENT, and is made a part of these bidding documents. Each bidding contractor interested in doing business with Jackson County is advised to carefully review the following Construction Agreement, and its attachments and Exhibits to prepare itself for the prompt execution of the Construction Agreement upon presentation for execution by Jackson County in its Notice of Award.

E. **EACH BIDDER SHALL COMPLETE THE FOLLOWING CERTIFICATION AND INCLUDE THIS PAGE WITH HIS BID: SEE NEXT PAGE FOR CERTIFICATION TO REVIEW AND ACCEPTANCE OF THE CONSTRUCTION AGREEMENT.**

CERTIFICATION TO REVIEW AND ACCEPTANCE OF CONSTRUCTION AGREEMENT

PROJECT NAME: _____

CONTRACTOR'S NAME: _____

THE UNDERSIGNED CERTIFIES, in preparing my Bid for this Project, that I have read the referenced Construction Agreement Between Jackson County and the Contractor, and that my legal advisor, insurance carrier and bonding/surety representatives have also read the Construction Agreement. Therefore, I hereby make the following sworn statement:

CHECK AND INITIAL ONE OF THE FOLLOWING STATEMENTS:

_____ I and my legal advisor, insurance carrier and bond/surety representatives have read, understand and accept all the terms and conditions of the Construction Agreement, and if and upon award of the Contract for this Project will promptly execute and furnish all required statements, insurance and bonds.

_____ I and my legal advisor, insurance carrier and bond/surety representatives have read and understand all the terms and conditions of the Construction Agreement, BUT HAVE NOTED THE FOLLOWING EXCEPTIONS AND/OR QUALIFICATIONS to the execution and the furnishing of all required statements, insurance and bonds, if and upon award of the Contract for this Project, as listed, noted or described below, or on other supporting documentation as identified below:

_____

THE UNDERSIGNED FURTHER UNDERSTANDS AND ACCEPTS that such submitted exceptions and/or qualifications may cause Jackson County to determine the Bid to be non- responsive and the Bidder to be non-responsible, and that Jackson County may fully reject the Bid and select another Bidder/Contractor based upon the noted or described exceptions and/or qualifications hereto. Such a determination by Jackson County shall not be a cause of action by the Contractor against Jackson County.

I CERTIFY that the above information is true and correct and is applicable to the Bid for this Project.

Signed: _____ (SEAL, REQUIRED IF CORPORATION)

This_____day of_____, 201____.

NOTARY AND WITNESS: County of _____State of _____

Notary Public: _____ (SEAL, REQUIRED)

Witness: _____

Jackson County
Board of Commissioners

Jackson County Board of
Commissioners
67 Athens Street,
Jefferson, GA 30549

W. Jackson Middle School Athletic Field
Construction Agreement

Award Date: _____

Contractor: _____

This is the Standard Construction Services Agreement of Jackson County. Any Contractor doing business with the County must enter into this Agreement.

CONSTRUCTION SERVICES AGREEMENT

This Construction Services Agreement (the "Agreement") is made and entered into this_____ day of_____, 20 , by and between JACKSON COUNTY, a political subdivision of the State of Georgia, acting by and through its governing authority, the Jackson County Board of Commissioners ("County"), and_____, a_____, ("Contractor"), collectively referred to as the "Parties".

W I T N E S S E T H:

WHEREAS, the County desires to employ a contractor to perform services for the construction of a Project, as defined below; and

WHEREAS, the County solicited_____(bids/proposals) for construction of The Project pursuant to Jackson County Request for _____ (Bid/Proposal), Project Number_____, dated_____, 20____; and

WHEREAS, the Contractor submitted a complete and timely _____ (bid/proposal) and met all _____ (bid/proposal) requirements such that the County awarded Project Number_____to the Contractor; and

WHEREAS, the County finds that specialized knowledge, skills, and training are necessary to perform the Work contemplated under this Agreement; and

WHEREAS, the Contractor has represented that it is qualified by training and experience to perform the Work; and

WHEREAS, based upon Contractor's _____ (proposal/bid) to _____, the County has selected Contractor as the successful _____(proposer/bidder), and

WHEREAS, Contractor desires to perform the Work as set forth in this Agreement under the terms and conditions provided in this Agreement; and

WHEREAS, the public interest will be served by this Agreement; and

WHEREAS, Contractor has familiarized itself with the nature and extent of the Contract Documents, the Project, and the Work, with all local conditions and federal, state and local laws, ordinances, rules and regulations in any manner that may affect cost, progress or performance of Work, and Contractor is aware that he must be licensed to do business in the State of Georgia.

NOW THEREFORE, for and in consideration of the mutual promises contained herein and other good and adequate consideration, the sufficiency of which is hereby acknowledged, the Parties hereto do mutually agree as follows:

Section 1. Contract Documents

The following documents, attached hereto (except as expressly noted otherwise below) and incorporated herein by reference, constitute the Contract Documents:

A. This Agreement;

B. Request for_____(Proposal/Bid) attached hereto as Exhibit "A";

C. _____(Proposal/Bid) Documents from Contractor, dated _____ _____,_____, attached hereto as Exhibit "B";

D. Performance Bond and Payment Bond, attached hereto collectively as Exhibit "C";

E. Noncollusion Affidavit of Prime_____(Proposer/Bidder), attached hereto as Exhibit "D";

F. Final Affidavit, attached hereto as Exhibit "E";

G. Alien Employment affidavits attached hereto as Exhibits "F" and "G";

H. Plans and specifications, attached hereto collectively as Exhibit "H";

I. Key Personnel, attached hereto as Exhibit "I";

J. Contract Administration provisions (if issued), attached hereto as Exhibit "J";

K. General Conditions (if issued), attached hereto as Exhibit "K";

L. Supplementary Conditions (if issued), attached hereto as Exhibit "L";

M. Notice of Award, attached hereto as Exhibit "M";

N. Jackson County Code of Ethics;

O. The following, which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying, or supplementing the Contract Documents if properly adopted in writing and executed by the Parties.

Section 2. Project Description; Architect

A. Project. The Project is defined generally as follows:

_____
_____(the "Project").

B. Architect *[to be used when architect is retained]*. The Project has been designed by _____ (hereinafter referred to as the "Architect"). The

Architect is to act as the County's representative with respect to the Project, and shall assume all duties and responsibilities and have the rights and authority assigned to the Architect in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Section 3. The Work

The Work to be completed under this Agreement (the "Work") includes, but shall not be limited to,

The Work includes all material, labor, insurance, tools, equipment, and any other miscellaneous items and work reasonably inferable from the Contract Documents. The term "reasonably inferable" takes into consideration the understanding of the Parties that some details necessary for completion of the Work may not be shown on the drawings or included in the specifications, but they are a requirement of the Work if they are a usual and customary component of the Work or are otherwise necessary for complete installation and operation of the Work. Contractor shall complete the Work in strict accordance with the Contract Documents. In the event of any discrepancy among the terms of the various Contract Documents, the provision most beneficial to the County, as determined by the County in its sole discretion, shall govern.

The County will issue a Notice to Proceed, which Notice to Proceed shall state the dates for beginning Work and for achieving Final Completion of Work. Work shall commence within five (5) days of County's issuance of the Notice to Proceed.

Unless otherwise approved, the Contractor shall perform its obligations under this Agreement as expeditiously as is consistent with reasonable skill and care and the orderly progress of the Work.

Section 4. Contract Periods; Liquidated Damages

A. Contract Periods/Contract Term. Contractor warrants and represents that it will perform its Work in a prompt and timely manner, which shall not impose delays on the progress of the Work. The Contractor shall commence Work pursnant to this Agreement on or before a date to be specified on a written "Notice to Proceed" provided by the County (the "Commencement Date"), and the Parties intend that all Work shall be completed on or before July 1st, 2016. Every effort will be made by Contractor to shorten this period. If the Term of this Agreement is longer than one year, the Parties agree that this Agreement, as required by O.C.G.A. § 36-60-13, shall terminate absolutely and without further obligation on the part of the County on December 31 each calendar year of the Term **[o unless this box is checked, in which case the Agreement shall terminate absolutely and without further obligation on the part of the County at the end of the County's fiscal year each year of the Term]**, and further, that this Agreement shall automatically renew on January 1 of each subsequent calendar year **[☐ unless this box is checked, in which case the Agreement shall automatically renew on the first day of each subsequent County fiscal year of the Term]** absent the

County's provision of written notice of non-renewal to Contractor at least five (5) days prior to the end of the then current calendar or fiscal year, as applicable. Title to any supplies, materials, equipment, or other personal property shall remain in Contractor until fully paid for by the County.

B. **Liquidated Damages.** The County and Contractor recognize that time is of the essence of this Agreement and that County will suffer financial loss if the Work is not completed in accordance with the deadlines specified in Section 4(A) above and within the Contract Documents. The County and Contractor also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by the County if the Work is not completed within the specified times. Accordingly, instead of requiring any such proof, the County and Contractor agree that, as liquidated damages for delay (but not as a penalty), the Contractor shall pay to the County: $500 for each and every day that expires after the deadlines provided herein, or agreed to in writing by both Parties in a change order.

C. Expediting Completion. The Contractor is accountable for completing the Work within the time period provided in the Contract Documents, or as otherwise amended by a change order. If, in the judgment of the County, the Work is behind schedule and the rate of placement of work is inadequate to regain scheduled progress to insure timely completion of the entire Work or a separable portion thereof, the Contractor, when so informed by the County, shall immediately take action to increase the rate of work placement by:

(1) An increase in working forces;
(2) An increase in equipment or tools;
(3) An increase in hours of work or number of shifts;
(4) Expediting delivery of materials; and/or
(5) Other action proposed if acceptable to County.

Within five (5) calendar days after such notice from County that the Work is behind schedule, the Contractor shall notify the County in writing of the specific measures taken and/or planned to increase the rate of progress. The Contractor shall include an estimate as to the date of scheduled progress recovery. Should the County deem the plan of action inadequate, the Contractor shall take additional steps to make adjustments as necessary to its plan of action until it meets with the County's approval.

Section 5. Contractor's Compensation; Time and Method of Payment

A. The total amount paid under this Agreement as compensation for Work performed and reimbursement for costs incurred shall not, in any case, exceed $_____. , except as outlined in Section 6 below (the "Contract Price"). The compensation for Work performed shall be based upon _____[specify hourly rate, flat fee, or other basis].

B. County agrees to pay the Contractor for the Work performed and costs incurred by Contractor upon certification by_____(contract administrator) and the County that the Work was actually performed and costs actually incurred in accordance with this Agreement. Compensation for Work performed and reimbursement for costs incurred shall be paid to the Contractor upon receipt and approval by the County of invoices setting forth in detail the Work performed and costs incurred.

Invoices shall be submitted on a monthly basis, and such invoices shall reflect charges incurred versus charges budgeted. Each invoice shall be accompanied by an Interim Waiver and Release upon Payment (or a Waiver and Release upon Final Payment in the case of the invoice for final payment) procured by the Contractor from all subcontractors in accordance with O.C.G.A. § 44-14-366.

C. The Contractor through each invoice (except the final invoice) may request payment for no more than ninety percent (90%) of that portion of the Work completed during the term covered by each invoice as agreed upon by _____ (contract administrator) or the County. The final payment issued by the County shall include all amounts retained by the County under this paragraph, subject to any deviations in the Work or change orders executed pursuant to Section 6 of this Agreement.

D. Any material deviations in tests or inspections performed, or times or locations required to complete such tests or inspections, and like deviations from the Work described in this Agreement shall be clearly communicated to the County *before charges are incurred* and shall be handled through change orders, as described in Section 6 below. The County shall pay the Contractor within thirty (30) days after approval of the invoice by County staff, less any retainage as described in this Section. No payments will be made for unauthorized work. Payment will be sent to the designated address by U. S. Mail only; payment will not be hand- delivered, though the Contractor may arrange to pick up payments directly from the County or may make written requests for the County to deliver payments to the Contractor by Federal Express delivery at the Contractor's expense.

Section 6. **Change Orders**

A. "Change order" means a written modification of the Contract Documents, signed by the County and the Contractor.

B. The County reserves the right to order changes in the Work to be performed under this Agreement by altering, adding to, or deducting from the Work. All such changes shall be incorporated in written change orders and executed by the Contractor and the County. Such change orders shall specify the changes ordered and any necessary adjustment of compensation and completion time. If the Parties cannot reach an agreement on the terms for performing the changed work within a reasonable time to avoid delay or other unfavorable impacts as determined by the County in its sole discretion, the County shall have the right to determine reasonable terms, and the Contractor shall proceed with the changed work.

C. Any work added to the scope of this Agreement by a change order shall be executed under all the applicable conditions of this Agreement. No claim for additional compensation or extension of time shall be recognized, unless contained in a written change order duly executed on behalf of the County and the Contractor.

D. The County Manager has authority to execute without further action of the Jackson County Board of Commissioners, any number of change orders so long as their total effect does not materially alter the terms of this Agreement or materially increase the total amount to be paid under this Agreement, as set forth in Section 5 above. Any such change orders materially altering the terms of this Agreement, or increasing the total amount to be paid under this Agreement in excess of $25,000.00, must be approved by the resolution of the Jackson County Board of Commissioners.

Section 7. Covenants of Contractor.

A. Ethics Code

Contractor agrees that it shall not engage in any activity or conduct that would result in a violation of the Jackson County Code of Ethics or any other similar law or regulation.

B. Time is of the Essence

Contractor specifically acknowledges that TIME IS OF THE ESSENCE for completion of the Project.

C. Expertise of Contractor

Contractor accepts the relationship of trust and confidence established between it and the County, recognizing that the County's intention and purpose in entering into this Agreement is to engage an entity with the requisite capacity, experience, and professional skill and judgment to provide the Work in pursuit of the timely and competent completion of the Work undertaken by Contractor under this Agreement. The Contractor agrees to use its best efforts, skill, judgment, and abilities to perform its obligations and to further the interests of County and the Project in accordance with County's requirements and procedures.

Contractor represents that it has familiarized itself with the nature and extent of the Contract Documents, the Work, work site(s), locality, and all local conditions, laws and regulations that in any manner may affect cost, progress, performance, or furnishing of the Work. Contractor further represents and agrees that it has correlated the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents. Contractor represents that it has given the County written notice of all conflicts, errors, or discrepancies that the Contractor has discovered in the Contract Documents, and the written resolution thereof by the County is acceptable to the Contractor.

Contractor agrees that it will perform its services in accordance with the usual and customary standards of the Contractor's profession or business and in compliance with all applicable federal, state, and local laws, regulations, codes, ordinances, or orders applicable to the Project. Further, the Contractor agrees to bear the full cost of correcting the Contractor's negligent or improper Work, the negligent or improper work of its contractors and subcontractors, and any harm caused by such negligent Work.

The Contractor's duties shall not be diminished by any approval by the County of Work completed or produced; nor shall the Contractor be released from any liability by any approval by the County of Work completed or produced, it being understood that the County is ultimately relying upon the Contractor's skill and knowledge in performing the Work required under the Contract Documents.

In the event that during the course of performing the Work, the Contractor discovers or reasonably should discover that there exists in any drawings, specifications, plans, sketches, instructions, information, requirements, procedures, and other data supplied to the Contractor (by the County or any other party) that is, in the Contractor's opinion, unsuitable, improper, or inaccurate for the purposes for which the document or data is furnished, Contractor shall

promptly inform the County of such inaccuracies, impropriety, issues or concerns.

D. Budgetary Limitations

Contractor agrees and acknowledges that budgetary limitations are not a justification for breach of sound principals of Contractor's profession and industry. Contractor shall take no calculated risk in the performance of the Work. Specifically, Contractor agrees that, in the event it cannot perform the Work within the budgetary limitations established without disregarding sound principals of Contractor's profession and industry, Contractor will give written notice immediately to the County.

E. County's Reliance on the Work

The Contractor acknowledges and agrees that the County does not undertake to approve or pass upon matters of expertise of the Contractor and that therefore, the County bears no responsibility for Contractor's Work performed under this Agreement. The Contractor acknowledges and agrees that the acceptance of Work by the County is limited to the function of determining whether there has been compliance with what is required to be produced under this Agreement. The County will not, and need not, inquire into adequacy, fitness, suitability or correctness of Contractor's performance. Contractor further agrees that no approval of designs, plans, or specifications by any person, body, or agency shall relieve Contractor of the responsibility for adequacy, fitness, suitability, and correctness of Contractor's Work under professional and industry standards, or for performing services under this Agreement in accordance with sound and accepted professional and industry principals.

F. Contractor's Reliance on Submissions by the County

Contractor must have timely information and input from the County in order to perform the Work required under this Agreement. Contractor is entitled to rely upon information provided by the County, but Contractor shall be required to provide immediate written notice to the County if Contractor knows or reasonably should know that any information provided by the County is erroneous, inconsistent, or otherwise problematic.

G. Contractor's Representative

_____ shall be authorized to act on Contractor's behalf with respect to the Work as Contractor's designated representative.

H. Assignment of Agreement

The Contractor covenants and agrees not to assign or transfer any interest in, nor delegate any duties of this Agreement, without the prior express written consent of the County. As to any approved subcontractors, the Contractor shall be solely responsible for reimbursing them, and the County shall have no obligation to them.

I. Responsibility of Contractor and Indemnification of County

The Contractor covenants and agrees to take and assume all responsibility for the Work rendered in connection with this Agreement. The Contractor shall bear all losses and damages directly or indirectly resulting to it and/or the County on account of the performance or character of the Work

rendered pursuant to this Agreement. Contractor shall defend, indemnify, and hold harmless the County, its officers, boards, commissions, elected and appointed officials, employees, servants, volunteers and agents (hereinafter referred to as "County Parties") from and against any and all claims, injuries, suits, actions, judgments, damages, losses, costs, expenses, and liability of any kind whatsoever, including but not limited to, attorney's fees and costs of defense (hereinafter "Liabilities"), which may be the result of willful, negligent, or tortious conduct arising out of the Work, performance of contracted services, or operations by the Contractor, any subcontractor, anyone directly or indirectly employed by the Contractor or subcontractor, or anyone for whose acts the Contractor or subcontractor may be liable, regardless of whether or not the negligent act is caused in part by a party indemnified hereunder. This indemnity obligation does not include Liabilities caused by or resulting from the sole negligence of the County or County Parties. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this provision.

In any and all claims against the County or County Parties, by any employee of the Contractor, any subcontractor, anyone directly or indirectly employed by the Contractor or subcontractor, or anyone for whose acts the Contractor or subcontractor may be liable, the indemnification obligation set forth in this provision shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any subcontractor under workers' or workmen's compensation acts, disability benefit acts, or other employee benefit acts. This obligation to indemnify, defend, and hold harmless the County and County Parties shall survive expiration or termination of this Agreement, provided that the claims are based upon or arise out of actions that occurred during the performance of this Agreement.

J. Independent Contractor

Contractor hereby covenants and declares that it is engaged in an independent business and agrees to perform the Work as an independent contractor and not as the agent or employee of the County. The Contractor agrees to be solely responsible for its own matters relating to the time and place the services are performed; the instrumentalities, tools, supplies, and/or materials necessary to complete the Work; hiring of subcontractors, agents, or employees to complete the Work; and the payment of employees, including compliance with Social Security, withholding, and all other regulations governing such matters. The Contractor agrees to be solely responsible for its own acts and those of its subordinates, employees, and subcontractors during the life of this Agreement. Any provisions of this Agreement that may appear to give the County the right to direct Contractor as to the details of the services to be performed by Contractor or to exercise a measure of control over such services will be deemed to mean that Contractor shall follow the directions of the County with regard to the results of such services only.

Inasmuch as the County and the Contractor are independent of each other, neither has the authority to bind the other to any third person or otherwise to act in any way as the representative of the other, unless otherwise expressly agreed to in writing signed by both parties hereto. The Contractor agrees not to represent itself as the County's agent for any purpose to any party or to allow any employee of the Contractor to do so, unless specifically authorized, in advance and in writing, to do so, and then only for the limited purpose stated in such authorization. The Contractor shall assume full liability for any contracts or agreements the Contractor enters into on behalf of the County without the express knowledge and prior written consent of the County.

K. Insurance

(1) Requirements: The Contractor shall have and maintain in full force and effect for the duration of this Agreement, insurance insuring against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Work by the Contractor, its agents, representatives, employees or subcontractors. All policies shall be subject to approval by the County Attorney to form and content. These requirements are subject to amendment or waiver if so approved in writing by the County Manager.

(2) Minimum Limits of Insurance: Contractor shall maintain the following insurance policies with limits no less than:

(a) Comprehensive General Liability policy of $1,000,000 (one million dollars) combined single limit per occurrence $2,000,000 (two million dollars) aggregate for bodily and personal injury, sickness, disease or death, injury to or destruction of property, including loss of use resulting therefrom.

(b) Comprehensive Automobile Liability policy (covering owned, non- owned, and hired automobiles) of $1,000,000 (one million dollars) combined single limit per occurrence $2,000,000 (two million dollars) aggregate for bodily and personal injury, sickness, disease or death, injury to or destruction of property, including loss of use resulting therefrom.

(c) Professional Liability policy of $1,000,000 (one million dollars) for claims arising out of professional services and caused by the Contractor's errors, omissions, or negligent acts.

(d) Workers' Compensation policy with limits as required by the State of Georgia and Employers Liability limits of $1,000,000 (one million dollars) per accident.

(3) Deductibles and Self-Insured Retentions: Any deductibles or self-insured retentions must be declared to and approved by the County in writing.

(4) Other Insurance Provisions: The policy is to contain, or be endorsed to contain, the following provisions:

(a) General Liability and Automobile Liability Coverage.

(i) The County and County Parties are to be covered as insureds as respects: liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, leased, or used by the Contractor; automobiles owned, leased, hired, or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the County or County Parties.

(ii) The Contractor's insurance coverage shall be primary noncontributing insurance as respects to any other insurance or self-insurance available to the County or County Parties. Any insurance or self-insurance maintained by the County or County Parties shall be in excess of the Contractor's insurance and shall not contribute with it.

(iii) Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the County and County Parties.

(iv) Coverage shall state that the Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought.

(v) Coverage shall be provided on a "pay on behalf" basis, with defense costs payable in addition to policy limits. There shall be no cross liability exclusion.

(vi) The insurer shall agree to waive all rights of subrogation against the County and County Parties for losses arising from work performed by the Contractor for the County.

(b) Workers' Compensation Coverage: The insurer providing Workers' Compensation Coverage will agree to waive all rights of subrogation against the County and County Parties for losses arising from work performed by the Contractor for the County.

(c) Builder's Risk Insurance. Contractor shall provide a Builder's Risk Insurance Policy to be made payable to the County and Contractor, as their interests may appear. The policy amount shall be equal to 100% of the Contract price, written on a Builder's Risk "All Risk," or its equivalent. The policy shall provide, or be endorsed to provide, as follows: "The following may occur without diminishing, changing, altering or otherwise affecting the coverage and protection afforded the insured under this policy: i) Equipment may be delivered to the insured premises and installed in place ready for use; and ii) Partial or complete occupancy by Owner; and iii) Performance of Work in connection with construction operations insured by the Owner, by agents or lessees, or other Contractors of the Owner or Using Agency."

(d) All Coverages:

(i) Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the County.

(ii) Policies shall have concurrent starting and ending dates.

(5) Aceeptability of Insurers: Insurance is to be placed with insurers licensed to do business in Georgia and with an A.M. Bests' rating of no less than A: VII.

(6) Verification of Coverage: Contractor shall furnish the County with certificates of insurance and endorsements to the policies evidencing coverage required by this Section prior to the start of work. The certificate of insurance and endorsements shall be on a form utilized by Contractor's insurer in its normal course of business and shall be received and approved by the County prior to execution of this Agreement by the County. The County reserves the right to require complete, certified copies of all required insurance policies, at any time. The Contractor shall provide proof that any expiring coverage has been renewed or replaced at least two (2) weeks prior to the expiration of the coverage.

(7) Subcontractors: Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverage for snbcontractors shall be subject to all of the requirements stated in this Agreement, inclnding but not limited to naming the County and Connty Parties as additional insureds.

(8) Claims-Made Policies: Contractor shall extend any claims-made insurance policy for at least six (6) years after termination or final payment under the Agreement, whichever is later.

(9) Connty as Additional Insured and Loss Payee: The County and County Parties shall be named as additional insureds and loss payees on all policies required by this Agreement, except the County need not be named as an additional insured and loss payee on any Professional Liability policy or Workers' Compensation policy.

L. Bonds

The Contractor shall provide Performance and Payment bonds on the forms attached hereto as Exhibit "C" and with a surety licensed to do business in Georgia and listed on the Treasury Department's most current list (Circular 570 as amended). Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising nnder the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

M. Employment of Unauthorized Aliens Prohibited – *E-Verify Affidavit*

It is the policy of County that unauthorized aliens shall not be employed to perform work on County contracts involving the physical performance of services. Therefore, the County shall not enter into a contract for the physical performance of services within the State of Georgia unless:

(1) the Consultant shall provide evidence on County-provided forms, attached hereto as Exhibits "F" and "G" (affidavits regarding compliance with the E-Verify program to be sworn under oath under criminal penalty of false swearing pursuant to O.C.G.A. § 16-10-71), that it and Consultant's subeontractors have conducted a verification, under the federal Employment Eligibility Verification ("EEV" or "E-Verify") program, of the social security numbers, or other identifying information now or hereafter accepted by the E-Verify program, of all employees who will perform work on the County contract to ensure that no unauthorized aliens will be employed, **or**

(2) the Consultant provides evidence that it is not required to provide an affidavit because it is licensed pursuant to Title 26 or Title 43 or by the State Bar of Georgia and is in good standing as of the date when the contract for services is to be rendered.

The Consultant hereby verifies that it has, prior to executing this Agreement, executed a notarized affidavit, the form of which is provided in Exhibit "F", and submitted such affidavit to County or provided the County with evidence that it is not required to provide such an affidavit because it is licensed and in good standing as noted in subsection (2) above. Further, Consultant hereby agrees to comply with the requirements of the federal Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603, O.C.G.A. § 13-10-91 and Rule 300-10-1-.02.

In the event the Consultant employs or contracts with any subcontractor(s) in connection with the covered contract, the Consultant agrees to secure from such subcontractor(s) attestation of the subcontractor's compliance with O.C.G.A. § 13-10-91 and Rule 300-10-1-.02 by the subcontractor's execution of the subcontractor affidavit, the form of which is attached hereto as Exhibit "G", which subcontractor affidavit shall become part of the contractor/subcontractor agreement, or evidence that the subcontractor is not required to provide such an affidavit because it is licensed and in good standing as noted in subsection (2) above. If a subcontractor affidavit is obtained, Consultant agrees to provide a completed copy to the County within five (5) business days of receipt from any subcontractor.

Where Consultant is required to provide an affidavit pursuant to O.C.G.A. § 13- 10-91, the County Manager or his/her designee shall be authorized to conduct an inspection of the Consultant's and Consultant's subcontractors' verification process at any time to determine that the verification was correct and complete. The Consultant and Consultant's subcontractors shall retain all documents and records of their respective verification process for a period of three (3) years following completion of the contract. Further, where Consultant is required to provide an affidavit pursuant to O.C.G.A. § 13-10-91, the County Manager or his/her designee shall further be authorized to conduct periodic inspections to ensure that no County Consultant or Consultant's subcontractors employ unauthorized aliens on County contracts. By entering into a contract with the County, the Consultant and Consultant's subcontractors agree to cooperate with any such investigation by making their records and personnel available upon reasonable notice for inspection and questioning. Where a Consultant or Consultant's subcontractors are found to have employed an unauthorized alien, the County Manager or his/her designee may report same to the Department of Homeland Security. The Consultant's failure to cooperate with the investigation may be sanctioned by termination of the contract, and the Consultant shall be liable for all damages and delays occasioned by the County thereby.

Consultant agrees that the employee-number category designated below is applicable to the Consultant. [Information only required if a contractor affidavit is required pursuant to O.C.G.A. § 13-10-91.]

_____ 500 or more employees.

_____ 100 or more employees.

____ Fewer than 100 employees.

Consultant hereby agrees that, in the event Consultant employs or contracts with any subcontractor(s) in connection with this Agreement and where the subcontractor is required to provide an affidavit pursuant to O.C.G.A. § 13-10-91, the Consultant will secure from the

subcoutractor(s) such subcontractor(s') indication of the above employee-numher category that is applicable to the subcontractor.

The above requirements shall be in addition to the requirements of State and federal law, and shall be construed to bc in conformity with those laws.

N. Records, Rcports and Audits

(1) Records:

(a) Rccords shall bc cstablished and maintained by the Contractor in accordance with requirements prescribed by the County with rcspect to all matters covered by this Agreement. Except as otherwise authorized, such records shall be maintained for a period of three years from the date that final payment is made under this Agreement. Furthermore, records that are the subject of audit findings shall he retained for three years or until such audit findings have been resolved, whichever is later.

(b) All costs shall be supported by properly executed payrolls, time records, invoices, contracts, or vouchers, or other official documentation evidencing in proper detail thc naturc and propriety of the charges. All checks, payrolls, invoices, contracts, vouchers, orders, or other accounting documents pertaining in whole or in part to this Agreement shall be clearly identified and readily accessible.

(2) Reports and Information: Upon request, the Contractor shall furnish to the County any and all statements, records, reports, data, and information related to matters covered hy this Agreement in the form requested by the County.

(3) Audits and Inspections: At any time during normal business hours and as often as the County may deem necessary, there shall be made available to the County for examination all records with respect to all matters covered by this Agreement. The Contractor will permit the County to audit, examine, and make excerpts or transcripts from such reeords, and to audit all contracts, invoices, materials, payrolls, records of personnel, conditions of employment, and/or data relating to all matters covered by this Agreement.

O. Confidentiality

Contractor acknowledges that it may receive confidential information of the County and that it will protect the confidentiality of any such confidential information and will require any of its subcontractors, contractors, and/or staff to likewise protect such confidential information. The Contractor agrees that confidential information it receives or such reports, information, opinions, or conclusions that Contractor creates under this Agreement shall not be made available to, or discussed with, any individual or organization, including the news media, without prior written approval of the County. Contractor shall exercise reasonable precautions to prevent the unauthorized disclosure and use of County information whether specifically deemed confidential or not.

Contractor acknowledges that the County's disclosure of documentation is governed by Georgia's Open Record's Act, and Contractor further acknowledges that, if Contractor submits records containing trade secret information and if Contractor wishes to keep such records confidential, Contractor must submit and attach to such records an affidavit affirmatively declaring that specific information in the records constitutes trade secrets pursuant to Article 27 of Chapter 1 of Title 10, and the Parties shall follow the requirements of O.C.G.A. § 50-18-72(a)(34) related thereto.

P. Licenses, Certifications and Permits

The Contractor covenants and declares that it has obtained all diplomas, certificates, licenses, permits, or the like required by any and all national, state, regional, county, local boards, agencies, commissions, committees or other regulatory bodies in order to perform the Work contracted for under this Agreement; provided that some permits or licenses related to the Project may be obtained as part of the Work and shall be obtained as required. All work performed by Contractor under this Agreement shall be in accordance with applicable legal requirements and shall meet the standard of quality ordinarily expected of competent professionals. The Contractor shall furnish copies of all such permits, licenses, or approvals to the County within ten (10) days after issuance.

Q. Key Personnel

All of the individuals identified in Exhibit "I" are necessary for the successful completion of the Work due to their unique expertise and depth and breadth of experience. There shall be no change in Contractor's Project Manager or members of the project team, as listed in Exhibit "I", without written approval of the County. Contractor recognizes that the composition of this team was instrumental in the County's decision to award the work to Contractor and that compelling reasons for substituting these individuals must be demonstrated for the County's consent to be granted. Any substitutes shall be persons of comparable or superior expertise and experience. Failure to comply with the provisions of this Section shall constitute a material breach of Contractor's obligations under this Agreement and shall be grounds for termination. Contractor shall not subcontract with any third party for the performance of any portion of the Work without the prior written consent of the County. Contractor shall be solely responsible for any such subcontractors in terms of performance and compensation.

R. Authority to Contract

The Contractor covenants and declares that it has obtained all necessary approvals of its board of directors, stockholders, general partners, limited partners, or similar authorities to simultaneously execute and bind Contractor to the terms of this Agreement, if applicable.

S. Ownership of Work

All reports, designs, drawings, plans, specifications, schedules, work product, and other materials prepared or in the process of being prepared for the Work to be performed by the Contractor ("Materials") shall be the property of the County, and the County shall be entitled to full access and copies of all such Materials. Any such Materials remaining in the hands of the Contractor or subcontractor upon completion or termination of the Work shall be delivered immediately to the County. The Contractor assumes all risk of loss, damage or destruction of or to such Materials. If any Materials are lost, damaged, or destroyed before final delivery to

the County, the Contractor shall replace them at its own expense. Any and all copyrightable subject matter in all Materials is hereby assigned to the County, and the Contractor agrees to execute any additional documents that may be necessary to evidence such assignment.

T. Meetings

The Contractor is required to meet with the County's personnel, or designated representatives, to resolve technical or contractual problems that may occur during the term of the contract at no additional cost to the County. Meetings will occur as problems arise and will be coordinated by the County. The Contractor will be given a minimum of three full working days notice of meeting date, time, and location. Face-to-face meetings are desired. However, at the Contractor's option and expense, a conference call meeting may be substituted. Consistent failure to participate in problem resolution meetings, two consecutive missed or rescheduled meetings, or to make a good faith effort to resolve problems, may result in termination of the contract.

U. Nondiscrimination

In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, and all other provisions of Federal law, the Contractor agrees that, during performance of this Agreement, Contractor, for itself, its assignees and successors in interest, will not discriminate against any employee or applicant for employment, any subcontractor, or any supplier because of race, color, creed, national origin, gender, age or disability. In addition, Contractor agrees to comply with all applicable implementing regulations and shall include the provisions of this Section 7(U) in every subcontract for services contemplated under this Agreement.

Section 8. Covenants of the County

A. Right of Entry

The County shall provide for right of entry for Contractor to _____ in order for Contractor to complete the Work.

Section 9. Warranty

A. Warranty

Except as may be otherwise specified or agreed, the Contractor shall repair or replace all defects in materials, equipment, or workmanship appearing within _____ year(s) from the date of Final Completion at no additional cost to the County. Further, Contractor shall provide all maintenance services, including parts and labor, for _____ year(s) from the date of Final Completion at no

additional cost to the County. An inspection shall be conducted by the County or its representative(s) near the completion of the_____-year general warranty period to identify any issues that must be resolved by the Contractor. After the expiration of such warranty period, County shall be responsible for repairing issues resulting from normal wear and tear and shall be responsible for general maintenance of the equipment; however, expiration of such warranty period shall not affect the Contractor's continued liability under an implied warranty of merchantability and fitness. All other warranties implied by law, including fitness for a particular purpose and suitability, are hereby preserved and shall apply in full force and effect beyond the_____-year warrant period. County may purchase additional maintenance services from the Contractor upon a written proposal for such services being executed by authorized representatives of both Parties, and upon execution, such proposal for additional services shall be incorporated herein by this reference.

Section 10. Termination

A. The County may terminate this Agreement for convenience at any time upon providing written notice thereof to Contractor at least seven (7) calendar days in advance of the termination date. In the event of a termination for convenience, Contractor shall take immediate steps to terminate work as quickly and effectively as possible and shall terminate all commitments to third-parties, unless otherwise instructed by the County. Provided that no damages are due to the County for Contractor's failure to perform in accordance with this Agreement, the County shall pay Contractor for work performed to date in accordance with Section 5 herein. The County shall have no further liability to Contractor for such termination. Further, at its sole discretion, the County may pay Contractor for additional value received as a result of Contractor's efforts, but in no case shall said payment exceed any remaining unpaid portion of the Contract Price.

B. The County may terminate this Agreement for cause if Contractor breaches any material provision of this Agreement. The County shall give Contractor seven (7) days written notice of its intent to terminate the Agreement and the reasons therefore, and if Contractor, or its Surety, fails to cure the default within that period, the termination shall take place without further notice. The County shall then make alternative arrangements for completion of the Project. The County will make no payment to the Contractor or its Surety until all costs of completing the Project are paid. If the unpaid balance of the amount due the Contractor, according to this Agreement, exceeds the cost of finishing the Project, County shall provide payment to the Contractor (or its Surety) for services rendered and expenses incurred prior to the termination date, provided that such payment shall not exceed the unpaid balance of the amount otherwise payable under this Agreement minus the cost of completing the Project. If the costs of completing the Project exceed the unpaid balance, the Contractor or its Surety will pay the difference to the County.

The County reserves the right in termination for cause to take assignment of all contracts between the Contractor and its subcontractors, vendors, and suppliers. The County will promptly notify the Contractor of the contracts the County elects to assume. Upon receipt of such notice, the Contractor shall promptly take all steps necessary to effect such assignment.

C. If the County terminates this Agreement for cause, and it is later determined that the County did not have grounds to do so, the termination will be treated as a termination for convenience under the terms of Section 10(A) above.

D. Upon termination, the Contractor shall: (1) promptly discontinue all services affected, unless the notice directs otherwise; and (2) promptly deliver to the County all data, drawings, reports, summaries, and such other information and materials as may have been generated or used by the Contractor in performing this Agreement, whether completed or in process, in the form specified by the County.

E. The Contractor shall have no right to terminate this agreement prior to completion of the Work, except in the event of the County's failure to pay the Contractor within thirty (30) days of Contractor providing the County with notice of a delinquent payment and an opportunity to cure.

F. The rights and remedies of the County and the Contractor provided in this Section are in addition to any other rights and remedies provided under this Agreement or at law or in equity.

Section 11. Construction Administration

A. _____'s (contract administrator) administration of the construction of the Project shall be as described in Exhibit "J." The Contractor agrees to the construction administration provisions contained in Exhibit "J."

B. _____'s (contract administrator) decisions in matters relating to aesthetic effect shall be final if consistent with the intent of this Agreement.

C. THE DUTIES, OBLIGATIONS, AND RESPONSIBILITIES OF THE CONTRACTOR UNDER THIS AGREEMENT SHALL IN NO MANNER WHATSOEVER BE CHANGED, ALTERED, DISCHARGED, RELEASED, OR SATISFIED BY ANY DUTY, OBLIGATION, OR RESPONSIBILITY OF _____(CONTRACT ADMINISTRATOR). THE CONTRACTOR IS NOT A THIRD-PARTY BENEFICIARY OF ANY AGREEMENT BY AND BETWEEN THE COUNTY AND_____ (CONTRACT ADMINISTRATOR). IT IS EXPRESSLY ACKNOWLEDGED AND AGREED THAT THE DUTIES OF THE CONTRACTOR TO THE COUNTY ARE INDEPENDENT OF, AND ARE NOT DIMINISHED BY, ANY DUTIES OF _____(CONTRACT ADMINISTRATOR) TO THE COUNTY.

Section 12. Miscellaneous

A. Defined Terms. Terms used in this Agreement shall have their ordinary meaning, unless otherwise defined below or elsewhere in the Contract Documents.

(i) "Final Completion" means when the Work has been completed in accordance with terms and conditions of the Contract Documents.

B. Complete Agreement. This Agreement, including the Contract Documents, constitutes the complete agreement between the Parties and supersedes any and all other agreements, either oral or in writing, between the Parties with respect to the subject matter of this Agreement. No other agreement, statement, or promise relating to the subject matter of this Agreement not contained in this Agreement or the Contract Documents shall be valid and binding. This Agreement may be modified or amended only by a written document signed by representatives of both Parties with appropriate authorization.

C. Governing Law. This Agreement shall he governed by and construed under the laws of the State of Georgia. If any action at law or in equity is brought to enforce or interpret the provisions of this Agreement, the rules, regulations, statutes and laws of the State of Georgia will control. Any action or suit related to this Agreement shall be brought in the Superior Court of Jackson County, Georgia.

D. Counterparts. This Agreement may be executed in any number of counterparts, each of wbicb shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

E. Invalidity of Provisions: Severability. Should any article(s) or section(s) of this Agreement, or any part thereof, later be deemed unenforceable by a court of competent jurisdiction, the offending portion of the Agreement should be severed, and the remainder of this Agreement shall remain in full force and effect to the extent possible as if this Agreement had been executed with the invalid portion hereof eliminated, it being the intention of the parties that they would have executed the remaining portion of this Agreement without including any such part, parts, or portions which may for any reason be hereafter declared invalid.

F. Business License. Prior to commencement of the Work to be provided hereunder, Contractor shall apply to the County for a business license, pay the applicable business license fee, and maintain said business license during the term of this Agreement.

G. Notices.

(1) Communications Relating to Day-to-Day Activities.

All communications relating to the day-to-day activities of the Work shall be exchanged between _____ for the County and _____ for the Contractor.

(2) Official Notices.

All other notices, requests, demands, writings, or correspondence, as required by this Agreement, shall be in writing and shall be deemed received, and shall be effective, when (1) personally delivered, or (2) on the third day after the postmark date when mailed by certified mail, postage prepaid, return receipt requested, or
(3) upon actual delivery when sent *via* national overnight commercial carrier to the Parties at the addresses given below, or at a substitute address previously furnished to the other Parties by written notice in accordance herewith:

NOTICE TO THE COUNTY shall be sent to:

County Manager
C/o Jackson County Board of Commissioners

_____

_____

NOTICE TO CONTRACTOR shall be sent to:

_____
_____
_____

Future changes in address shall be effective only upon written notice being given by the County to the Contractor or by the Contractor to the County Manager via one of the delivery methods described in this Section.

H. Waiver of Agreement. No failure by the County to enforce any right or power granted under this Agreement, or to insist upon strict compliance by Contractor with this Agreement, and no custom or practice of the County at variance with the terms and conditions of this Agreement shall constitute a general waiver of any future breach or default or affect the County's right to demand exact and strict compliance by Contractor with the terms and conditions of this Agreement.

I. Sovereign Immunity. Nothing contained in this Agreement shall be construed to be a waiver of the County's sovereign immunity or any individual's qualified good faith or official immunities.

J. No Personal Liability. Nothing herein shall be construed as creating any individual or personal liability on the part of any County Party. No County Party shall be personally liable to the Contractor or any successor in interest in the event of any default or breach by the County or for any amount which may become due to the Contractor or successor or on any obligation under the terms of this Agreement. Likewise, Contractor's performance of services under this Agreement shall not subject Contractor's individual employees, officers, or directors to any personal liability. The Parties agree that their sole and exclusive remedy, claim, demand, or suit shall be directed and/or asserted only against Contractor or the County, respectively, and not against any employee, officer, director, or elected or appointed official.

K. Force Majeure. Neither the County nor Contractor shall be liable for their respective non-negligent or non-willful failure to perform or shall be deemed in default with respect to the failure to perform (or cure a failure to perform) any of their respective duties or obligations under this Agreement or for any delay in such performance due to: (i) any cause beyond their respective reasonable control; (ii) any act of God; (iii) any change in applicable governmental rules or regulations rendering the performance of any portion of this Agreement legally impossible; (iv) earthquake, fire, explosion, or flood; (v) strike or labor dispute, excluding strikes or labor disputes by employees and/or agents of CONTRACTOR; (vi) delay or failure to act by any governmental or military authority; or (vii) any war, hostility, embargo, sabotage, civil disturbance, riot, insurrection, or invasion. In such event, the time for performance shall be extended by an amount of time equal to the period of delay caused by such acts, and all other obligations shall remain intact.

L. Headings. All headings herein are intended for convenience and ease of reference purposes only and in no way define, limit, or describe the scope or intent thereof, or of this Agreement, nor in any way affect this Agreement.

M. No Third Party Rights. This Agreement shall be exclusively for the benefit of the Parties and shall not provide any third parties with any remedy, claim, liability, reimbursement, cause of action, or other right.

N. Successors and Assigns. Each Party binds itself, its partners, successors, assigns, and legal representatives to the other Party hereto, its partners, successors, assigns, and legal representatives with respect to all covenants, agreements, and obligations contained in the Contract Documents.

IN WITNESS WHEREOF, the County and the Contractor have executed this Agreement effective as of the date first above written.

[SIGNATURES ON FOLLOWING PAGE]

CONTRACTOR: _____

By: _____

_____,

[NAME AND TITLE]

[CORPORATE SEAL]

SIGNED, SEALED, AND DELIVERED
in the presence of:

_____
Witness

_____
Notary Public

[NOTARY SEAL]

My Commission Expires:

_____

JACKSON COUNTY, GEORGIA

_____

_____, _____

[NAME AND TITLE]

[COUNTY SEAL]

SIGNED, SEALED, AND DELIVERED
in the presence of:

_____
Witness

_____
Notary Public

[NOTARY SEAL]

My Commission Expires:

_____

EXHIBIT "A"

[INSERT REQUEST FOR_____(PROPOSALS/BIDS)]

EXHIBIT "B"

[INSERT_____(PROPOSAL/BID) DOCUMENTS FROM CONTRACTOR]

EXHIBIT "C"

PERFORMANCE BOND

JACKSON COUNTY

KNOW ALL MEN BY THESE PRESENTS THAT_____(as CONTRACTOR, hereinafter referred to as the "Principal"), and _____ (as SURETY COMPANY, hereinafter referred to as the "CONTRACTOR'S SURETY"), are held and firmly bound uuto Jackson County, Georgia (as OWNER, hereinafter referred to as the "County"), for the use and benefit of any "Claimant," as hereinafter defined, in the sum of_____ Dollars ($_____.), lawful money of the United States of America, for the payment of which the Principal and the Contractor's Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered, or is about to enter, into a certain written agreement with the County, dated the_____of_____, 20___which is incorporated herein by reference in its entirety (hereinafter referred to as the "CONTRACT"), for the construction of a project known as _____, (hereinafter referred to as "the PROJECT").

NOW THEREFORE, the conditions of this obligation are as follows:

1. That if the Principal shall fully and completely perform each and all of the terms, provisions and requirements of the Contract, including and during the period of any warranties or guarantees required thereunder, and all modifications, amendments, changes, deletions, additions, and alterations thereto that may hereafter be made, and if the Principal and the Contractor's Surety shall indemnify and hold harmless the County from any and all losses, liability and damages, claims, judgments, liens, costs and fees of every description, including but not limited to, any damages for delay, which the County may incur, sustain or

suffer by reason of the failure or default on the part of the Principal in the performance of any and all of the terms, provisions, and requirements of the Contract, including all modifications, amendments, changes, deletions, additions, and alterations thereto, and any warranties or guarantees required thereunder, then this obligation shall be void; otherwise to remain in full force and effect;

2. In the event of a failure of performance of the Contract by the Principal, which shall include, but not be limited to, any breach of default of the Contract:

   a. The Contractor's Surety shall commence performance of its obligations and undertakings under this Bond no later than thirty (30) days after written notice from the County to the Contractor's Surety; and

   b. The means, method or procedure by which the Contractor's Surety undertakes to perform its obligations under this Bond shall be subject to the advance written approval of the County.

The Contractor's Surety hereby waives notice of any and all modifications, omissions, additions, changes, and advance payments or deferred payments in or about the Contract, and agrees that the obligations undertaken by this Bond shall not be impaired in any manner by reason of any such modifications, omissions, additions, changes, and advance payments or deferred payments. The Parties further expressly agree that any action on this Bond may be brought within the time allowed by Georgia law for suit on contracts under seal.

IN WITNESS WHEREOF, the Principal and Contractor's Surety have hereunto affixed their corporate seals and caused this obligation to be signed by their duly authorized officers or attorneys-in-fact, this day of_____, 20 .

CONTRACTOR ("Principal"):

_____

By: _____(signature)

_____(print)

Attest: Title:_____(SEAL)

_____(signature)

_____(print)

Title: _____

Date:_____

CONTRACTOR'S SURETY:

_____

By: _____(signature)

_____(print)

Attest: Title: _____(SEAL)

_____ (signature)

_____(print)

Title: _____

Date:_____

(ATTACH SURETY'S POWER OF ATTORNEY)

EXHIBIT "D"

PAYMENT BOND

JACKSON COUNTY

KNOW ALL MEN BY THESE PRESENTS THAT_____(as CONTRACTOR, hereinafter referred to as the "Principal"), and _____ (as SURETY COMPANY, hereinafter referred to as the "CONTRACTOR'S SURETY"), are held and firmly bound unto Jackson County (as OWNER, hereinafter referred to as the "County"), for the use and benefit of any "Claimant," as hereinafter defined, in the sum of _____Dollars ($_____.), lawful money of the United States of America, for the payment of which the Principal and the Contractor's Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered, or is about to enter, into a certain written agreement with the County, dated the_____day of_____20 , which is incorporated herein by reference in its entirety (hereinafter referred to as the "CONTRACT"), for the construction of a project known as_____, (hereinafter referred to as "the PROJECT").

NOW THEREFORE, the condition of this obligation is such that if the Principal shall promptly make payment to any Claimant, as hereinafter defined, for all labor, services, and materials used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise to remain in full force and effect.

A "Claimant" shall be defined herein as any Subcontractor, person, Party, partnership, corporation, or other entity furnishing labor, services, or materials used or reasonably required for use in the performance of the Contract, without regard to whether such labor, services, or

materials were sold, leased, or rented, and without regard to whether such Claimant is or is not in privity of the Contract with the Principal or any Subcontractor performing Work on the Project. In the event of any claim made by the Claimant against the County, or the filing of a Lien against the property of the County affected by the Contract, the Contractor's Surety shall either settle or resolve the Claim and shall remove any such Lien by bond or otherwise as provided in the Contract.

The Parties fnrther expressly agree that any action on this Bond may be brought within the time allowed by Georgia law for suit on contracts under seal.

IN WITNESS WHEREOF, the Principal and Contractor's Surety have hereunto affixed their corporate seals and caused this obligation to be signed by their duly authorized officers on this day of, 20 .

CONTRACTOR:

_____

By: _____(signature)

_____(printed)

Title: _____(SEAL)

(Signatures Continued from Previous Page)

Attest:

_____(signature)

_____(printed)

Title: _____

Date:_____

CONTRACTOR'S SURETY:

_____

By: _____(signature)

_____(printed)

Title:_____(SEAL)

Attest:

_____(signature)

_____(printed)

Title: _____

Date:_____

(ATTACH SURETY'S POWER OF ATTORNEY)

EXHIBIT "E"

NONCOLLUSION AFFIDAVIT OF PRIME (PROPOSER/BIDDER)

STATE OF GEORGIA COUNTY OF JACKSON

_____, being first duly sworn, deposes and says that:

(1) He is_____(Owner, Partner, Officer, Representative, or Agent) of_____(the "_____" (Proposer/Bidder)) that has submitted the attached _____(Proposal/Bid);

(2) He is fully informed respecting the preparation aud contents of the attached _____ (Proposal/Bid) and of all pertinent circumstances respecting such _____ (Proposal/Bid);

(3) Neither the said _____ (Proposer/Bidder) nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, included in this affidavit, has in any way colluded, conspired, connived, or agreed, directly or indirectly, with any other _____ (Proposer/Bidder), firm or person to submit a collusive or sham _____ (Proposal/Bid) in connection with the Contract for which the attached_____(Proposal/Bid) has been submitted to or refrain from proposing in connection with such Contract, or has in any collusion or communication or conference with any other_____(Proposer/Bidder), firm or person to fix the price or prices in the attached_____(Proposal/Bid) or of any other _____ (Proposer/Bidder), or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against Jackson County or any person interested in the proposed Contract; and,

(4) The price or prices quoted in the attached_____(Proposal/Bid) are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the _____(Proposer/Bidder) or any of its agents, representatives, owners, employees, or parties in interest, included in this affidavit.

(5) _____ (Proposer/Bidder) has not directly or indirectly violated any law, ordinance or regulation related to the_____(Proposal/Bid).

_____

Signature of Authorized Officer or Agent

_____

Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS THE _____ DAY OF _____, 20____.

_____

Notary Puhlic [NOTARY SEAL]

My Commission Expires:

_____

EXHIBIT "F"

FINAL AFFIDAVIT

TO JACKSON COUNTY, GEORGIA

I,_____, hereby certify that all suppliers of materials, equipment and service, subcontractors, mechanics, and laborers employed by _____or any of its subcontractors in connection with the construction of _____for Jackson County have been paid and satisfied in full as of_____, 20 , and that there are no outstanding obligations or claims of any kind for the payment of which Jackson County on the above named project might be liable, or subject to, in any lawful proceeding at law or in equity.

_____
Signature

_____
Title

Personally appeared before me this _____day of _____, 20 .
_____, who under oath deposes and says that he is
_____of the firm of_____,
that he has read the above statement, and that to the best of his knowledge and belief same is an exact true statement.

_____
Notary Puhlic [NOTARY

SEAL]

My Commission Expires

_____

EXHIBIT "F"

STATE OF GEORGIA
COUNTY OF JACKSON

CONTRACTOR AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm, or corporation which is engaged in the physical performance of services on behalf of Jackson County has registered with, is authorized to use, and uses the federal work authorization program commonly known as E- Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91.

Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period, and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91(b).

Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____
Federal Work Authorization User Identification Number

_____
Date of Authorization

_____
Name of Contractor

_____
Name of Project

_____
Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.
Executed on_____, __, 20_____ in _____(city),_____(state).

_____
Signature of Authorized Officer or Agent

_____
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS THE _____ DAY OF _____, 20____.

_____
Notary Public [NOTARY SEAL]

My Commission Expires:

_____

EXHIBIT "G"

STATE OF GEORGIA

COUNTY OF JACKSON

SUBCONTRACTOR AFFIDAVIT

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with___(name of contractor) on behalf of Jackson County has registered with, is authorized to use, and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned subcontractor will continue to use the federal work authorization program throughout the contract period, and the undersigned subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the subcontractor with the information required by O.C.G.A. § 13-10-91(b). Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub-subcontractor to the contractor within five (5) business days of receipt. If the undersigned subcontractor receives notice that a sub- subcontractor has received an affidavit from any other contracted sub-subcontractor, the undersigned subcontractor must forward, within five (5) business days of receipt, a copy of the notice to the contractor.

Subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____
Federal Work Authorization User Identification Number

_____
Date of Authorization

_____
Name of Subcontractor

_____
Name of Project

_____
Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on_____, ___, 201 in _____(city),_____(state).

_____
Signature of Authorized Officer or Agent

_____
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS THE_____DAY OF _____,201 .

_____
NOTARY PUBLIC

[NOTARY SEAL]

My Commission Expires:

_____

EXHIBIT "H"

[PLANS AND SPECIFICATIONS TO BE INSERTED]

EXHIBIT "I"
KEY PERSONNEL

The following iudividuals are designated as Key Personnel under this Agreement and as such are necessary for the successful prosecution of the Work:

Individual	**Position**

EXHIBIT "J"

[INSERT GENERAL CONDITIONS (IF ISSUED)]

EXHIBIT "K"

[INSERT SUPPLEMENTARY CONDITIONS (IF ISSUED)]

EXHIBIT "L"

[INSERT NOTICE OF AWARD]

Section 00851
E-Verify Employment of Unauthorized Aliens Prohibited

PART ONE - GENERAL

1.1 EMPLOYMENT OF UNAUTHORIZED ALIENS PROHIBITED

It is the policy of the County that unauthorized aliens shall not be employed to perform work on County contracts involving the physical performance of services. Therefore, the County shall not enter into a contract for the physical performance of services within the State of Georgia unless:

(1) ☐ The Consultant shall provide evidence on County-provided forms, attached hereto as Exhibits "A" and "B" (affidavits regarding compliance with the E-Verify program to be sworn under oath under criminal penalty of false swearing pursuant to O.C.G.A. § 16- 10-71), that it and Consultant's subcontractors have conducted a verification, under the federal Employment Eligibility Verification ("EEV" or "E-Verify") program, of the social security numbers, or other identifying information now or hereafter accepted by the E-Verify program, of all employees who will perform work on the County contract to ensure that no unauthorized aliens will be employed; **OR**

(2) ☐ The Consultant provides evidence that it is not required to provide an affidavit because it is licensed pursuant to Title 26 or Title 43 or by the State Bar of Georgia and is in good standing as of the date when the contract for services is to be rendered.

The Consultant hereby verifies that it has, prior to executing this Agreement, executed a notarized affidavit, the form of which is provided in Exhibit "A", and submitted such affidavit to County or provided County with evidence that it is not required to provide such an affidavit because it is licensed and in good standing as noted in subsection (2) above. Further, Consultant hereby agrees to comply with the requirements of the federal Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603, O.C.G.A. § 13-10-91 and Rule 300-10-1-.02.

In the event the Consultant employs or contracts with any subcontractor(s) in connection with the covered contract, the Consultant agrees to secure from such subcontractor(s) attestation of the subcontractor's compliance with O.C.G.A. § 13-10-91 and Rule 300-10-1-.02 by the subcontractor's execution of the subcontractor affidavit, the form of which is attached hereto as Exhibit "B", and such subcontractor affidavit shall become part of the contractor/subcontractor agreement, or evidence that the subcontractor is not required to provide such an affidavit because it is licensed and in good standing as noted in subsection (2) above. If a subcontractor affidavit is obtained, Consultant agrees to provide a completed copy to the County within five (5) business days of receipt from any subcontractor.

Where Consultant is required to provide an affidavit pursuant to O.C.G.A. § 13-10-91, the County Manager or his/her designee shall be authorized to conduct an inspection of the Consultant's and Consultant's subcontractors' verification process at any time to determine that the verification was correct and complete. The Consultant and Consultant's subcontractors shall retain all documents and records of their respective verification process for a period of three (3) years following completion of the contract. Further, where Consultant is required to provide an affidavit pursuant to O.C.G.A. § 13-10-91, the County Manager or his/her designee shall be authorized to conduct periodic inspections to ensure that no County Consultant or Consultant's subcontractors employ unauthorized aliens on County contracts. By entering into a contract with the County, the Consultant and Consultant's subcontractors agree to cooperate with any such investigation by making their records and personnel available upon reasonable notice for inspection and questioning. Where a Consultant or Consultant's subcontractors are found to have

employed an unauthorized alien, the County Manager or his/her designee may report same to the Department of Homeland Security. The Consnltant's failure to cooperate with the investigation may be sanctioned by termination of the contract, and the Consultant shall he liable for all damages and delays occasioned by the County thereby.

Consultant agrees that the employee-number category designated below is applicahle to the Consultant [Information only required if a contractor affidavit is required pursuant to O.C.G.A. § 13-10- 91]:

☐ 500 or more employees.

☐ 100 or more employees.

☐ Fewer than 100 employees.

Consultant hereby agrees that, in the event Consultant employs or contracts with any subcontractor(s) in connection with this Agreement and where the subcontractor is required to provide an affidavit pursuant to O.C.G.A. § 13-10-91, the Consultant will secure from the subcontractor(s) such subcontractor(s') indication of the above employee-number category that is applicable to the subcontractor.

The above requirements shall be in addition to the requirements of State and federal law, and shall be construed to be in conformity with those laws.

EXHIBIT "A"

STATE OF GEORGIA, COUNTY OF JACKSON
CONTRACTOR AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm, or corporation which is engaged in the physical performance of services on behalf of Jackson County has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91.

Furthermore, the undersigned contractor agrees that it will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91 (b).

Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____
Federal Work Authorization User Identification Number (number is 4 to 6 digits, no letters)

_____
Date of Authorization

_____
Name of Contractor

_____
Name of Project

Jackson County Board of Commissioners
Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.
Executed ou the_____day of_____,
20_____
in_____(city),_____(state).

_____
Signature of Authorized Officer or Agent

_____
Printed Name of Authorized Officer or Agent

_____
Title of Authorized Officer or Agent

Subscribed and sworn before me on this
_____day of_____,
20_____.

_____
Notary Public

[NOTARY SEAL]

My Commission Expires _____

Affidavit Not Applicable This Contract
Exemption – licensed under:

- ☐ Title 46
- ☐ Title 23
- ☐ Ga Stare Bar Association

EXHIBIT "B"

STATE OF GEORGIA, COUNTY OF JACKSON
SUBCONTRACTOR AFFIDAVIT

By executing this affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. § 13-10- 91, stating affirmatively that the individual, firm, or corporation which is engaged in the physical performance of services with _____(name of prime contractor) on behalf of Jackson County has registered with, is authorized to sue and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned subcontractor agrees that it will continue to use the federal work authorization program throughout the contract period and the undersigned subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the subcontractor with the information required by O.C.G.A. § 13-10-91(b). Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub- subcontractor to the contractor within five (5) business days of receipt. If the undersigned subcontractor receives notice that a sub-subcontractor has received an affidavit from any other contracted sub- subcontractor, the undersigned subcontractor must forward, within five (5) business days of receipt a copy of the notice to the contractor.

Subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____
Federal Work Authorization User Identification Number (number is 4 to 6 digits, no letters)

_____
Date of Authorization

_____
Name of Subcontractor

_____
Name of Project

Jackson County Board of Commissioners
Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.
Executed on the_____day of _____, 20_____ in _____(city),_____(state).

_____
Signature of Authorized Officer or Agent

_____
Printed Name of Authorized Officer or Agent

_____
Title of Authorized Officer or Agent

Subscribed and sworn before me on this _____day of_____, 20_____.

_____
Notary Public

[NOTARY SEAL]

My Commission Expires _____

Section 00860
Contractor's Qualifications Statement

Part 1 - General

1.1. Description:

Each Bidding Contractor shall submit with its Bid to Jackson County a complete and properly executed AIA Document A305, Contractor's Qualifications Statement, current Edition, and also include a current audited/reviewed financial statement, both documents to be less than one (1) year old.

END OF SECTION

Section 00870
Contractor Application and Certificate For Progress, Substantial And Final Payments And Waivers of Lien

Part I - General

1.1. Description:

Contractors shall for each progress, substantial and final application and certificate for payment for the project use AIA Document G702 and G703, current Edition, and shall attach to each application and certificate for payment the required waiver of lien, and submit to Jackson County not later than the date each month set forth by the Construction Agreement, or as mutually agreed between the Parties to the Construction Agreement.

At a time and date mutually acceptable to the Contractor, the Architect or Engineer and the County, the Parties shall meet at the Project site to review the Contractor's preliminary, draft application and certificate for payment for the period covering the preceding thirty (30) calendar days. Based upon the review and determination of monies to be owed and payable to the Contractor by the County set forth by the preliminary, draft application and certificate for payment, the Contractor shall promptly prepare and submit the formal application and certificate for payment to the Architect or Engineer for his signature and recommendation and transmittal to the County for payment. It is agreed by all the Parties that this proposed early review of the preliminary, draft application and certificate for payment in advance of its due date is intended to speed the review, submittal, approval and payment process for the Contractor for the Work performed and due for payment by the County.

All lien waivers and other documents required for acceptance for payment by the County need only be submitted with the submittal of the formal application and certificate for payment, but it is understood by the Contractor that the advance review does not delete or modify the requirements for the submission of such necessary waivers and other documentation for payment by the County.

END OF SECTION

Section 01010
Summary of Work

Part 1 - General

1.1 Section Includes

A. Description of Work

B. Contractor's Use of Site

C. Work Sequence Phasing and Completion

D. County Occupancy

1.2 DESCRIPTION OF WORK

A. General: The Work to be performed and completed by the Contractor under this Contract is shown on the drawings and specified in Contract Documents.

B. The Work to be included and provided by the Contractor includes:

1. Furnishing of all needed and necessary labor, material, project management, superintendence, layout & engineering, safety, protection of personnel & equipment and materials, materials and other testing, plant, power, light, heat, fuel, water, tools, appliances, enclosures, equipment, supplies, shoring, lifting, scaffolding, hoisting, product certifications, inspections, services and other means of necessary temporary and permanent construction necessary or proper for performing and completing the Work.

2. Sole responsibility for adequacy of plant and equipment.

3. Maintaining the Work area and site in a clean and acceptable manner.

4. Maintaining existing facilities in service at all times.

5. Protection of finished and unfinished Work.

6. Repair and restoration of Work or existing facilities damaged during construction.

7. Furnishing as necessary proper equipment and machinery, of a sufficient capacity, to facilitate the Work and to handle all emergencies normally encountered in Work of this character.

8. Furnishing, installing, and protecting all necessary guides, bearing plates, anchor and attachment bolts, and all other appurtenances needed for the installation of the devices included in the equipment, where or when specified. Make anchor bolts of appropriate size, strength and material for the purpose intended. Furnish substantial templates and shop drawings for installation.

C. Implied and Normally Required Work: It is the intent of these Contract Documents for the Contractor to provide the County with complete operable systems, subsystems and other items of Work. Any part or item of Work, which is reasonably implied or normally required to make each installation satisfactorily and completely operable, is deemed to be included in the Work and the Contract Amount. All miscellaneous appurtenances and other items of Work incidental to meeting the intent of these Contract Documents are included in the Work and the Contract Amount even though these appurtenances may not be specifically called for in the Contract Documents.

D. Quality of Work: Regarding the or any apparent silence of the Contract Documents as to any detail, or the apparent or unintended omission from the Contract Documents of a detailed description concerning any Work to be done and materials to be furnished as meaning that only the best general practice is to prevail and that only new materials and workmanship of the best quality are to be used. All interpretations by the architect or engineer or the County of these Contract Documents will be made upon this basis.

1.3 Contractor's Use of Site

A. In addition to the requirements of the Contract Documents, the Contractor shall limit the use of site and premises for work and storage to allow for the following:

1. Coordination of the Work under this Contract with the work of the other contractors or the County, or other Contractors of the County, or other governmental agencies and authorities or utility owners and their contractors, where Work under this Contract encroaches on the Work of other contractors.

2. County occupancy and access to operate existing facilities.

3. Coordination of site use with architect or engineer, and the County.

4. Responsibility for protection and safekeeping of products under this Contract.

5. Providing additional off-site storage at no additional cost to the County as needed.

1.4 Work Sequence

A. Construct Work in stages to accommodate the County's use of premises during construction period and in accordance with the limitations on the sequence or phasing of construction specified. Coordinate construction schedules and operations with architect or engineer.

B. Coordinate Work of all subcontractors.

1.5 County Occupancy

A. Provide means to permit County to occupy premises during entire period of construction if necessary or requested. Cooperate with the County's representative in all construction operations to minimize conflict, and to facilitate County usage.

B. Conduct operations with the least inconvenience to the general public.

1.6 Protection of Existing Utilities

A. In case of damage to existing utilities caused by Contractor construction activities, contact the owner of the utility or appropriate County department immediately. Repair any damage to existing utilities caused by Contractor construction activities in coordination with or as directed by the owner of the utility and the County at the expense of the Contractor.

B. In case of damage to newly constructed, or in process of being constructed, utilities caused by Contractor's construction activities, contact the contractor of the other utility construction work, owner of the utility and the appropriate County department immediately. Repair any damage to existing utilities caused by Contractor construction activities in coordination with or as directed by the other utility contractor, owner of the utility and the County at the expense of the Contractor.

Part 2 - Products

Not Used

Part 3 - Execution

A. Starting Work: Start Work within ten (10) calendar days following the date stated in the Notice to Proceed and execute with such progress as may be required to prevent delay to other contractors or to the general completion of the project. Execute Work at such items and in or on such parts of the project, and with such forces, material and equipment, as to complete the Work in the time established by the Contract. At all times, schedule and direct the Work so that it provides an orderly progression to completion within the specified time for completion.

END OF SECTION

Section 01020
Allowances

Part 1 - General

1.1 Summary

A. This section specifies administrative and procedural requirements governing handling and processing Allowances. Selected materials and equipment, and in some cases, their installation, are shown and specified in the Contract Documents by Allowances. Allowances have been established by the County for certain portions of the work of this Project in lieu of additional requirements, and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. Any necessary additional requirements or necessary additional allowance funds will be issued by a properly prepared and executed Change Order by and between the County and the Contractor. The Contractor for this Project shall maintain strict written documented accounts of all funds expended against stated Allowances. Jackson County shall not pay monies incorrectly expended by the Contractor against the stated Allowances, or monies expected without the express prior written authorization of Jackson County. Should the Contractor anticipate or estimate that he will require additional monies for the performance of work required under the stated Allowances, he shall promptly provide written notification to Jackson County that additional funds need to be appropriated to the Contractor through an additive change order, properly executed by the respective parties. Monies not expended against the stated original and additions, if needed, Allowances and remaining monies and values at the completion of the project shall be credited back to Jackson County through an executed deductive Change Order by and between the County and the Contractor.

B. Allowance Types:

1. LUMP SUM Allowances.

2. UNIT PRICE Allowances: Contractor to establish the required areas and quantities as may be directed in the summary of work or bid form.

3. OTHER Allowances as may be mutually determined in the best interest of the Project or the parties to the Construction Agreement.

C. Definitions:

1. MATERIAL ALLOWANCES: Allowances are for materials only; unless specifically directed or instructed otherwise by the County. All other costs including, but not necessarily limited to, freight taxes, labor/installation, fee, layout, supervision (field and home office) general expense, insurance, overhead, and profit shall be included by the Contractor in the Base Bid and Contract Sum.

2. MATERIAL AND INSTALLATION ALLOWANCES: Stated Allowances include ALL costs except layout, fees, supervision, general expense, insurance, overhead, profit and other incidentals; these "except" costs shall be included by the Contractor in the Base Bid and Contract Sum.

3. MANAGEMENT AND COORDINATION SERVICES ALLOWANCES: Stated Allowances include ALL costs as directed and instructed by Jackson County for personnel, travel, and other prior approved costs and expenses, per the agreed upon scope of coordination services, over the agreed upon duration of the project.

1.2 Selection and Purchase

A. Within thirty (30) calendar days of the date of Notice to Proceed, the Contractor and Jackson County and the Project Architect or Engineer shall meet to establish the schedule by which needed activities and tasks to be performed under the Allowance shall occur.

1. Contractor for this work shall obtain proposals and/or develop cost estimates or fee schedules for each allowance for use by Jackson County in making final selections; include recommendations that are relevant to performance of the work.

2. When directed by Jackson County, the Contractor shall purchase products and systems as selected by Jackson County from the designated vendor(s) and/or material supplier(s).

1.3 Submittals

A. Contractor shall submit proposals for purchase of products or systems included in Allowances, in the form and manner specified by Jackson County; unless the Contractor shall present and provide a reasonable and timely objection; and if said objection is raised by the Contractor, he shall offer a reasonable alternative for consideration by the County, for eventual acceptance by both parties.

B. Contractor shall submit invoices or delivery slips with and as a part of any monthly application and certificate for payment request to the County to indicate actual quantities of materials delivered to the site for use in fulfillment of each allowance. Payments shall be made in a prompt and timely manner, and if so needed or necessary special payment procedures where and when deemed by the County, so as not to delay or disrupt the services to be performed or provided.

2.0 Products (Not Applicable)

3.1 Execution (Not Applicable)

3.2 Inspection

A. Inspect products covered by an allowance promptly upon delivery for damage or defects.

3.3 Preparation

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related construction activities.

END OF SECTION

Section 01101
Alternates

Part 1 - General

1.1 Description:

A. An Alternate is an amount proposed by Bidders, and stated on the Bid Form, for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Jackson County decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

B. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum.

C. Related Work Described Elsewhere:
1. Materials and methods to be used in the Base Bid and in the Alternates have been described on the Drawings and in pertinent Sections of these Specifications.
2. Method for stating the proposed Contract Sum is described in the bid form.

1.2 All Alternates described in this Section are required to be reflected on the Bid Form as submitted by Bidders. Failure to submit an alternate price may cause the entire bid to be determined non-responsive and rejected. Do not submit Alternates other than as described in this Section.

1.3 If Jackson County elects to proceed on the basis of one or more of the Alternates, the Contractor shall make all modifications to the work required in furnishing and installing the selected Alternates to the approval of Jackson County and at no additional cost to Jackson County other than as proposed on the Bid Form.

1.4 All Alternates must be executed with an appropriate response. A "blank space" or a "No Bid" statement is inappropriate and non-responsive. The space MUST INCLUDE a "Specific Amount, Percentage or Sum" or a "No Change in Price" or a "Zero Dollar Cost" statement. Failure by the Bidder to provide this information may be cause for rejection of the Bid at Jackson County's discretion.

1.5 If liquidated damages are deleted, completion time remains unchanged and time is still the essence of the contract and in lieu of liquidated damages, Jackson County retains the right to pursue the collection of actual damages for delayed completion, pursuant to the provisions of the contract documents, under existing state statutes and/or common law.

PART TWO - SCHEDULE OF ALTERNATES:

Alternate No. 1: Endzone Logos

1. Base Bid: Provide and install the following turf striping components: end zone, sideline, and typical football field markings.
2. Alternate: Provide and install end zone logos specified in the drawings.

Alternate No. 2: Center of Field Logos,

1. Base Bid: Base Bid: Provide and install the following turf striping components: end zone, sideline, and typical football field markings.

2. Alternate: Provide and install the center of the field logo specified in the drawings.

END OF SECTION

Section 012200
Unit Prices

Part 1- General

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This section includes administrative and procedural requirements for unit prices for work above and beyond that shown in the contract documents.

1.3 DEFINITIONS

A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to the scope of Work or estimated quantities of Work required by the Contract Documents.

B. Rock shall be defined as material that cannot be ripped by a single tooth ripper.

1.4 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections. Rock will be measured via survey cross section prior to removal and after removal to determine the quantity. Unit price will include surveying for quantity determination.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

W. Jackson Middle School Athletic Field
Jackson County, Georgia

3.1 SCHEDULE OF UNIT PRICES

A. Unit Price No. 1: To excavate rock encountered in mass excavation and replace with satisfactory soil material.
   1. Description: Rock excavation, crushing and placement on site and replacement with satisfactory fill material or engineered fill, as required, in accordance with specification section 312000 "Earth Moving." In addition, excavated rock may be used in fill placement only if approved by Jackson County and the geotechnical engineer. Excavated rock (shot rock/fill) may be used for on-site fill as long as the excavated rock is no larger than 36" in diameter, placed at least 5-ft below the proposed grade, outside of proposed and future building pads, outside of modular wall foundations and tie-back areas, and not in conflict with proposed and future utilities. Soil shall he placed around the rock to fill voids. Monitoring of the blasting and placement of excavated rock will be performed by Jackson County and the geotechnical engineer. All placement areas will be approved by the civil engineer and the owner prior to placement of the excavated rock. As an option, the contractor may elect to haul all rock off site and dispose of it and replace the rock with suitable soil materials from off site. Any soil materials brought in off site must be approved by the geotechnical engineer for the intended use. Refer to specification section 312000 Earth moving for definition of rock.
   2. Unit of Measurement: Cubic yard of roek excavated, based upon survey of volume removed by Owner's Materials Testing Laboratory Representative.
   3. Quantity Allowance: Assume minimum 500 cubic yards.

B. Unit Price No. 2: To excavate rock encountered in trench excavation and replace with satisfactory soil material.
   1. Description: Rock excavation, crushing and placement on site and replacement with satisfactory fill material or engineered fill, as required, in accordance with specification section 312000 section "Earth Moving." In addition, excavated rock may be used in fill placement only if approved by Jackson County and the geotechnical engineer. Excavated rock (shot rock/fill) may be used for on-site fill as long as the excavated rock is no larger than 36" in diameter, placed at least 5- ft below the proposed grade, outside of proposed and future building pads, outside of modular wall foundations and tie-back areas, and not in conflict with proposed and future utilities. Soil shall be placed around the rock to fill voids. Monitoring of the blasting and placement of excavated rock will be performed by Jackson County and the geotechnical engineer. All placement areas will be approved by the civil engineer and the owner prior to placement of the excavated rock. As on option, the contractor may elect to haul all rock off site and dispose of it and replace the rock with suitable soil materials from off site. Any soil materials brought in off site must be approved by the geotechnical engineer for the intended use. Refer to specification section 312000 Earth moving for definition of rock.
   2. Unit of Measurement: Cubic yard of rock excavated, based upon survey of volume removed.
   3. Quantity Allowance: Assume minimum 500 cubic yards

C. Unit Price No. 3: To Remove unsatisfactory soil and replace with satisfactory soil material from off site.
   1. Description: Unsatisfactory soil excavation and disposal off site by contractor and replacement with satisfactory fill material or engineered fill from off site, as required, in accordance with Division 31 Section "Earth Moving."
   2. Unit of Measurement: Cubic yard of soil excavated, based upon survey of volume removed.

W. Jackson Middle School Athletic Field
Jackson County, Georgia

3. Quantity Allowance: This unit price applies when unsuitable soil removals exceed that shown on the drawings. Assume minimum 1000 CY.

D. Unit Price 4: To Remove unsatisfactory soil and replace with #57 stone.
   1. Description: Unsatisfactory soil excavation and disposal off site by contractor and replacement with #57 stone.
   2. Unit of Measurement: Cubic yard of soil excavated, based upon survey of volume removed.
   3. Quantity Allowance: This unit price applies when unsuitable soil removals exceed that shown on the drawings. Assume minimum 1,000 CY.

END OF SECTION

Section 01300
Submittals

Part 1 - General

1.1 Description:

A. Submittals: General term including samples, shop drawings and product data, as applicable and as defined by the General Conditions.

B. General Provisions:
1. Provisions in this section are mandatory procedures for review, approval and submitting samples, shop drawings and product data in accordance with the General Conditions.
2. Submittals which are received directly from sources other than through the Project Architect Engineer's office will be returned to the Contractor "without action".
3. All submittals, samples or other items that require review or approval by Jackson County shall be submitted to and through the Project Architect Engineer's office.
4. Job delays occasioned by requirement of re-submission of samples, shop drawings, on-site and off-site mock-ups, and product data not in accord with Contract Documents and/or submittals sequenced contrary to the agreed schedule are the Contractor's responsibility, and will not be considered valid justification for extension of contract time or increase in the contract sum.

1.2 Sample Preparation:

A. Prepare samples in sizes, shape and finish in accord with provisions of individual specification sections.

B. Samples are not to be confused with full size, on-site or off-site "Mock-Ups" called for in some specification sections.

C. Samples shall be submitted for the Jackson County's selection and approval in accordance with the Contractor's submittal schedule or sooner as needed to maintain construction progress. Approvals and color selections will not be made unilaterally where samples or selections of adjacent materials must be made for the purpose of aesthetics. Submit samples for adjacent and interrelated materials concurrently. The Owner will approve all colors before the Jackson County can take action.

D. The number of samples submitted shall be the number required by the Contractor, plus six (6), which will be retained by the Jackson County and the Owner, unless otherwise indicated.

1.3 Shop Drawing Preparation:

A. Drawing shall conform to the following requirements:

1. Number sheets consecutively.

2. Indicate working and erection dimensions and relationships to adjacent work.

3. Show arrangements and sectional views, where applicable.

4. Indicate material, gauges, thicknesses, finishes and characteristics.

5. Indicate anchoring and fastening details, including information for making connections to adjacent work.

6. Provide drawings reproducible by normal blue printing; original and prints legible.

7. Indicate working and erection dimensions and relationships to adjacent work. Concurrent submittals of different aspects of work may be required by the Jackson County as deemed necessary to demonstrate Contractor's ability to understand these relationships and coordinate the Work.

8. Provide 6" x 6" clean space in the lower right hand area for entry of review stamps.

9. Cross-reference drawing details and specification paragraphs applicable to the submittal data.

10. Do not use blue-colored stamps, ink or pencil on transparencies; "Blue" is not reproducible in blueprinting or some reproduction methods.

1.4 Product Data Preparation:

A. Include product manufacturer's standard printed material, dated, with product description and installation instructions indicated. Data not related to this project shall be deleted or marked "VOID" as applicable.

B. Form: Number of copies submitted shall be the number required by Contractor plus four (4), which will be retained by the Project Architect Engineer and Jackson County.

C. Printed material shall be:
1. Legible.
2. Sized no larger than 8-1/2" x 11", suitable for opaque reproduction.
3. Stamped (either on a clean-area space or the reverse side) with the Contractor's approval action.

D. All submitted data shall bear the Contractor's approval action stamp plus his review notes, comments, and corrections as required. Submittals without the required stamp shall be returned with marked for re-submittal.

1.5 Contractor's Review:

A. Review submittals and stamp with approval prior to submission; Contractor's stamp shall bear the Contractor's name, the word "Approved", the signed initials of the approving agent, and the date of his approval action. By so noting, the Contractor indicates to the Jackson County, and Owner that he has reviewed and approves the materials, equipment, quantities and dimensions represented by the particular submittal.

B. Where work is indicated "By others", Contractor shall indicate responsibility for providing and coordinating such work.

C. Submissions made without Contractor's approval indicated thereon will be returned without being reviewed for compliance with this requirement. Such action by the Contractor requiring re-submittal will uot be considered valid justification for extension of contract time or increase in the contract sum.

D. Date each submittal and indicate name of Project, Project Architect Engineer, Jackson County, Contractor, Sub-Contractor, as applicable, description or name of equipment, material or product and identify location at which it is to be used in the Work. Cross-reference to specific drawing and specification references.

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

1.6 Jackson County's Review:

A. Jackson County's review will be in accordance with the procedures noted or outlined above.

B. Jackson County may elect to retain all submittals and other information for its records and files. Contractor shall take such possible action into consideration when making submittals for review and other action by Jackson County.

1.7 Resuhmission:

A. Make corrections and changes indicated for unapproved submissions and resubmit in same manner as specified above, until Project Architect Engineer's or Jackson County's review is obtained or completed.

B. In resubmission transmittal, the Contractor shall direct specific attention to revisions other than corrections requested by Project Architect Engineer or Jackson County on previous submissions, if any.

C. Contractor shall be responsible for bearing all costs associated with the review and approval process of resubmitted (and/or substituted) submittal data.

1.8 Distribution:

A. Contractor is responsible for obtaining and distributing copies of submittals to his subcontractors and material suppliers after, as well as before, final approval. Prints of reviewed shop drawings shall be made from transparencies, which carry the Project Architect Engineer's appropriate stamp.

B. Contractor shall maintain a file of approved submittals for duration of project, which shall be delivered to Jackson County, through the Project Architect Engineer's Office as a part of project close-out documents.

C. The Contractor shall maintain a file of all approved submittals, bearing the Stamp of the Project Architect Engineer, at the project site. In the event Project Architect Engineer or Jackson County should question the installation of any aspect of the work requiring approved submittal data, the inability of the Contractor or its Superintendent to produce the required approved submittal data upon demand at the job site shall constitute cause for a "stop work" order to be issued on that particular questioned aspect of the work and all relevant appurtenant work. The cause shall be equal to the Contractor not having received required approval of the submittal data. If so issued, such "stop orders" shall not be considered valid justification for extensions of contract time and/or claims for additional monetary compensation.

1.9 Schedule of Submittals:

A. The Contractor shall, within ten (10) calendar days following the Notice to Proceed of the Contract, submit his proposed schedule of submittals to the Project Architect Engineer Jackson County for review.

B. The purpose of the schedule is to:
1. Demonstrate that all submittals, shop drawings, data, samples and mock- ups required for the Work are addressed by the Contractor.
2. Demonstrate consistency with the Contractor's proposed Construction Schedule.
3. Assist Jackson County in scheduling timely review/approval action of submittals.

C. The schedule shall contain the description of the submitted item, the proposed date of submittal and the proposed date of requested return by the Project Architect Engineer or Jackson County

D. After Project Architect Engineer's receipt of the Contractor's submittal schedule, the Project Architect Engineer and the Contractor shall jointly review the schedule and mutually agree to acceptability or necessary modifications.

E. Contractor shall submit his final accepted schedule within five (5) calendar days after the date of the joint review.

END OF SECTION

Section 01310
Construction Schedules

PART ONE - GENERAL

1.1 DESCRIPTION: This section and any supporting graphic phasing schedule that may be included with and a part of the Drawings, cover provisions for construction or phasing schedules for the work of this Project as a whole, integrating the schedules and dates of performance of the many contractors. The Bidder and Contractor shall have carefully reviewed these schedule or phasing requirements and shall have included in his bid and contract sum all necessary and needed construction procurement and procedures. Where called for, required or generally inferred by the Contract Documents or hy any utility agency or authority, the Contractor shall coordinate any utility shut down, disconnection, and re-connection.

1.2 RELATED REQUIREMENTS:

A. Schedule of Values: General Conditions of the Contract for Construction.

B. Progress Meetings: General Conditions of the Contract for Construction and Section 01312 Project Meetings.

C. Submittals: Section 01300 Submittals.

1.3 GENERAL:

A. Project Construction Schedule: The Contractor's developed and submitted working schedule information and data, including costs, activities, durations and sequence, shall be used by the Contractor to plan, organize, and execute the project as a whole, integrating the schedules and dates of performance of the many contractors of this contract, and any other separate contractors or the County; and to record and report actual performance, progress and cost; and demonstrate how Contractor plans to perform and complete his work.

B. Contractor's Responsibility: Nothing in these requirements shall be deemed to be usurpation of Contractor's authority and responsibility to plan and schedule work as he sees fit, subject to all other requirements of Contract Documents.

1.4 SCHEDULES:

A. Preliminary Project Construction Schedule: At time of the Pre-construction Conference, the Contractor shall work with the architect and engineer and the County to develop a preliminary schedule for review, comment and incorporation into the project master construction schedule of the following elements and requirements:

1. Reflect intended detailed sequence and duration of work activities for period commencing with Notice to Proceed and continuing through first ninety (90) calendar days.
2. Schedule in sufficient detail to clearly portray work activities, including procurement and submittals sequence of activities, along with phasing, and milestones associated with this period. Site work activities to be clearly distinguished from the bnilding's activities.
3. Schedule shall be consistent with As-Planned Schedule specified below.
4. Schedule will be reviewed by the Contractor for acceptability of form and format, and or integration with all other elements of the work of the total project for construction.

5. Progress Payments: Submittal of the requested information from the Contractor, and acceptance by the County is a prerequisite for Contractor's first progress payment.

C. As-Planned Project Construction Schedule: No later than twenty-one (21) calendar days after Notice to Proceed the Contractor shall submit his As-Planned Project Construction Schedule for review and comment by the architect or engineer. Schedule will also be reviewed by the County for acceptability.

1. Schedule shall reflect intended detail of work activities for entire period of contract performance commencing with Notice to Proceed of work for fabrication, delivery, on-site work and continuing through Contract Completion.
2. Schedule in sufficient detail to clearly portray all work activities and entire cycle of submittal, approval, fabrication and delivery as related to significant items of design, material, and permanent equipment fixtures. Schedule to indicate separately site work activities from building activities. With respect to the building, schedule should group interior activities distinctly from exterior shell and structural activities that are required to be completed prior to building being weather tight.
3. Schedule information provided shall allow for a fully detailed Project Construction Schedule.
4. The Schedule shall reflect the number of normal bad weather days as stated for each month in the Contract Documents.
5. The Schedule shall reflect the project cost breakdown as submitted in the applications for payment including any approved Change Orders as separate line items.
6. Progress Payments:
   a. Initial acceptance of As-Planned Project Construction Schedule and submittal of Schedule Updates by Contractor shall be prerequisite for progress payments commencing with second progress payment after Notice to Proceed and continuing to Contract Completion.
   b. The Contractor shall indicate on the completed Project Construction Schedule the work-in-place cost for each activity. The cumulative amount for all activities shall equal the total contract price. Overhead and profit shall be pro-rated on all activities for the entire project length. Final cost loading of the Contractor's activities is subject to final approval and acceptance by the County.

1.5 UPDATING AND REPORTING INFORMATION TO BE PROVIDED BY CONTRACTOR:

A. Schedule Updates: Update Project Construction Schedule monthly based on actual progress. Reflect actual start and/or finish dates of activities along with percentage of completion for activities started and not yet complete.

B. Monthly Status Reports: Submit Monthly Status Report and Updated Project Construction Schedule with each monthly application and certificate for payment. Summarize work performed during preceding month, indicate milestones achieved and update Schedule of Values. Include separate listing of activities which are causing delay to work progress. Include narrative to define problem areas, anticipate delays and impact on schedule. Report corrective action taken, or proposed, and its effect, including effect of changes on schedules of separate contractors. Include items which the Contractor perceives as being delays to the timely completion of its work and the project as a whole.

C. Schedule Progress Meetings: Discuss progress of project in conjunction with Project Construction Schedule at progress meetings. Include:

1. Actual completion dates for work items completed since last meeting.
2. Actual start dates for work items started since last meeting.
3. Estimating remaining durations for work items in progress.
4. Estimated start dates for work items scheduled to start before next meeting.
5. Changes in durations of work items.
6. Identification of current and most critical paths to required completion dates.
7. Discussion on narrative report.
8. Submission of weekly "Look Ahead" report and statement indicating what achievements are anticipated prior to the next meeting.
9. Discussion on procurement schedules, material and equipment fabrication and/or shipping updates.
10. Weather activities for each calendar day, noting low and high temperatures, and total precipitation (all forms) at the site for each calendar day. As documentation of the occurring event at the time, and as maybe an ongoing event, the Contractor shall note weather extremes that have or may have an affect upon the timely progress of completion of the Work. Failure by the Contractor to note, describe and to document any such occurring or occurred weather event by this reporting procedure shall be a waiver by the Contractor of any future or other impact to the Project or the Work.

D. Work Progress:

1. Should any activity or activities fail to be completed within seven (7) days after indicated schedule date, Contractor shall expedite completion of activity by whatever means deemed appropriate and necessary without additional compensation to Contractor, and without additional costs to the Project or the County.
2. Should any activity be ten (10) or more days behind schedule, the Contractor shall promptly prepare and implement a recovery schedule to correct the indicated delay, at no additional costs to the Project or the County or the Architect or Engineer.
3. Should any activity be ninety (90) or more days behind schedule, the County shall have the right to directly perform activity or have activity performed by whatever method the County may deem appropriate. Costs incurred by the County in this activity shall be deducted from Contractor's Contract Price during next progress payment period.
4. It is expressly understood and agreed that failure by the County to exercise the above or any other option to expedite any delayed activity shall not be construed as precedent for any other activities or as waiver of the County's rights to exercise its rights on subsequent occasions.

1.6 SUBMITTALS:

A. Submit updated schedules monthly concurrent with pay application, accurately depicting progress to first day of each month.

B. Submit on forms and in format required for the County's review.

END OF SECTION

Section 01312
Project Meetings

Part 1 - General

1.1 Summary

A. Project meetings:

1. The Contractor will conduct regular meetings throughout Project life for discussion and resolution of Project issues. These meetings will be held on a frequency related to Project status, i.e., weekly, bi-weekly, monthly, or others.
2. Attendance by the Contractor shall be as determined by the County. Contractor's subcontractors, suppliers, and others are to attend on an as- needed basis or as directed by the County
3. Suggested general agenda:
   a. Technical issues concerning project and bid package scope of work,
   b. Schedule,
   c. Submittal's status,
   d. Change Order status,
   e. RFI status,
   f. Status of invoicing and payments by the County,
   g. Other business, and
   h. Confirmation of prior meetings and minutes.

B. Requirements below are intended for Contractor, subcontractors, sub- subcontractors, and material suppliers for discussion and resolution of Project specific situations.
1. Meetings between Contractor and the County for purpose of discussing Project progress or resolving problems are delineated above.
2. The County may attend Contractor's meetings to ascertain work is expedited consistent with Contract Documents and construction schedules.

C. The Contractor's duties include:
1. Schedule and administer periodic progress meetings, and specially called meetings throughout work progress.
2. Prepare and distribute agenda for meetings.
3. Distribute written notice and agenda of each meeting three (3) days in advance of meeting date.
4. Make physical arrangements for meetings.
5. Preside at meetings.
6. Record minutes; include significant proceedings and decisions.
7. Reproduce and distribute copies of minutes within seven (7) days after each meeting as follows:
   a. One copy to each participant in meeting.
   b. One copy to parties affected by decisions made at meeting.

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

E. Related Sections:
1. Section 01310: Construction Schedule
2. Section 01300: Submittals

F. Pre-construction meeting:
1. Within five (5) calendar days after date of Notice to Proceed for On-site Construction.
2. Location: Central site, convenient for all parties, designated by The County

3. Attendance:
   a. The County and its and professional consultants.
   b. Contractor's Project Manager and Superintendent.
   c. Major subcoutractors and sub-subcontractors.
   d. Major suppliers and vendors.
   e. Others, as appropriate, or requested and invited to attend by the County

4. Suggested Agenda:
   a. Distribution and discussion of:
      1) List of major subcontractors and suppliers, and
      2) Projected Construction Schedules.
      3) Site safety and security.
   b. Critical work sequencing over the first thirty (30) days.
   c. Major equipment deliveries and priorities.
   d. Project coordination: Designation of responsible personnel.
   e. Procedures and processing of:
      1) Field decisions, and directives, including force account work
      2) Requests for Information (RFI's),
      3) Proposal requests,
      4) Submittals,
      5) Change Orders, aud
      6) Applications and Certificates for Payments, and waivers of lien.
   f. Adequacy of distribution of Contract Documents.
   g. Procedures for maintaining Record Documents.
   h. Use of premises:
      1) Office, work, employee parking and storage areas.
      2) Site access and control,
      3) Owner's requirements and separate work of the Owner.
   i. Temporary facilities, controls, and construction aids.
   j. Temporary utilities.
   k. Safety and first-aid procedures.
   l. Security procedures.
   m. Housekeeping procedures.
   n. Other.

G. Project meetings:
1. The Contractor will schedule regular periodic project meetings as required.
2. The Contractor will hold called special meetings as required by progress of work.
3. Meeting's locations: Project field office of the Contractor.
4. Attendance:
   a. Contractor, Subcontractors, and Sub-subcontractors as appropriate to agenda, as determined by the County
   b. Suppliers and vendors, as determined by The County as appropriate.
   c. The County and its professional consultants, as needed or required.
   d. Others, as determined by the County
5. Suggested agenda:
   a. Introduction and sign-in of attendees.
   b. Review, corrections and approval of minutes of previous meeting.
   c. Review of work in progress since previous meeting.
   d. Field observations, problems, and conflicts.

e. Review of Technical/Design Issues
   1) Civil
   2) Structural
   3) Architectural
   4) Mechanical
   5) Plumbing
   6) Fire Protection
   7) Electrical
   8) Security Equipment
   9) Security Electronics
   10) Materials Testing & Reporting
   11) FF&E
   12) Other

f. Review of Schedule.
   1) 2-week "look ahead."
   2) Weather: precipitation & temperatures at site.
   3) Recovery action; if and as needed, to regain project schedule.
   4) Review of off-site fabrication, delivery schedules.
   5) Revisions and modifications to Progress Schedule.
   6) Coordination of schedules and work of the various Contractors.

g. Review submittal schedules and logs; expedite as required.
   1) By Contractors in preparation for submittal.
   2) By the County
   3) By Others, as needed.
   4) Update of submittal logs and schedule.

h. Maintenance of quality standards.

i. Review status of submitted, pending and returned Requests for Information.

j. Review status of submitted, pending and returned change order proposals and change orders, including status of supporting cost information.

k. Review and status of field directives and force account work

l. Review of Contractor requested changes and substitutions for effect on:
   1) Progress schedule and on completion date, and
   2) Other contracts of Project.

m. Review Monthly Pay Applications, and status of payments.

n. Site safety and security.

o. Record Documents.

p. Summary of critical issues.

q. Other.

r. Adjournment.

END OF SECTION

Section 01400
Testing Laboratory Services
(Provided by the Contractor)

Part 1 - General

1.1 Description

A. **AN INDEPENDENT TESTING LABORATORY SHALL BE PROVIDED BY THE CONTRACTOR** as a part of the services and Work of this Project by the Contractor to inspect and test the materials and methods of construction as hereinafter specified for compliance with the specification requirements of the Contract Documents and to perform such other specialized technical services as may be required by the County or his representative, including but not limited to the architect or engineer.

B. THE CONTRACTOR WILL PAY FOR THE INITIAL LABORATORY SERVICES for testing of materials for compliance with the requirements of the Contract Documents. The Contractor will pay for testing and re-testing of materials that do not comply with the requirements of the Contract Documents.

C. JACKSON COUNTY WILL PAY FOR RE-TESTING OF MATERIALS THAT ARE DOCUMENTED BY THE CONTRACTOR'S TESTING LABORATORY TO COMPLY WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

D. Tests and Inspections shall be conducted in accordance with specified requirements, and if not specified, in accordance with the applicable standards of the American Society for Testing and Materials (ASTM) or other recognized and accepted authorities in the field.

E. Where provision or requirement of this section diff with the technical specifications regarding materials or elements for testing, the more stringent provisions shall govern, and the Contractor shall submit a properly completed written Request for Information (RFI) to the architect or engineer for a final clarification and determination.

1.2 Qualification of Laboratory:

A. The Testing Laboratory selected shall meet the basic requirements of ASTM E329 "Standard of Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction", shall be inspected and approved by the ELF, FC & PA Joint Technical Committee, Inc. or by an equivalent recognized national authority and shall submit to the County a copy of the report of inspection of their facilities.

B. The Testing Laboratory selected shall meet "Recommended Requirements for Independent Laboratory Qualification", latest edition, as published by the "American Council of Independent Lahoratory Qualification".

C. Testing maehines shall be calibrated at intervals not exceeding twelve (12) months by devices of accuracy traceable to the National Bureau of Standards or accepted values of natural physical constants. The testing laboratory shall submit a copy of certificate of calibration made by an accredited calibration agency.

D. The Testing Laboratory is only required to have testing facilities for work included in this project.

E. The agent of the Testing Laboratory performing field sampling and field testing of concrete shall be certified by the American Concrete Institute as a Concrete Field Testing Technician – Grade I, or by an equivalent recognized national authority for an equivalent level of competence, or shall be a Georgia Licensed Professional Engineer.

1.3 Authorities And Duties of the Laboratory:

A. The Testing Laboratory shall obtain and review the project plans and specifications with the County and the project's professional architect, or engineer or consultants, and the Contractor prior to the start of construction. The Laboratory shall attend pre-construction conferences to coordinate materials inspection and testing requirements with the planned construction schedule. The Laboratory will participate in such conferences throughout the course of the project.

B. The Testing Laboratory shall be responsible for developing a written detailed construction testing program conforming to the requirements as specified in the Contract Documents and in consultation with the County and the project's professional architect, or engineer or consultants. The testing Construction shall contain a full and detailed description of inspections and tests to be performed with reference to applicable sections of the specifications or drawings, and Contract Documents, and a list of personnel assigned to each portion of the work. The written detailed construction testing program shall be submitted to the project's professional architect, or engineer or consultants in advance of the start of construction so as not to delay the start of construction. It shall be the Testing Laboratory's responsibility that such written detailed construction testing program conforms to the requirements of the Contract Documents. The Testing Laboratory shall monitor its expenditures throughout the course of the job and notify immediately the Contractor, County and the project's professional architect, or engineer or consultants, of any significant divination from the planned written detailed construction testing program.

C. The Laboratory shall cooperate with the Contractor, and County and the project's professional architect, or engineer or consultants, and provide qualified personnel promptly on notice.

D. The Laboratory shall perform the required inspections, sampling, and testing of materials as specified under each section and observe methods of construction for compliance with the requirements of the Contract Documents.

E. The Laboratory shall notify the Contractor and the project's professional architect, or engineer or consultants, and then the County, first by telephone, and then in writing, first by email or by fax, then by report, of observed irregularities and deficiencies, or rejections or condemnations, of the work and other conditions not in compliance with the requirements of the Contract Documents.

F. The Laboratory shall submit copies of all reports of inspections and test promptly and directly to the parties named below. All reports shall contain at least the following information:

1. Project Name
2. Date report issued.
3. Testing Laboratory name and address.
4. Name and signature of inspector.
5. Date of inspection and sampling.
6. Date of Test.
7. Identification of product and Specification section.
8. Location in the project.

9. Identification of inspection or test.
10. Record of weather conditions and temperature (if applicable).
11. Results of test regarding compliance with Contract Documents.

G. The Laboratory shall send certified copies of test and inspection reports to the following parties:
1. Two (2) copies to the Contractor; or as may otherwise be required by the Contractor.
2. Two (2) copies to the County or his representative.
3. One (1) copy to the Architect or Engineer or Consultant of responsibility
4. One (1) copy to the Supplier of the material tested.

H. Upon completion of the Project, the Testing Laboratory shall furnish to the County and Architect or Engineer or Consultant of responsibility, a statement certified by a Notary Public that all required tests and inspections, including any or all re-tests or re-inspections, were made in accordance with the requirements of the Contract Documents, and that such testing materials did obtain or meet the requirements of the Project.

I. THE TESTING LABORATORY IS NOT AUTHORIZED TO REVOKE, ALTER, RELAX, ENLARGE UPON, OR RELEASE ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS OR TO APPROVE OR ACCEPT ANY PORTION OF THE WORK OR TO PERFORM ANY DUTIES OF THE CONTRACTOR AND HIS SUBCONTRACTORS.

1.4 Contractor's Responsibility:

A. The Contractor shall cooperate with Laboratory personnel, provide access to the work, and to manufacturer's operations.

B. The Contractor shall provide to the Laboratory representative, samples of materials proposed for use in the work in quantities sufficient for accurate testing as specified.

C. The Contractor shall furnish casual labor, equipment, and facilities as required for sampling and testing by the Laboratory and otherwise facilitate all required inspections and tests.

D. The Contractor shall be responsible for notifying the Testing Laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.

E. The Contractor shall arrange with the Testing Laboratory and pay for any additional samples and tests above those required by the Contract Documents as requested by the Contractor for his convenience in performing the work.

F. The Contractor shall pay for any additional inspections, sampling, testing, and re- testing as required when initial tests indicate work does not comply with the requirements of the Contract Documents. Jackson County will pay for re-testing of materials that are documented by the Contractor's testing laboratory to comply with the requirements of the contract documents.

G. The Contractor shall furnish and pay for the following items, as relates to this project:
1. Soil survey of the location of borrow soil materials, samples of existing soil materials, and delivery to the Testing Laboratory.
2. Samples of concrete aggregates and delivery to the Testing Laboratory.
3. Concrete Coring, tests of below-strength concrete, and load tests, if ordered by the County or the Architect and/or Engineer or responsibility.
4. Certification of reinforcing steel mill order.
5. Certification of structural steel mill order.
6. Certification of Portland cement.
7. Certification of welders.
8. Tests, samples, and mock-ups of substitute material where the substitution is requested by the Contractor, and the tests are necessary in the opinion of the County or Architect or Engineer or Consultant to establish equality with specified items.
9. Any and ALL other tests when such costs are required by the Contract Documents to be paid by the Contractor.

H. The Contractor shall be responsible for notifying the County and the Testing Laboratory when the source of any material is changed after the original tests or inspections have been made.

I. If in the opinion of the County or the Architect or Engineer or Consultant any of the work of the Contractor is not satisfactory, the Contractor shall make all tests that the County or the Architect or Engineer or Consultant deem advisable to determine its proper construction. The County shall pay testing laboratory costs if the tests prove the questioned work to he satisfactory.

1.5 Extent of Services for Earthwork

A. Moisture Density Relationship for Natural and Fill Materials:
1. The Testing Laboratory will provide one (1) optimum moisture density curve for each type of soil, natural, imported fill, or on-site fill, encountered in sub-grade and fills under building slabs and paved areas. Curves shall be generated in accordance with ASTM D698.

B. Quality Control Testing Required During Construction:
1. The Testing Laboratory shall inspect and approve the following sub- grades and fill layers before further construction work is performed there on:
   a. Any and ALL Paved Areas and Building slab Sub-grade: Make at least one (1) field density test of the natural density test of the natural sub-grade for every 2,000 square feet of paved area or building slab, but in no case less than three (3) tests. In each compacted fill layer, make one (1) field density test for every 2,000 square of building slab or paved area, but in no case less than three (3) tests.
   b. Foundation Wall Backfill: Make at least one (1) field density test for each 50 lineal feet of all with a minimum of four (4) tests for each basement wall around the perimeter of the building and a minimum of one (1) test for every other type of foundation wall on the site. Tests shall be at random locations and elevations for each wall.
2. Field Density Test shall be run according to ASTM D1556 (Density of Soil in Place by the Sand Cone Method), ASTM D2167) (Density of Soil in Place by the Rubber Balloon Method) or ASTM D2922 (Density of Soil and Soil Aggregate in Place by Nuclear Methods) as applicable.
3. The results of field density tests by the Testing Laboratory will not he considered satisfactory unless their value meet the required density.
4. The Testing Laboratory shall submit all moisture density curves and results of field density tests to the parties listed.

5. If reports by the Testing Laboratory indicate field densities lower than specified above, additional tests will be run by the Testing Laboratory with at least the frequencies scheduled above on re-compacted fill and/or natural sub-grade. The Testing Laboratory shall notify the Contractor on a timely basis for any required re-testing so as not to delay the work. The costs of such tests shall be borne by the Contractor.
6. The Testing Laboratory shall provide inspection service of each dug footing sub-grade prior to pouring foundation concrete. Such inspection shall verify and record for reporting to the project's civil/geotechnical engineer that field conditions are consistent with soil report test results and that the foundation is being installed in the proper soil strata at the proper elevation.
7. The Testing Laboratory shall submit written field inspection reports promptly after inspection to all parties listed and report all findings after each inspection by telephone to the Architect or Engineer, and to the project's civil/geotechnical engineer.

1.6 Extent of Service for Concrete Materials and Poured In-Place Concrete:

A. Concrete Test Cylinders:

1. Cylinders for strength tests shall be molded and laboratory cured in accordance with ASTM C31 "Method of Making and Curing Concrete Test Cylinders in the Field" and tested in accordance with ASTM C39 "Method of Testing for Compressive Strength of Cylindrical Concrete Specimens".
2. Field samples for strength tests shall be taken in accordance with ASTM C172 "Method of Sampling Fresh Concrete".
3. Frequency of Testing: Each set of test cylinders shall consist of a minimum of four (4) standard test cylinders. A set of test cylinders shall be made according to the following frequency:
   a. One (1) set for each class of concrete taken not less than once a day.
   b. For walls, slabs-on-grade and floors, one (1) set for each 100 cubic yards or fraction thereof not less than one (1) set for each 5,000 square feet of surface area.
   c. For columns, one (1) set for each 150 cubic yards or fraction thereof with a minimum of two (2) sets per floor.
   d. For all other concrete, a minimum of one (1) set for each 100 cubic yards or fraction thereof.
   e. No more than one (1) set of cylinders at a time shall be made from any single truck.
   f. If the total volume of concrete is such that the frequency of testing as specified above would provide less than five (5) strength tests for a given class of concrete, tests shall be made from at least five (5) randomly selected batches or from each batch if fewer than five batches are used.
   g. The above frequencies assume that one (1) batch plant will be used for each pour. If more than one (1) batch plant is used, the frequencies cited above shall apply for each plant used.

The cylinders shall be numbered, dated, and the point of concrete placement in the building or site recorded. Of the four (4) cylinders per set, break one at seven days, two at 28 days, and one automatically at 56 days if either 28 day cylinder break is below required strength. One (1) additional cylinder per set will be required for formed slab-on-grade for the purpose of evaluating the concrete strength at the time of form stripping. The cylinder shall be stored near where form removal is to occur under the same exposure conditions as the floor concrete.

This cylinder shall be cured under field conditions in accordance with ASTM C31 "Method of Making and Curing Concrete Test Specimen in the Field". Field cured test cylinders shall be molded at the same time and from the same samples as laboratory cured test specimens. This cylinder shall be broken at the time of form removal as directed by the Contractor.

4. For concrete with design strength in excess of 5,000 PSI, the Contractor shall be responsible for providing a temperature controlled and protected concrete cylinder storage box at a point on the job site mutually agreeable with the Testing Laboratory for the purpose of storing concrete cylinders until they are transported to the Laboratory.

5. The Testing Laboratory shall be responsible for transporting the cylinders to the Laboratory in a protected environment such that no damage or ill effect will occur to the concrete cylinders.

6. The Testing Laboratory shall make and distribute concrete test reports after each job cylinder is broken. Such reports shall contain the following information:

   a. Project Name
   b. Contractor Name
   c. Truck number and ticket number.
   d. Concrete Batch Plant
   e. Mix design number.
   f. Accurate location of pour in the strueture or site.
   g. Strength requirement.
   h. Date cylinders made and broken.
   i. Technician making cylinders.
   j. Conerete temperature at placing.
   k. Air temperature and weather conditions at point of placement in the structure or site.
   l. Amount of water added to the truck at the batch plant and at the site.
   m. Slump.
   n. Unit weight.
   o. Air Content.
   p. Cylinder compressive strengths with type of failure if concrete does not meet Specification requirements. Seven (7) day breaks are not to be flagged if they are less than 70% of the required 28 day strength. 28 day breaks are to be flagged if either cylinder fails to meet Specification requirements.

B. Other Tests of Concrete Required by the Testing Laboratory:
   1. Slump tests (ASTM C143) shall be made at the beginning of concrete placement for each bateh plant and for each set of test cylinders made.
   2. Air entrainment (ASTM C233) tests shall be made at the same time slump tests are made as cited above.
   3. Concrete Temperature at plaeement at the same time slump tests are made as cited above.

C. Evaluation and Acceptance of Concrete:
   1. A strength test shall be defined as the average strength of two (2) 28-day cylinder breaks from each set of cylinders.
   2. The strength level of an individual class of concrete shall be considered satisfactory if both of the following requirements are met:

a. The average of all sets of three (3) consecutive strength tests equal or exceed the required f'c.

b. No individual strength tests (average of two (2) 28-day cylinder breaks) fall below the required f'c by more than 500 PSI. If either of the above requirements is not met, the Testing Laboratory shall immediately notify the Contractor, Architect, Engineer, and County by telephone. Steps shall immediately be taken to increase the average of subsequent strength tests.

D. Investigation of Low Strength Concrete Test Results:

1. If any strength test of laboratory cured cylinders fall below the required f'c by more than 500 PSI, the Contractor shall take steps immediately to assure that the load carrying capacity of the structure is not jeopardized.
2. The Testing Laboratory shall, under the direction of the Architect or Engineer, perform non-destructive field test of the concrete in question using Swiss Hammer, Windsor Probe, or other appropriate methods and report the results the same as for cylinder test reports.
3. If the likelihood of low strength concrete is confirmed and computations indicate that the load carrying capacity of the structure has been significantly reduced, tests of cores drilled from the area in question under the direction of the Engineer will be required in accordance with ASTM C42 (Method of Obtaining and Testing Drilled Cores and Saws Beams of Concrete). In such case, three (3) cores shall be taken for each strength test more than 500 PSI below required f'c. If concrete in the structure will be dry under service conditions, cores shall be air dried (temperature 60□ to 80□ relatively humidity less than 60 percent) for seven (7) days before test and shall be tested dry. If concrete in the structure will be more than superficially wet under service conditions, cores shall be immersed in water for at least 48 hours and tested wet. The Contractor shall fill all holes made by drilling cores with an approved dry-pack concrete.
4. Concrete in an area represented by core test shall be considered structurally adequate if the average of three (3) cores is equal to at least 85% of f'c and if no single core is less than 75% of f'c. To check testing accuracy, locations of erratic core strengths may be re-tested.
5. If the above criteria are not met, and the structure adequacy remains in doubt, the Engineer may order a load test, as specified in ACI 318 for the questionable portion of the structure.
6. If the structural adequacy of the affected portion of the structure remains in doubt, the Engineer may order the structure to be strengthened by an appropriate means or torn down and re-built.
7. The costs of all investigations of low strength concrete shall be borne by the Contractor.

E. Job Site Inspection by the Testing Laboratory: The scope of the work to be performed by the inspector on the job site shall be as follows:

1. Verify that air temperatures at the point of placement in the structure or at the site are within acceptable limits defined prior to ordering of concrete by the Contractor.
2. Inspect concrete upon arrival to verify that the proper concrete mix number, type of concrete, and concrete strength is being placed at the proper location.
3. Inspect plastic concrete upon arrival at the job site to verify proper batching. The responsibility for adding water to trucks at the job site shall rest only with a duly appointed representative mutually agreeable to the Contractor, the County, and the Architect or Engineer, prior to the start of any concrete operations.

4. Perform slump tests and air entrainment tests as specified.
5. Record information for concrete test reports as specified.
6. Verify that all concrete being placed meets job Specifications. Reject concrete not meeting the requirements and immediately notify the Contractor, Batch Plant Inspector, Architect, Engineer, and the County.
7. Pick up and transport to Laboratory, cylinders cast the previous day.
8. Check concrete placing techniques to determine that concrete deposited is uniform and that vertical drop does not exceed six feet.
9. The job site inspector shall report any irregularities that occur in the concrete at the job site or test results to the Contractor, the County, and the Architect and Engineer.

F. Causes for Rejection of Concrete Delivered to the Site:

A duly appointed representative agreeable to the County and the Architect or Engineer, shall reject all concrete delivered to the site for any of the following reasons:

1. Wrong class of concrete (incorrect mix design number).
2. Air Temperature: Air temperature limits shall be as follows:
   a. Cold Weather: Air temperature must be 40□F. and rising.
   b. Hot Weather: Air temperature must be cooler than 100□F and not rising. Concrete may be placed at other air temperature ranges only with approval to the duly appointed representative.
3. Concrete with temperatures exceeding 95□□F may not be placed in the structure or on the site without approval of the job inspector for the Testing Laboratory or other duly appointed representative.
4. Air contents outside the limits specified in the mix designs.
5. Slumps outside the limits specified in Section C.6 or the mix designs.
6. Excessive Age: Concrete shall be discharged within 90 minutes of plant departure or before it begins to set if sooner than 90 minutes unless approved by the Laboratory job inspector or other duly appointed representative.

G. Inspection shall also include masonry work:

1. Including, but not limited to grout strength, rebar and/or reinforcement placement and extent of grout filling of masonry cells, where required.
2. This shall apply to all types of masonry work: security and non-security type construction, interior and exterior, CMU and brick work.

1.7 Extent of Services For Structural Steel And Related Work:

A. Contract Obligations:

1. Contractor Responsibility: The Contractor shall pay for and arrange with the Testing Laboratory for the certification of all shop and field welders.

The costs of all re-testing of material or workmanship not in conformance with the Contract Documents shall be borne by the Contractor.

2. The County's Responsibility: The County shall pay for all re-testing of material or workmanship found to be in conformance with the Contract Documents, in those instances where the County has requested a re-test for its own information or verification.
3. The Fabricator and Erector shall provide: The laboratory inspector with access to all places where work is being done. A minimum of 24 hours notification shall be given prior to commencement of work.
4. Testing Laboratory Responsibility: The inspection of shop work by the Testing Laboratory shall be performed in the Fabricator's shop to the fullest extent possible. Such inspections shall be in sequence, timely, and performed in such a manner as to minimize disruptions in operations and to permit the repair of all non-conforming work while the materials in process in the fabricating shop. Inspection of field work shall be completed prompted so that corrections can be made without delaying the progress of the work. The Testing Laboratory shall provide test reports of all shop and field inspections. Shop test reports shall include shop welders certifications.
5. All test reports shall indicate types and locations of all defects found during inspection, the measures required and performed to correct such defects, statements of final approval of all welding and bolting of shop and field connections. In addition to the parties, the fabricator and erector shall receive copies of all test reports.
6. The County and Testing Laboratory reserve the right to reject any material or workmanship not in conformance with the Contract Documents at any time during the progress of the work. However, this provision does not allow waiving the obligation for timely, in sequence inspection.

B. Mill Tests of Structural Steel:

1. Mill Order Steel: The Fabricator shall furnish certified mill test reports and an affidavit stating that the structural steel furnished meets the requirements of the grade specified on the structural drawings for all mill order steel. In case of controversy, certified reports of tests, according to ASTM A6 or A568 as applicable, made by the County's Testing Laboratory, paid for by the Contractor, shall be made to verify conformity with ASTM standards.
2. Local Stock Steel: Materials taken from stock by a Fabricator for use for structural purposes must be of a quality at least equal to that required by the ASTM specifications applicable to the classification covering the intended use.
3. Certified mill test reports shall be accepted as sufficient record of the quality of materials carried in stock by the fabricator. In case of controversy, certified reports as specified for mill order steel shall be required.
4. If tests are required, test specimens shall be taken by the Contractor under the direction of the Testing Laboratory and shall be machined by the Testing Laboratory to dimensions as required by the applicable ASTM standards.

C. Shop Inspections and Tests:

The Testing Laboratory shall provide inspections at the designated fabrication shops for the designated periods of time to perform shop inspection and tests. The designated fabrication shops and time periods of inspections shall be determined in consultation with the, the County, and the Architect or Engineer prior to the start of fabrication in a timely manner so as not to delay the fabrication process. The following tests and inspections shall be performed.

1. Review shop drawings and shop procedures with fabricator's supervisory personnel.
2. Review welding procedures and obtain welder certificates.
3. Verify welding electrodes to be used and other welding consumables as the job progresses.
4. Provide inspection of surface preparation for coating and coating operations.

D. Field Inspections and Tests:

The Testing Laboratory shall provide inspection in the field for a period of time as determined in consultation with the Contractor, County and the Architect or Engineer prior to the start of erection in a timely manner so as to not delay the start of erection. The following tests and inspections shall be made:

1. Obtain the planned erection procedure, and review with the Erector's supervisory personnel.
2. Check the installation of base plates for proper leveling, grout type, and grout application.
3. Verify field welding procedures and obtain welder certificates.
4. Check steel as received in the field for possible shipping damage, workmanship, and piece marking.
5. Check plumbing and frame alignment as erection progresses.
6. Check required camber of floor beams.
7. Check joint preparation and fit up, backing strips, and run-out plates for welded moment connections and column splices.
8. Check pre-heating to assure proper temperature, uniformity, and thoroughness through the full material thickness.
9. Review welding sequence.
10. Visually inspect field welding for size, length, and quality.
11. Perform non-destructive examination services for various weldments of field erections determined in consultation with the Structural Engineer prior to the start of erection. The laboratory shall furnish a qualified technician with the necessary equipment to perform radiographic, ultrasonic, magnetic particle, or dye penetrate inspection as required for the item being tested and other duties as outlined for shop inspection.
12. Check calibration of impact wrenches used in field bolted connections.
13. Check high strength field bolted connections according to inspection procedures outlined in the "Specification for Struetural Joints Using ASTM A325 or A490 Bolts". Unless specified otherwise, test one (1) bolt in 10% of the bolted connections. If that bolt is fonnd to he improperly tightened, test all bolts in the connection
14. Visually inspect the welding of metal deck to the structure.
15. Perform field tests on 10% of completed shear connectors according to inspection proeedures outlined in AWS D1.1.

END OF SECTION

Section 01420
NPDES Stormwater Permitting

Part 1-General

1.1 Scope

Comply with requirement of State of Georgia Department of Natural Resources Environmental Protection Division General Permit NO. GAR100001. Permit governs stormwater discharges associated with construction activity under the National Pollutant Discharge Elimination System.

1.2 Regulatory Requirements

A. The Owner will obtain required permits and licenses in accordance with requirements of Federal Clean Water Act (CWA) and Water Quality Act (WQA), specifically, State of Georgia Department of Natural Resources Environmental Protection Division General Permit NO. GAR100001. The Owner's Representative will prepare, the Owner will sign, and the Contractor shall execute and file Notice of Intent (NOI) with Georgia Environmental Protection Division. Contractor shall be Operator on Notice of Intent.

B. Contractor shall provide temporary and permanent erosion, sedimentation, and pollution control systems as indicated by Drawings and Specifications and as necessary to protect adjacent properties and water resources from erosion, sedimentation and pollution.

C. CWA (1972) and WQA (1987) Requirements: General Permit No. GAR100001, (NPDES).

1. Owner's Representative will prepare Erosion, Sedimentation, and Pollution Control Plan that includes protocol for monitoring of erosion control measures and storm water sampling for duration of Contract.

2. Contractor shall provide stormwater management in accordance with NPDES permit and shall be responsible for corrections for any enforcement action taken or imposed by Federal or State agencies, including cost of fines, construction delays and remedial actions resulting from failure to comply with all provisions of NPDES permit, at no additional cost to the Owner.

3. Contractor shall maintain records, as required by General Permit No. GAR100001, on-site and make available for inspection by appropriate authority having jurisdiction at any time.

END OF SECTION

Part 1 - General

1.1 SECTION INCLUDES

A. Section summarizes the responsibility of the Contractor and the Structural Testing/Inspection Agency in the performance of the testing/inspection specified in the Contract Documents.

B. Neither the observation of the Design Professional in the administration of the contract, nor tests/inspections by the Testing/Inspection Agency, nor approvals by persons other than the Design Professional shall relieve the Contractor from his obligation to perform the work in accordance with the Contract Documents.

1.2 RELATED SECTIONS

A. Section 01 3300 – Submittal Procedures

B. Section 01 4000 – Quality Requirements

C. Section 01 4535 – Special Inspections

1.3 REFERENCES

A. ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

B. ASTM E329 - Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

C. American Council of Independent Laboratories - Recommended Requirements for Independent Laboratories Qualifications.

1.4 SELECTION AND PAYMENT

A. Contractor will employ and pay for the structural testing/inspection services that are required by the Contract Documents

B. Contractor shall pay for any additional structural testing/inspection required for work or materials not complying with Contract Documents due to negligence or nonconformance.

C. Contractor shall pay for any additional structural testing/inspection required for his convenience.

1.5 STRUCTURAL TESTING/INSPECTION REQUIREMENT SUMMARY

A. Specific structural testing/inspection requirements are given in the following specification sections:

1. Specification 03- Concrete Reinforcement Inspection
2. Specification 03- Concrete Testing/Inspection
3. Specification 31- Excavating, Backfilling, and For Structures

1.6 STATEMENT OF SPECIAL INSPECTIONS

A. Provide testing/inspection required to meet the provisions of the Schedule of Special Inspection Services below.

Part 2- Materials- Not Used

Part 3-Execution

3.1 STRUCTURAL PRECONSTRUCTION MEETING

A. A structural preconstruction meeting may be conducted at the construction site by the Design Professional to discuss quality issues. The parties involved may be the Design Professional, Contractor, Structural Testing/Inspection Agency, appropriate subcontractors, suppliers, and detailers.

3.2 STRUCTURAL TESTING/INSPECTION AGENCY'S RESPONSIBILITIES

A. Cooperate with the Owner/Designer and provide timely service.

B. Upon arriving at the construction site, sign in and notify the Contractor of presence.

C. Select the representative samples that are to be tested/ inspected.

D. Perform tests/ inspections as outlined in Contract Documents, the applicable codes, and as directed by the Design Professional.

E. Report work and materials not complying with Contract Documents immediately to the Contractor and Design Professional.

F. Leave copies of field notes with the Contractor prior to leaving the construction site. Field notes shall include the message given to the Contractor, date, time of message, name of Contractor's representative informed, type and location of work or materials tested/inspected, whether the work or materials complies with Contract Documents and name of the Structural Testing/Inspection Agency's representative.

G. Report and distribute results of tests/inspections promptly in the form of written reports as directed by the Design Professional.

H. Structural Testing/Inspection Agency shall not alter requirements of Contract Documents, approve or reject any portion of the work, or perform duties of the Contractor.

3.3 CONTRACTOR'S RESPONSIBILITIES

A. Provide copy of Contract Documents to the Structural Testing/Inspection Agency.

B. Arrange the preconstruction meeting to discuss quality issues.

C. Notify the Structural Testing/Inspection Agency sufficiently in advance of operations to allow assignment of personnel and scheduling of tests.

D. Cooperate with Structural Testing/Inspection Agency and provide access to work.

E. Provide samples of materials to be tested in required quantities.

F. Furnish copies of mill test reports when requested.

G. Provide storage space for Structural Testing/Inspection Agency's exclusive use, such as for storing and curing concrete testing samples.

H. Provide labor to assist the Structural Testing/Inspection Agency in performing tests/inspections.

3.4 OPTIONS

A. If the Structural Testing/Inspection Agency is located at such a distance from the project that travel expenses will be a consideration, or if the amount of sampling performed is minor, and by mutual agreement of the Design Professional and Contractor, the Contractor may be requested to take samples and forward them to the Structural Testing/Inspection Agency for testing/inspection.

END OF SECTION

SCHEDULE OF SPECIAL INSPECTION SERVICES					
PROJECT	**W. Jackson Middle School Athletic Field**				
		APPLICABLE TO THIS PROJECT			
MATERIAL / ACTIVITY	**SERVICE**	**Y/N**	**EXTENT**	**AGENT***	**DATE COMPLETED**
1704.2 Inspection of Fabricators					
Verify fabrication/quality control procedures.	In-plant review	(3)	Periodic	TA	
1704.4 Concrete Construction					
Inspection of reinforcing steel installation.	Field inspection	Y	Periodic.	TA	
Inspection of prestressing steel installation.	In-plant or field review	N	Periodic	N/A	
Inspection of prestressed concrete:	In-plant or field review				
a. Application of prestressing force		N	Continuous	N/A	
b. Grouting of bonded prestressing tendons in the seismic-force- resisting system		N	Continuous	N/A	
Inspection of anchor bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased per IBC section 1911.5 or where strength design is used		N	Continuous	N/A	
Inspection of anchors and reinforcing steel installed in hardened concrete: verify anchor type, anchor dimensions, hole dimensions, hole cleaning procedures, anchor spacing, edge distances, concrete minimum thickness, anchor embedment and tightening torque	Field inspection	Y	Continuous	TA	
Verify use of approved design mix	Field review	Y	Periodic	TA	
Fresh concrete sampling.	Field testing	Y	Continuous	TA	
Inspection of concrete and shotcrete placement for proper application techniques	Field inspection	Y	Continuous	TA	
Concrete and shotcrete curing operations.	Field inspection	Y	Periodic	TA	
Erection of precast concrete members.	Field inspection	N	Periodic	N/A	
Concrete strength testing and verification of compliance with construction documents	Field testing and review of laboratory reports	Y	Periodic	TA/SEOR	
Verification of in-situ concrete strength, prior to stressing of tendons in post tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	Review field testing and laboratory reports	N	Periodic	N/A	
Inspection of formwork for shape, lines, location and dimensions	Field inspection	Y	Periodic	TA	

SCHEDULE OF SPECIAL INSPECTION SERVICES

PROJECT	W. Jackson Middle School Athletic Field				
		APPLICABLE TO THIS PROJECT			
MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT	AGENT*	DATE COMPLETED
1704.7 Soils					
Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	Field inspection	Y	Periodic	TA	
Verify excavations are extended to proper depth and have reached proper material.	Field inspection	Y	Periodic	TA	
Perform classification and testing of controlled fill materials.	Field inspection	Y	Periodic	TA	
Verify use of proper materials, densities, and lift thicknesses during placement and compaction of controlled fill	Field inspection	Y	Continuous	TA	
Prior to placement of controlled fill, observe subgrade and verify that site has been prepared properly	Field inspection	Y	Periodic	TA	

* INSPECTION AGENTS	FIRM	ADDRESS	TELEPHONE NO.
1.			
2.			
3.			
4.			
5.			
6.			

Notes: 1. The inspection and testing agent(s) shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official prior to commencing work. The qualifications of the Special Inspector(s) and/or testing agencies may be subject to the approval of the Building Official and/or the Design Professional.

2. The list of Special Inspectors may be submitted as a separate document, if noted so above.

3. Inspection of febricators is not required where the fabricator is approved in accordance with IBC Section 1704.2.2.

4. "TA" = Testing Agency; "SEOR" = Structural Engineer of Record

Encircle "Yes" or "No" as appropriate and date this document below:

Are *Requirements for Seismic Resistance* included in the *Statement of Special Inspections*? **Yes No**

Are *Requirements for Wind Resistance* included in the *Statement of Special Inspections*? **Yes No**

DATE: 3/29/2013

Section 01500
Contractor's Temporary On-Site Facilities

Part 1 - General

1.1 Temporary On-Site Facilities To Be Provided By Contractor:

A. Temporary Offices (Optional): Provide sufficient space for Contractor's personnel.

1. Provide temporary office facilities complete with lighting, heating and air conditioning and telephone service.
2. Location of temporary office shall be subject to County's acceptance.
3. Temporary on-site facilities required under this section relate only to the Contractor's needs.
4. **NO ON-SITE FACILITIES are required for the Architect or Engineer, or the County.**
5. Contractor shall relocate offices and other storage buildings or facilities as necessary, at no additional costs to allow the work of the project and the other contractors to be performed.

B. Temporary Storage Facilities: Install and maintain storage and fabrication sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters of fully enclosed spaces. Locations and adequacy of storage facilities shall be subject to the County's approval.

C. Electrical Service: Provide temporary electrical service, including extensions and connections necessary for construction work.

D. Temporary Lighting: Provide the following minimum light levels for construction purposes. Comply with OSHA requirements for temporary lighting

E. Water Service: Provide temporary water for construction purposes, including extensions and connections necessary for work, including but not limited to any irrigation requirements of the Work of the Project.

F. Sanitary Toilet Facilities: Provide and maintain temporary toilet facilities for construction and site visitors and other personnel. Permanent new facilities may not be used by personnel.

G. Relocate temporary facilities during construction as required by progress of the Work at no additional cost.

H. Power for Contractor's temporary office and storage trailers shall be paid by the Contractor.

I. At completion of Work, or at time of permanent utility connections, as applicable, remove temporary facilities, including connections and debris resulting from temporary installation.

1.2 Staging Area:

A. The Contractor shall establish staging areas WITHIN the designated Limits of Work area for this Contract; no staging or materials storage will be permitted outside the Limits of Work area.

B. The Contractor is solely responsible for all security, protection, safeguards, etc. of materials and personnel within the established staging area (areas).

1.3 Temporary Controls:

A. Noise Control: Contractor shall make every effort to effect a satisfactory noise abatement Construction. Use sound deadening materials where required to reduce disturbances to classroom in session.

B. Dust Control: Where cutting or removing materials which will generate dust and dirt, the Contractor shall provide temporary dust curtains, solid barricades, or the like, to retain and control dust relative to the area in which work is occurring. Clean areas of dust as practicable so as not to allow its spread by pedestrian traffic.

1.4 Contractor's Use Of Premises: The Contractor is reminded that the Project is limited by its nature to certain physical areas. The facilities may be occupied (except as provided for work areas) while the work progresses, therefore, restrict personnel to areas where such occupancy exists.

1.5 Site Security:

A. Contractor shall be responsible for the security of the entire site for the entire duration of the construction n period. Before leaving at the end of each work day or work shift, Contractor shall check all gates, doors, windows, etc. to be certain that they are closed, locked and secure. Contractor shall leave premises in a condition to allow normal operation by the County for its intended uses.

END OF SECTION

Section 01 5100
Erosion, Sediment and Pollution
Control

Part 1 - General

1.1 Scope:

A. Work described in this section includes the containment of sediment transport, containment and control of all soil erosion and containment and treatment of all pollutants including dust and petroleum, prior to, during and throughout all construction operations; establishment of permanent vegetative cover and stabilization and continued maintenance of said measures in accordance with snh-paragraph 4 of Part III, paragraph. 3.4 of this section. Work includes removal of all devices at the completion of the project as further described in part 3.5 of this section.

B. Contractor is solely responsible for protection of all affected downstream properties from encroachment or damage from soil erosion and/or the discharge of pollutants by water, air or dust to any areas off the project site.

C. The Erosion Sediment and Pollution Control Plan (ESPC) and these Specifications together form the Landscape Architect/Engineer's "program" for Best Management Practices which are more fully described in the latest edition of the "Manual for Erosion and Sediment Control in Georgia- Vegetative and Structural Best Management Practices (BMPs) for Land Disturbing Activities" as published by the Georgia Soil and Water Conservation Commission. All control measures shown on the ESPC or described in these Specifications are to be considered the minimum required. However, additional measures may be required. Provide same as required either through observation of obvious conditions which threaten the environs of the site and/or other properties; the Contractor or his sub-contractors; the public's safety health or welfare; or by the directives from governing authorities after approval by the Owner.

D. The Contractor is the "Operator" and along with the Owner, the Primary Permittee as defined in the Permit (see next sentence for definition of Permit). The Contractor is responsible for all daily, weekly, monthly or any other on-site inspections and maintenance of the Erosion, Sediment and Pollution Control measures as required by the Authorization To Discharge Under the National Pollutant Discharge Elimination System Storm Water Discharges Associated With Construction Activity for Stand Alone Construction Projects General Permit No. GAR 100001 (hereafter and above referred to as the Permit) as well as other specific responsibilities of the Permit including documentation of deficiencies and repairs of deficiencies. All such responsibilities of the Permit are hereby a part of Contractor's work. All inspections shall he documented and copies of the documentation will be submitted to the Program Manager on a weekly hasis. The contractor shall keep all records of inspections, repairs, maintenance, reinspections and any other documentation required by the permit on site and available for review by the regulating authorities. Any punitive or other enforcement actions levied by any regulating authority for failure to comply with the permit are the responsibility of the Contractor and will he paid by the Contractor. All discharge sampling and reporting of sampling shall be the responsibility of the Contractor. Copies of the discharge sampling results must be available jobsite documentation.

Failure to properly install and maintain all or failure to conduct and document all inspections required by the Permit may result in stop work orders (other than erosion and sediment control related items) and withholding of payment to the contractor until all permit conditions are met. The contractor will not be compensated for delays resulting from stop work orders due to failure to comply with the permit.

E. Comply with all applicable criteria of the Permit which is hereby made a part of these Specifications by reference.

1.2 Submittals:

A. Schedule of Operations: Submit schedule of exact dates operations including program for erosion, sediment and pollution control measures, maintenance of all said measures including control facilities, structures and devices and vegetative practices. Show anticipated starting and completion dates for land-disturbing activities including excavation, filling and rough grading, finished grading, construction of temporary and permanent control measures, and disposition of temporary erosion sediment and pollution control measures.

B. As required by the Permit, submit written notification requesting the Initial Inspection by the Landscape Architect/Engineer to the Owner as soon as feasible.

C. If the contractor proposes to construct the project in different phases related to different drainage basins, the proposed sequence and scheduling must be submitted along with the Schedule of Operations.

D. Submit Notice-of-Termination to Georgia DNR-EPD, along with the Owner, at such time as the site meets the Permit requirement for same.

1.3 Project Conditions:

A. Furnish and install all control measures prior to or concurrent with any land disturbance activity. The Contractor is responsible for the initial provision and installation of all control measures and then the continued provision and installation and maintenance of all measures throughout all construction operations and all sequences of construction operations.

B. Schedule grading operations to allow permanent erosion control to take place in the same construction season. Avoid or minimize exposure of soils to winter weather. Maintain all controls until vegetative cover has been established.

C. Construct and maintain temporary control measures until such time as permanent measures are effective in control of erosion, sediment and pollution from the site. Extent of measures shall be responsibility of Contractor.

D. Stop all erosion, sediment, dust or other pollution from leaving the site and encroaching on downstream or surrounding properties.

E. Temporary grassing shall be applied to all disturbed areas left idle for 72 hours.

F. Contractor is responsible for all quantities of all BMPs regardless if shown on the ESPC. The extent of soil erosion control measures shown on the ESPC should be considered minimum.

1.4 Quality Criteria:

A. Procedures shall comply with the "Manual for Erosion and Sediment Control in Georgia", latest edition published by the Georgia Soil and Water Conservation Committee." Acquire and keep on-site throughout construction a copy of the latest edition of the "Field Manual for Erosion and Sediment Control in Georgia- Vegetative and Structural Best Management Practices (BMP's) for Land Disturbing Activities" as published by the Georgia Soil and

Water Conservation Commission sometimes referred to as the "little green book". The Contractor is required to keep a log book on site documenting his inspection of all BMP's (minimum once/week and within 24 hrs of any storm event) and noting any corrections or modifications. General Contractor must also file a "Notice of Termination" when the site is finally stabilized and all storm water management systems have been constructed and have been proven to be functioning in accordance with the Design Concept(s).

B. Reference the ESPC for any other procedural manuals, publications, permits or other field guidelines required for the Contractor to obtain, understand and utilize in the performance of his work. By reference of same, said materials are made a part of these Specifications.

C. Reference the State of Georgia EPD NPDES - GAR 100000 Permit and comply with all Quality Control criteria therein as it applies to the "Operator" and the Primary Permittee.

D. The contractor must employ and utilize Certified Personnel as required by the Permit.

Part 2 - Products

2.1 Filter Fabric:

A. Filter fabric for silt fences shall be a 36" Georgia DOT approved pervious sheet of synthetic polymer filaments non-woven from continuous filaments with wire fence backing. Filter fabric shall be of type recommended by its manufacturer for the intended application. The filter fabric shall meet the following requirements:

1. Minimum average thickness: 30 mil (by ASTM D1777).
2. Air permeability: 250 to 550 C.F.M./Sq. Ft.
3. Minimum grab strength: 110 lbs. (by ASTM D1682).

2.2 Filter Stone:

A. Aggregate filter shall conform to following gradations:

Sieve Size	% by weight passing Square mesh sieve
3"	100
3/4"	20-90
No. 4	0 - 20

2.1 Stone for Exit/Entrance Pad:

A. Stone shall comply with ASTM D448 size #1 (1 1/2" to 3 1/2").

2.2 Rip Rap:

A. Rip Rap shall be granite stone with a minimum weight of one hundred fifty pounds (150 lbs.) per piece.

Part 3 – Execution

3.1 Meeting with City Inspector:

A. The contractor must have a preconstruction conference with the site inspector assigned to the project by the Jackson County Government prior to starting any land disturbing activities. Notify the Program Manager of the date and time of the meeting and the Program Management inspector will also attend.

3.2 Temporary Erosion Control Devices:

A. Construct temporary sediment barriers of silt fence or other Structural Control Measures indicated on the ESPC at all points where surface water flows from construction area or as otherwise indicated on ESPC or as deemed necessary by inspectors.

B. Install temporary sediment traps and temporary sediment basins in accordance with the location and details shown on the ESPC. Remove accumulated sediment when they are one-third full of silt continually until permanent vegetative cover is established and the transportation and depositing of sediment has been eliminated.

C. Install construction exit(s) as indicated in the locations shown on the ESPC with geotextile fabric underlayment. Maintain construction exit(s) to prevent tracking and flow of mud onto public roads. If the contractor wishes to install construction exit(s) in location(s) other than the location(s) indicated on the ESPC, he must notify the Design Professional (see the Permit for definition) who prepared the ESPC. The design professional will approve or reject the proposed alternate location(s). If alternate locations are approved, the design professional will prepare and issue a new plan.

D. Construct diversion berms, dikes or diversion ditches at the tops of all slopes or as otherwise indicated on the ESPC. Machine compact these elements and plant temporary seed until permanent vegetative cover can be established.

E. Maintain temporary barriers until permanent erosion control measures are established and the transportation and depositing of sediment has been eliminated. Repair and replace all Structural Control Measures damaged or displaced by construction activity and surface water generated by run off.

F. Contractor shall clean out and/or adjust temporary sediment basin(s)/facility elevations to specified depth throughout duration of project after stabilization of all disturbed areas. Compact dam of sedimentation basin to minimum 95% Standard Proctor to the grade elevations shown on the ESPC.

3.3 Sedimentation Facilities:

A. Construct temporary sedimentation facility prior to or concurrent with rough grading of site. Permanent sedimentation control measures shall be constructed concurrently with fine grading or partial fine grading of site and vegetative stabilization. Direct surface water into completed portions of sedimentation facility.

B. Maintain temporary sediment traps at all drainage structures (both on-site and/or off- site) until permanent vegetative cover or stabilization has been established to prevent washing of sediment into storm drainage system. Utilize "pigs-in-a-blanket" temporary sediment traps at all completed or partially completed single wing or double wing catch basins, drop inlets and yard inlets unless other Structural Control Measures are shown on the ESPC.

C. Flush drainage lines between manholes and drainage structures as required during construction and after establishment of permanent erosion control measures to remove collected debris and sediment. Protect downstream areas when flushing debris and sediment from drainage structures and lines.

D. Install rip rap at all locations indicated on the ESPC or other drawings as soon as feasible. It shall be reasonably well-graded granite stone sized from smallest to maximum size specified. Stones smaller than smallest size specified is not permitted. Control gradation of rip rap by visual inspection to assure thickness of rip rap conforms to contract document requirements. Provide geotextile filter fabric under rip rap.

E. After land disturbance operations of any kind, survey the sediment facility and determine that sediment volume that is available. If specified volume is not available, disassemble control measures as necessary, excavate sediment from facility and install control measures. Dispose of excavated sediment from facility, spread over slopes in accordance with contours shown on the Grading and Drainage Plan and stabilize facility with permanent vegetation. Prepare and submit a certified statement of correct sediment facility volume. Do not dispose of any excavated sediment into any drainage way which might lead said material off-site onto adjacent downstream properties.

F. Any existing creeks and ponds shall not be used in any manner for Erosion, Sediment or Pollution Control measures. Protect same from all erosion, sediment or pollutants of any kind.

3.4 Ground Cover:

A. Protect all exposed soils with mulching (temporary measure) and vegetative ground cover (permanent measure).

B. Temporary Seeding consists of ground cover of temporary plant material on all graded areas which will not receive final grading or permanent planting within three (3) days.

C. All grassing or planting operations shall include mulching as stabilization until ground cover by planting is effective.

D. Reseed as required until full vegetative coverage is established.

3.5 Inspection and Maintenance:

A. Inspect all control elements and Structural Control Measures after each rainfall event and at the minimum intervals defined by the Permit if no rainfall event(s) occur. Clear all debris and accumulated sediment from behind barriers when one third full so their functional capacity is not reduced. Repair and replace any and all damaged measures of any kind.

B. If the contractor feels that the BMPs and/or structural control measures are not sufficient as designed, he shall notify the Design Professional who will review the areas in question.

3.6 Removal of Temporary Erosion Control Devices:

A. As soon as permanent vegetative cover is established, Contractor shall remove temporary devices, including sediment barriers, berms, silt traps and similar devices. Contractor to remove retrofit structure and clean out all accumulated silt and debris in detention ponds to restore finished grades indicated on the ESPC.

B. Contractor shall remove all excess silt from behind all silt fences and other filter devices and utilize it to repair erosion features if necessary. If silt is not needed for repairs, it shall be removed from the site by the contractor.

C. Contractor shall remove silt fence in snch a manner as to minimize damage to snrronnding vegetative cover. All fence fabric, wire and posts shall be removed completely, and removed from the site after permanent vegetation or stabilization as defined by the Permit has been established.

D. All disturbed areas created by removal of silt fence shall be immediately fine graded, stabilized and seeded with permanent grass to match surrounding areas. All rocks and debris shall be removed from the site. Stabilization of distnrbed areas may require the use of a "geo-jute" fabric to prevent erosion and allow for mowing of same area. Erosion control fabrics with netting that will be entangled in mowers is not acceptable in areas where mowing will occur.

E. In the event seasonal considerations prevent establishment of permanent grass, Contractor shall establish temporary grass and return the following season to establish permanent grass.

F. Remove all debris resulting from temporary erosion control from project site.

G. Control dust from disturbed areas by means of mulching, irrigation or other method subject to the Landscape Architect's review. Use of irrigation is limited to that allowed by any applicable drought restrictions.

H. Should site conditions dictate that it is not prudent to remove all temporary erosion control devices at the time of Contractor demobilization, the Contractor must remobilize personnel and equipment to complete removal as soon as conditions allow. The Contractor will be responsible for the complete and timely removal of all temporary erosion control devices as soon as adequate permanent vegetative cover or stabilization is established.

3.7 Notice of Termination:

A. The contractor will sign the Notice of Termination (NOT) when the projeet is complete and all conditions of the permit have been met. The signed NOT will be submitted to the Owner for review, signature and submittal to the EPD. The NOT will not be submitted until all permit conditions, including establishment of permanent vegetation as defined by the Permit is established. Therefore, if the contractor performs grassing operations during the season that requires temporary vegetative cover and demobilizes from the project, he will return to the site in the appropriate planting season and establish permanent vegetation as defined by the Permit. The eontractor is responsible for continuing inspections required by the Permit until the permanent vegetation is established and the NOT is submitted to the EPD.

END OF SECTION

Section 01630
Substitutions

PART ONE - GENERAL

1.1 REQUIREMENTS INCLUDED: Substitutions for products specified shall be allowed only under the conditions stated in this section.

1.2 SUBSTITUTIONS/PRIOR APPROVALS:

A. If it is desired to use products different from those indicated in the Contract Documents, the party requesting the substitution shall make written application as described herein. The burden of proving equality of proposed substitutions rests on the party making the request for substitution.

B. Requests for substitution shall reach the Architect or Engineer not less than ten (10) calendar days prior to the date for opening of bids. Requests received after this date will not be considered.

C. Nothing contained by these requirements shall prevent and should not discourage the Contractor from making a reasonable request for a product substitution for review. However, until such a substitution is approved and accepted, the Contractor shall be held accountable and responsible for fulfilling the requirements of the Contract Documents for the price submitted and for meeting the requirements for schedule, completion and performance.

D. Requests for Substitution made at any time throughout the project by any party shall follow these procedures. All such requests shall be through and by the Contractor, and submitted to the Architect or Engineer for review and determination for approval in consultation with the Contractor.

E. Submittal of any request by the Contractor from another contractor or party under its control or contract shall constitute an approval and acceptance by the Contractor as to costs and time impact to the project for completion within the contracted sum and time.

1.3 SUBMITTALS:

A. Submit a separate request for each substitution. Support each request with:
1. Date of request.
2. Name of party proposing substitution.
3. Project name.
4. Specification reference.
5. Complete data substantiating compliance of proposed substitution with requirements stated in Contract Documents:
   a. Product identification, including manufacturer's name and address.
   b. Manufacturer's literature, identify:
      (1) Product description.
      (2) Reference standards.
      (3) Performance and test data.
      (4) Manufacturer's recommendations for use and installation.

c. Samples, as applicable.
d. Name and address of similar projects on which product has been used, and date of each installation.

6. Itemized comparison of the proposed substitution with product specified, list all variations.
7. Data relating to changes in construction schedule.
8. Any effect of substitution on other coutractors and parties under the control or contract to the Contractor, to any and all separate contracts under the control or contract to the County.
9. List of changes required in other work or products.
10. Designation of required license fees or royalties.
11. Designation of availability of maintenance services, sources of replacement materials.

If a proposed substitution is approved, an addendum will be issued to prospective Bidders not less than three (3) calendar days prior to the date set for opening bids. If a substitution does not appear in an addendum it shall mean that the request has not been approved, and the product and the successful Bidder shall be responsible for furuishing materials and products in accordauce with the Contract Documents.

If a proposed suhstitution is approved by the Architect or Engineer, upon consultation with the County after the contract has been executed by the parties, a Change Order shall be prepared by the County aud distributed for approval and execution by both parties to the contract. No substitution shall be approved or binding upon the County unless said Change Order has been executed.

1.4 CONTRACTOR'S REPRESENTATION: In connection with the use of any substitute item approved by the County it shall be the Contractor's responsibility to see that such items meet all space requirements, and that any alterations to connecting items necessitated by use of the alternate items are properly made at no increase in cost to the County, and that all items are in compliance with the specification requirements. In submitting a request for any substitution, the Contractor represents and shall waive all claims for additional costs and contract time caused by substitutions which may subsequeutly become apparent or made necessary in the performance of the work of the project by the County, or any of its other contractors.

1.5 If substituted product or equipment requires any redesign of the building's architecture, structure, foundation, piping, mechanical system, security electronics systems, wiring, and/or other items, such redesign, including any new drawings, specifications and details shall be prepared by the requesting Contractor, vendor and/or supplier, at his sole expense and submitted to the Architect or Engineer, for consultation with the County for review and acceptance, prior to proceeding to incorporate the substitution work. Any additional required engineering and/or construction management or supervision performed by the County due to the substitution shall also be paid by the requesting Contractor, vendor or supplier.

1.6 If the substituted product affects other work in the project and/or requires changes in that other separate work, as shown and required by the contract documents, the requesting Contractor, vendor and/or supplier shall also fully pay for these other needed or necessary changes in the work of the project. This shall include any modifications known at the time of the substitution's approval and/or later found and determined by the County to be necessary or needed.

END OF SECTION

Section 01640
Request for Information (RFI)
Form & Procedures

Part 1 - General

1.1 Summary

A. Included within this Section and attached is the Requests for Information (RFI) form to be used by the Contractor for the project in submitting requests for information or clarifications to the Architect or Engineer, or the County.

B. Unless otherwise agreed by and among the parties, ONLY THIS FORM SHALL BE USED FOR REQUESTS FOR INFORMATION TO THE ARCHITECT OR ENGINEER OR TO THE COUNTY.

C. The Contractor will assign each request a unique number upon its reeeipt and forwarding for review and response.

D. The Contractor in making a request for information or clarification shall first have thoroughly and carefully reviewed the contract documents for the needed information before submitting any request.

E. All requests shall be completed by the Contractor in a manner to allow the receiving party to understand and to be able to respond as requested.

F. Responses will be made in a timely manner consistent with the thoroughness of the requesting information and question.

G. The Contractor shall maintain at his primary office and at the Project site offices, a central master file of all requests, by number, for later use or reference.

H. Each request's response shall be promptly "posted" by the Contractor to its documents so as to fully inform its employees and workers of the information needed to properly complete the work in a timely manner.

1.2 Substitutions

A. In accordance with the procedures set forth in Section 01630 Substitutions, the Request for Information form shall NOT be used for purposes of the Contractor making a request for substitution. The Contractor's attention is directed to the section on substitutions for procedures concerning those types of requests.

B. Requests for substitutions using the request for information form will be rejected and promptly returned to the requesting party for re-submittal in the proper form and format.

END OF SECTION

PROJECT NAME: _____

ARCHITECT OR ENGINEER: _____

REQUEST FOR INFORMATION (RFI)

RFI Number: _____ **Issue Date:** _____

Information provided is a clarification to the drawings and specifications.
***THIS IS NOT AN* AUTHORIZATION**
for *additional costs, time, or to proceed with any additional work or authorization for extra costs.*
If extra contract time or work is involved, written authorization per the contract must be obtained prior to proceeding.

DESCRIPTION: *(attach additional sheets and/or sketches as necessary)*

CONTRACTOR: _____

SUBMITTED BY: _____

REPLY: ***(attach additional sheets and/or sketches as necessary)***

REPLY DATE: _____ **REPLY BY:** _____

Section 01650
Project Record Documents
by Contractor

Part 1 - General

1.1 Requirements Included:

A. **THE CONTRACTOR SHALL MAINTAIN AT THE PROJECT SITE FOR USE BY ALL CONTRACTORS, THE "OFFICIAL" COPY OF THE PROJECT RECORD DOCUMENTS:**

1. Drawings.
2. Project Manual/Specifications.
3. Addenda.
4. Change Orders and other Modifications to Contract.
5. Field Orders or written instructions, including RFI's.
6. Approved & Approved As Noted Shop Drawings, Product Data & Samples.
7. Field Test Records.
8. Other relevant project record data or information.

B. The Contractor will make Record Documents available at all times to the Architect or Engineer, or the County. The Contractor shall not less than WEEKLY update and record on or to the "official" set all modifications and changes made during the previous time period, and shall sign an acknowledge that the information provided is accurate and a true representation of all modifications and changes made, and that the Architect or Engineer, and the County can rely upon the information and data provided.

C. The Contractor shall submit final Record Documents with Closeout Documents.

1.2 Quality Assurance:

A. Make entries after receipt of information, except note dimensional corrections and new dimensional data immediately upon determination.

B. Contractor shall not permit the field record documents set of contract documents to be used for any other purpose.

1.3 Record Documents:

A. Field Record Drawings: Entries shall be made by each Contractor on line prints provided by the County with each sheet bearing rubber stamp impression reading "Record Drawings".

1. Identify each entry by "cloud" type circle around affected Work. Initial and date each entry.

2. The Contractor shall record the following:

   a. Horizontal location and elevation of underground, embedded or covered and concealed portions of his Work.

   b. Location, size and arrangement of underground, embedded or covered and concealed mechanical and electrical portions of his Work, including conduit, piping, valves, ductwork, outlets, and equipment.

   c. Location, size and arrangement of exposed mechanical and electrical portions of his Work.

   d. Changes and corrections to dimensions.

   e. Changes to materials, products, equipment and finishes.

   f. Changes and deviations in Work from that indicated in Contract Documents.

   g. Identify equipment, valves, piping, conduit, fixtures and devices using symbols and designations corresponding to those used in Contract Documents.

B. Final Record Drawings: Will be provided by the Contractor, and submitted to the Architect or Engineer for review by the Architect or Engineer, for use by the Architect or Engineer in the updating of the electronic set of record documents to be furnished by the Architect or Engineer to the County.

C. Field Record Specifications: One complete set of Project Manual/Specifications within which changes to materials, products, equipment, and systems are recorded; also, note which specified manufacturer was used. Make corrections with colored pencil and mark the Manual "Record Specifications" on outside back binding.

END OF SECTION

Section 01700
Contract Closeout

Part 1 - General

1.1 Definitions:

Contract Closeout is hereby defined to include the general requirements near the end of the Contract Time, in preparation for final acceptance, final payment, normal termination of the Contract, occupancy by the County (at project completion), and similar actions evidencing completion of the work required under this project's total construction and completion. Specific requirements for individual units of work are specified in the sections of the Specification Divisions. The time of closeout is recognized to be directly related to "Substantial Completion" and "Final Completion" and therefore may be either a single time period for the entire work or a series of time periods for individual parts of the work which have been certified as substantially complete at different dates.

After the Contractor receives from the Architect or Engineer an executed copy of the "Notice of Substantial Completion" of the total project, the Contractor shall prepare, assemble and transmit to the Architect or Engineer, and the County, the documents, brochures and drawings herein required in one package.

1.2 Certification Of Substantial Completion: Prior to requesting inspection for Substantial Completion and execution of the Certification of Substantial Completion (for either the entire work or portions thereof) the Contractor shall complete the following and list all known exceptions in the request:

A. Submit last progress-payment request, with sworn and notarized statement showing one-hundred percent (100%) completion of the work, complete with associated releases, consents and all other supporting documentation.

B. Advise the Architect or Engineer, and the County in writing of pending insurance changeover requirements.

C. Obtain and submit operating certificates, certificate of occupancy from governing officials, final inspection/test certificates, and similar releases enabling the County's full and unrestricted use of the work and access to services and utilities.

D. Deliver tools, spare parts, extra stocks of materials, and similar physical items to the County.

E. Make final changeover of locks and transmit key and/or access cards to the County, and advise the County's personnel to changeover in security provisions.

F. Complete start-up testing of systems and instructions of the County's operating/maintenance personnel.

G. Submit all maintenance and operating manuals.

H. Touch-up and otherwise repair and restore marred exposed finishes.

I. Fire Extinguishers: Leave extinguishers charged and ready for use. Extinguishers shall bear a tag showing the date tested and by whom. All costs incurred shall be borne by the Contractor.

J. Valve Tag Schedules: Furnish two (2) copies of schedules with the Close-Out Documents and mount one additional copy, framed under glass, in each mechanical room.

1.3 Certification Of Final Acceptance: Prior to requesting the County's final inspection for certification of final acceptance and final payment, as required by the General Conditions, complete the following and list known exceptions (if any) in request:

A. Submit final payment request with final releases and supports not previously submitted and accepted.

B. Submit record drawings, and similar final record information.

C. Submit record documents, special guarantees, warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.

D. Submit three (3) copies, in hard copy and electronic format, of the County's final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.

E. Complete the final cleaning.

1.4 Submittals:

A. General: Specific requirements for submittal documents are indicated in individual Sections of these Specifications. The general requirements are indicated in this Section.

B. Warranties:

1. Warranty-Contractor and Subcontractors: Reference is hereby made to the General Conditions in which the one (1) year warranty of the Contractor and each subcontractor (the subcontractor's warranty shall be made to the County, not the Contractor) is required to be submitted, unless a warranty for a longer period of time is specified for certain Sections of the Work in Divisions 2 through 16, in which case the longer period shall govern. (Submit on forms attached in triplicate.)
2. The words "Warranty" and "Guarantee" as used anywhere in the text of the Contract Documents shall be interchangeable and synonymous meaning "a legally binding guarantee".
3. Specific warranties do not diminish implied warranties, and shall not deprive the County of actions, rights and remedies otherwise available to the County for the Contractor's failure to fulfill requirements of the Contract Documents. Periods of warranties shall not be interpreted as limitations on the time in which The County can pursue actions, rights or remedies.
4. Coincidental product warranties which are in conflict with the requirements of the Contract Documents will be rejected.
5. Warranties for items beyond the one (1) year limit: Refer to individual Sections for requirements.
6. All warranties shall commence on the Date of Substantial Completion or the date the maintenance and operating manuals are submitted, whichever date is the latest.
7. All warranties shall cover all costs for necessary material and labor to promptly replace or restore the failing unit of work and other work damaged from its failure.

C. Statutory and Non-Influence Affidavits (Contractor and Subcontractor): Before final acceptance of the Work or Final Payment, the Contractor shall furnish Statutory and Non-Influence Affidavits on the forms attached.

D. Inspection Reports: Secure and submit to the County, a sworn and notarized letter of certification from the local governmental agency or agencies that the construction has been inspected as required by laws or ordinances and that the building is acceptable for occupancy. (Certificate of Occupancy)

E. Certificate of Substantial Completion and Certificate of Final Completion: A Certificate of Substantial Completion on AIA Form No. G704, for the project will be prepared by the Architect or Engineer for the purpose of establishing a date when the project is substantially complete, identification of a punch list and determining actual damages or liquidated damages. Submit a Certificate of Final Completion upon final inspection of the project verifying that punch list items are complete and all closing documents are in order, as shown by the accompanying project close-out check off list, and that all final payments are in order and establishing a date of final acceptance.

F. Record Documents Drawings: Submit one (1) copy of each in hardcopy and electronic format.

G. As-Built Stormwater Detention Facility: On projects incorporating new or modified detention facilities, the Contractor shall prepare an as-built survey of the new and modified detention facilities, and shall submit hardcopy and electronic format copies thereof to the Architect or Engineer, and the County prior to the County's execution and issuance of the Substantial Completion Certificate.

H. Maintenance Manuals: Organize maintenance and operating manual information into suitable sets of manageable sizes, and bind into individual binders identified and indexed (thumb-tabbed); examples: Air Conditioning Equipment Maintenance, Roof Maintenance. Include emergency instructions, spare part listing, warranties, guarantees, wiring diagrams, recommended "turn-around" cycles, inspection procedures, shop drawings, product data, and similar applicable information. Bind each manual of each set in a heavy duty 3-ring vinyl-covered binder and include pocket folders for folded sheet information.

Legibly mark identification on both the front and spine of each binder. SUBMIT THREE (3) COPIES OF EACH PRIOR TO SUBSTANTIAL COMPLETION.

Part 2 - Products: There are no products in this Section.

Part 3 - Execution

3.1 Closeout Procedures:

A. General Maintenance Instructions: Prior to requesting the County's inspection for certification of Substantial Completion, arrange for each installer of work requiring maintenance or operation, to meet with the County's personnel, in the proper operation and maintenance of the entire Work. Include instructions by manufacturer's representatives where installers are not expert in the required procedures. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, and similar shut-down, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, and similar operations. Review maintenance and operations in relation with applicable guarantees, warranties, agreements to maintain, bonds, and similar continuing commitments.

B. Listing of Instructions, as related to work performed under the total project: See "Acknowledgement of Instruction" form at the end of this section. Fill-out one form for each of the items, and submit in TRIPLICATE to the County with closeout Documents. Specifically, but not necessarily by way of limitation, provide instruction to The County's personnel on the following categories of Work:

1. Commercial Hardware Doors & Frames and Glazing
2. Electrical Systems
3. Cleaning & Care of Hard Tile Surfaces
4. Cleaning & Care of Resilient Floor and Base
5. Cleaning & Care of Carpet
6. Cleaning & Care of Painted Surfaces
7. Operation of Fire Extinguishers
8. Food Service Equipment
9. Walk-in Cooler & Freezer
10. HVAC Systems and Equipment
11. Fans
12. HVAC Controls
13. Plumbing Fixtures
14. Water Heaters
15. Motor Starters and Motor Control Centers
16. Fire Dampers
17. Lighting Fixtures and systems
18. Fire Alarm System
19. Burglar Alarm System.
20. Intercom System
21. Voice/Data Network System
22. Audio/Visual System
23. Master Television System
24. Emergency Generator
25. Electrical Heat Units

C. Key and/or access cards and/or Access Cards: Transmit key and/or access cards and/or access cards, except construction master key and/or access cards directly to The County from supplier. Supplier shall index, tag and place key and/or access cards and/or access cards in key and/or access card cabinet (when applicable) as described below. Secure from The County or his designated agent a signed receipt in TRIPLICATE acknowledging receipt of key and/or access cards and/or access Key and/or access cards and/or Access Cards: Transmit key and/or access cards and/or access cards, except construction master key and/or access cards directly to The County from supplier. Supplier shall index, tag and place key and/or access cards and/or access cards in key and/or access card cabinet (when applicable) as described below. Secure from The County or his designated agent a signed receipt in TRIPLICATE acknowledging receipt of key and/or access cards and/or access cards and schedule. Retain one (1) copy and forward two (2) copies of receipt to the County

1. Key and/or access cards and/or access cards shall be tagged, indexed and submitted to the County. Tag as follows: One key and/or access card and/or access card (record key and/or access card and/or access card) for each lock or lockset shall be placed on a numbered tag having a non-opening clip. The remaining key and/or access card and/or access card(s) (Use Key and/or access card and/or access cards) for the lock or lockset shall be placed on a numbered tag board having the same number as the tag for the Record Key and/or access card and/or access card, both numbered tags containing the key and/or access cards shall then be placed on the corresponding numbered hook in the key and/or access card cabinet if sufficient capacity exists. If not, bag and turn over to the County. Record Key and/or access card tags shall be hexagonal shaped, red in color, with numbers embossed in white. Use key and/or access card tags shall be trilobal in shape, white in color, with numbers embossed in black.

2. Contractor shall provide the County with an index (by tag number) in sequential order giving a description of the location of the lock or lockset that the corresponding key and/or access card operates, additionally, the Contractor shall provide the County with index (by Key and/or access card number) in sequential order giving a description of the location of the lock or lockset that the corresponding key and/or access card operates. Indexes shall be typed and on the forms furnished with the key and/or access card cabinet for each type index required. If no forms are furnished with the key and/or access card cabinet, Contractor may use 20 weight bond paper for typing indexes.

3.2 Final Cleaning

A. General: Special cleaning for specific units of work is specified in the Sections of Division 2 through 16.

B. Provide final cleaning of the Work, at and not later than the time indicated, consisting of cleaning each surface or unit of work to the normal "clean" condition expected for a first-class building cleaning and maintenance Construction. Comply with manufacturer instructions for cleaning operations. The following are examples, but not by way of limitation, of the cleaning levels required:

1. Remove labels which are not required as permanent labels.
2. Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing substances which are noticeable as vision-obscuring materials. Replace broken glass.
3. Clean exposed exterior and interior hard-surfaced finishes, including metals, masonry, concrete, painted surfaces, plastics, tile, wood, special coatings, and similar surfaces, to a dirt free condition, free of dust, stains, films and similar noticeable distracting substances. Except as otherwise indicated, avoid the disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective condition.
4. Clean exposed exterior and interior hard-surfaced finishes, including metals, masonry, concrete, painted surfaces, plastics, tile, wood, special coatings, and similar surfaces, to a dirt free condition, free of dust, stains, films and similar noticeable distracting substances. Except as otherwise indicated, avoid the disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective condition.
5. Wipe surfaces of mechanical and electrical equipment clean, including equipment in addition to that specified in Division 15 and 16; remove excess lubrication and other substances.
6. Remove debris and surface dust from limited-access spaces including roofs, plenum shafts, trenches, equipment vaults, manholes, attics and similar spaces.
7. Clean concrete floors in non-occupied spaces broom clean.
8. Vacuum clean carpeted surfaces and similar soft surfaces.
9. Clean plumbing fixtures to a sanitary condition, free of stains including those resulting from water exposure.
10. Clean light fixtures and lamps so as to function with full efficiency.
11. Clean project site (yard and grounds), including landscape, development areas, of litter and foreign substances. Sweep paved areas to a broom- clean condition; remove stains, petro-chemical spills and other foreign deposits. Rake grounds clean of all debris that accumulated as a result of the construction.

C. Time of Final Cleaning: Following the County's certification of "Substantial Completion", and immediately before the "Final Acceptance" inspection by the Architect or Engineer, or the County.

D. Removal of Protection

1. Except as otherwise indicated or requested by the County, remove temporary protection devices and facilities which were installed during the course of the work to protect previously completed work or hazardous conditions during the remainder of the construction period.
2. Temporary silt fence and erosion control devices shall remain in place until one year following Substantial Completion, after which date they shall be removed by the Contractor and the surrounding areas dressed up as required. This item of work remaining to be completed after Final Completion and Final Payment, shall be noted and accepted by the Contractor's Surety and Bonding Company, and confirmed in writing from the Contractor's Surety and Bonding Company to be covered by the Project's bonds.

B. Compliance: Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at the site, or bury debris or excess materials on the property, or discharge volatile or other harmful or dangerous materials into drainage systems; remove waste materials from the site and dispose of in a lawful manner satisfactory to County's solid waste disposal ordinance. Where extra materials of value remaining after completion of the associated work have become the County's property, dispose of these to the County's best advantage as directed.

3.3 Continuing Inspections: Except as otherwise required by special guarantees, warrantics, agreements to maintain, workmanship bonds, and similar continuing commitments, comply with The County's requests to participate in inspections at the end of each time period of such continuing commitments. Participate in the general inspection(s) of the work approximately one year beyond the date(s) of Substantial Completion.

PART FOUR - CHECK OFF LIST AND FORMS
PROJECT CLOSEOUT CHECK-OFF LIST

DOCUMENT	NO. OF COPIES	DATE RECEIVED
1. Contractor's Warranty to the County	_____	
2. Subcontractors' Warranty to the County	_____	
3. Special Extended Warranties beyond 1 year to the County	_____	
4. Statutory Affidavit	_____	
5. Non-Influence Affidavit	_____	
6. Certificate of Occupancy issued by the Governing authority	_____	
7. As-Built Drawings and Record Documents	_____	
8. Maintenance Manuals & Equipment Brochures *		
a. Air Conditioning Equipment	_____	
b. Electrical Equipment	_____	
c. Test and Balance Reports	_____	
d. Wiring and Controls	_____	
e. Diagrams for Equipment	_____	
9. Maintenance & Staff Instructions	_____	
10. Key and/or access cards		
a. Schedule as specified	_____	
b. Certificate of receipt of key and/or access cards	_____	
11. Schedule of valve tags, locations and function	_____	
12. Punch List Items Completed	_____	
13. Hazardous Materials Certificate	_____	
14. Engineer's Certificate		
a. (As-Built Stormwater Detention Facility)	_____	
15. Certificate of Substantial Completion AIA G704*	_____	
16. Consent of Surety to Final Payment, AIA G707 Document	_____	

17. Contractors Affidavit of Payment
    a. Debts and Claims, AIA G706 Document _____

18. Certificate of Final Completion** _____

19. Certificate of Final Payment to Contractor _____

* ***Submit following the County's acceptance of building, facilities or site for use.***

** ***Hold all other documents and submit in a package when all requirements are complete. (No exceptions; piecemeal submittals will be returned.)***

I certify that, being familiar with the Contract Documents for this project, to the best of my knowledge, the items checked off herein above constitute all that are applicable to this project.

_____ _____
Contractor's Signature Date
(For Submitting to the County)

_____ _____
Architect's or Engineer's Signature Date
(Reviewed and Accepted for forwarding to the County for Acceptance)

_____
Date Submitted to Jackson County

_____ _____
Jackson County's Signature Date Accepted by Jackson County
(For Acceptance by Jackson County)

WARRANTY
BY CONTRACTOR
To: Jackson COUNTY

PROJECT/JOB NAME: _____

CONTRACTOR: _____

ADDRESS: _____

COUNTY OF: _____ STATE OF: _____

DATE: _____

As Contractor on the above job I/we do hereby guarantee that all work executed under the plans and Specifications will be free from defects of materials and/or workmanship for a period of: ONE (1) CALENDAR YEAR,

beginning on_____, the agreed upon date accepted by all the parties of the Construction Agreement and Project as the recorded date of Substantial Completion, and that all defects occurring within the warranty period shall be replaced or repaired at no cost to the County and Owner.

This guarantee by the Contractor covers all work as shown on the plans and specified in the Specifications and Contract Documents. Nothing in the above shall he deemed to imply that this guarantee shall apply to any work which has been abused or neglected by the County.

Legal Name of Contractor:

By: _____

Title: _____

_____

Notary Public

This_____day of_____, 201_____.

WARRANTY
BY SUBCONTRACTOR TO CONTRACTOR
To: Jaekson COUNTY

PROJECT/JOB NAME:

TO: JACKSON COUNTY

FROM CONTRACTOR: _____

FROM SUBCONTRACTOR: _____

ADDRESS: _____

COUNTY:_____STATE OF: _____

DATE: _____

As a Sub-Contractor to the Contractor for the identified work, on the ahove job, l/we do hereby guarantee that all work executed under the plans and Specifications will be free from defects of materials and/or workmanship for a period of: ONE (1) CALENDAR YEAR,

beginning on_____, the agreed upon date accepted by all the parties of the Construction Agreement and Project as the recorded date of Substantial Completion, and that all defects occurring within the warranty period shall be replaced or repaired at no cost to the County and Owner.

This guarantee by the Suh-Contractor covers all work as shown on the plans and specified in the Specifications and Contract Documents. Nothing in the above shall be deemed to imply that this guarantee shall apply to any work which has been abused or neglected by the County.

Legal Name of Sub-Contractor:

By: _____

Title: _____

_____

Notary Public

This_____day of_____, 201_____.

SPECIAL EXTENDED WARRANTY
To: JACKSON COUNTY

PROJECT/JOB NAME:

TO: JACKSON COUNTY

FROM CONTRACTOR: _____

PRIME WARRANTOR: _____

COUNTY OF:_____STATE OF:_____DATE: _____

(Insert above the name of the PRIME WARRANTOR and circle appropriate source below) as (SUPPLIER) (MANUFACTURER) (SUBCONTRACTOR) on the above referenced bid package scope of work for:

_____
(Insert description of work or materials provided on the line above)

The Prime Warrantor named above and the Contractor (co-signed below) do hereby guarantee that the above executed under the criteria of the Contract Drawings and Specifications will be free of defects in material and workmanship for a period of: ONE (1) CALENDAR YEAR,

beginning on_____, the agreed upon date accepted by all the parties of the Construction Agreement and Project as the recorded date of Substantial Completion, and that all defects occurring within the warranty period shall be replaced or repaired at no cost to the County. This warranty covers all work as shown on the Contract Drawings and Contract Specifications with warranty criteria outlined in

_____
(Insert the Technical Specification Section and Paragraph requiring the warranty)

Nothing in the above shall be deemed to imply that this warranty shall apply to any work or materials which has been abused or neglected by The County.

Legal name of Prime Warrantor	Legal name of Contractor
By (Officer)	By (Officer)
Title	Title

Notary Public This _____ day of_____, 20____.

STATUTORY AFFIDAVIT
To: JACKSON COUNTY

COUNTY OF: _____ STATE OF:

_____

FROM: _____
(Contractor)

TO: JACKSON COUNTY

RE: Contract entered into the _____ day of_____, 201 _, between the above-mentioned parties for the construction of the following Project:_____

at:
_____.

KNOW ALL MEN BY THESE PRESENTS:

1. The undersigned herehy certifies that all work required under the above contract has been performed in accordance with the terms thereof, that all materialmen, subcontractors, mechanics, and laborers have been paid and satisfied in full and that there are no outstanding claims of any character arising out of the performance of the contract which have not been paid and satisfied in full.
2. The undersigned further certifies that to the best of his knowledge and helief there are no unsatisfied claims for damages resulting from injury or death to any employees, suhcontractors, or the public at large arising out of the performance of the contract, or any suits or claims for any other damage of any kind, nature, or description whieh might constitute a lien upon the property of The County
3. The undersigned makes this affidavit as provided by law and for the purpose of receiving final payment in full settlement of all claims arising under or by virtue of the contract, and acceptance of such payment is acknowledged as a release of the County from any and all claims under or by virtue of the contract.

IN WITNESS WHEREOF, the undersigned has signed and sealed this instrument the

_____day of _____
, 201____.

Personally appeared before the undersigned, _____

and _____ who after being duly sworn, depose(s) and say(s) that the facts stated in the above affidavit are true.

Notary Public, the_____day of_____ _____,
201_____.

NON-INFLUENCE AFFIDAVIT
To: JACKSON COUNTY

COUNTY OF: _____ STATE _____

I do solemnly swear on my oath that as to the contract dated_____2005, for

_____

between

_____

and Jackson County, I have no knowledge of the exertion of any influence or the attempted exertion of any influence on the firm on behalf of which this affidavit is made in any way, manner, or form in the purchase of materials, equipment, or other items involved in the construction, manufacture or employment of labor under the aforesaid contract, by any member of the Jackson County Board of Commissioners, or any employee or any person connected with Jackson County, or with the State Government of Georgia in any way whatsoever.

This_____day of_____201 .

_____
Name (Typed or Legibly Printed)

_____
Signature

_____
Title

_____
Firm

County of_____State of _____

Personally before me, the undersigned, appeared

_____,
who is known to me to be an official of the firm of

_____
who, after being duly sworn, stated on his oath that he had read the above statement and that the same is true and correct.

Notary Public: _____ My commission expires_____.

ACKNOWLEDGEMENT OF INSTRUCTION
To: JACKSON COUNTY

PROJECT NAME: _____

CONTRACTOR NAME: _____

CONTRACTOR ADDRESS: _____

By signature below, Jackson County and the Contractor each acknowledge that the Contractor (and/or his representative) has satisfactorily instructed the County in the use, operation, and maintenance of:

_____

_____

_____

_____

_____

_____

_____

DATE: _____

CONTRACTOR'S INSTRUCTING PERSONNEL:(All names legibly printed)

_____

_____

_____

THE COUNTY'S PERSONNEL INSTRUCTED: (All names legibly printed)

_____

_____

_____

HAZARDOUS MATERIALS CERTIFICATE
CERTIFICATE OF CONTRACTOR
To: JACKSON COUNTY

COUNTY OF: _____ STATE OF: _____

PROJECT NAME:

_____

DATE: _____

_____, as Contractor on the above job, I/we do hereby certify that all materials, products and assemblies supplied and installed in this project and on the site are totally free of asbestos, PCB or other hazardous materials.

This certificate covers all materials required by the contract documents and/or permanently installed by the Contractor.

Nothing in the above shall be deemed to imply that this certificate shall apply to materials furnished by the County or installed by the County.

LEGAL NAME OF CONTRACTOR:

BY: _____

TITLE: _____

NOTARY PUBLIC

THIS_____DAY OF_____, 201_____.

My commission expires _____

CERTIFICATE OF FINAL COMPLETION

To: JACKSON COUNTY

PROJECT NAME:_____

DATE OF CONTRACT: _____

DATE OF THIS CERTIFICATE: _____

CONTRACTOR (Name, Address) _____

_____

_____

TO: JACKSON COUNTY

THIS CERTIFICATE COVERS THE ENTIRE PROJECT. By execution of this document, the Contractor and Jackson County each certify that the work performed under this Contract has been reviewed at a final inspection on_____and found to be complete as certified hy the attached project close-out check off list, and the County accepts the project as complete on the date of this certificate. Final payment to the Contractor is authorized.

Execution and acceptance of this certificate by Jackson County shall in no way waive or void any conditions of the Contract Documents. A Certificate of Substantial Completion has been issued establishing _____ as the date of occupancy and the commencement of all Warranties and Guarantees required by the Contract Documents.

Jackson County has assumed full and formal responsibility for insurance, utilities and routine maintenance as of:_.

_____ _____

CONTRACTOR BY DATE

_____ _____

JACKSON COUNTY BY DATE

END OF SECTION

Section 01 7419
Construction Waste Management and Disposal

Part 1 - General

1.1 Summary:

A. Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and construction waste.
2. Disposing of nonhazardous demolition and construction waste.

2.1 Definitions:

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

E. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

3.1 Quality Assurance:

A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

4.1 Waste Management Plan:

A. General: Develop a waste management plan according to ASTM E 1609 and requirements of this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, hut use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of demolition, site- clearing, and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of

waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
2. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
3. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
4. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

Part 2 - Products (Not Used)

Part 3 -Execution

3.1 Plan Implementation:

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

B. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
2. Comply with Division 01 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 Salvaging Demolition Waste:

A. Salvaged Any Items Specified by Owner for Reuse in the Work:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until installation.
4. Store items in a secure area until installation.
5. Protect items from damage during transport and storage.
6. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

B. Salvaged Items for Sale: Not permitted on Project site.

C. Salvaged Items for Owner's Use:
1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

3.3 Disposal of Waste:

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION

Section 02 4116
Structure Demolition

Part 1– General

1.1 Related Documents:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2 Summary:

A. Section Includes:

1. Demolition and removal of buildings and site improvements.
2. Removing below-grade construction.
3. Disconnecting, capping or sealing, and removing site utilities.

1.3 Definitions:

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged.

1.4 Material Ownership:

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 Submittals:

A. Schedule of Building Demolition Activities: Indicate the following:

1. Detailed sequence of demolition work, with starting and ending dates for each activity.
2. Temporary interruption of utility services.
3. Shutoff and capping or re-routing of utility services.

B. Pre-demolition Photographs or Video: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by demolition operations.

1.6 Quality Assurance:

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

1.7 Project Conditions:

A. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.

1. Provide not less than 72 hours' notice of activities that will affect operations of adjacent occupied buildings.
2. Maintain aceess to existing walkways, exits, and other facilities used by occupants of adjacent buildings
   a) Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.

B. Owner assumes no responsibility for buildings and structures to be demolished.

1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Hazardous Materials: Contractor is responsible for identifying hazardous materials and disposing of them in accordance with local and state regulations.

1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Engineer and Owner.

D. On-site storage or sale of removed items or materials is not permitted.

1.8 Coordination:

A. Arrange demolition schedule so as not to interfere with Owner's on-site operations or operations of adjacent occupied buildings.

Part 2 – Products

2.1 Soil Materials:

A. Satisfactory Soils: Comply with requirements in Division 31 Section "Earth Moving."

Part 3 - Execution

3.1 Examination:

A. Verify that utilities have been disconnected and capped before starting demolition operations.

3.2 Preparation:

A. Refrigerant: Remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of anthorities having jnrisdiction before starting demolition.

B. Existing Utilities: Locate, identify, disconnect, and seal or cap off indicated utilities serving bnildings and structures to be demolished.

1. Arrange to shut off indicated utilities with utility companies.
2. If removal, relocation, or abandonment of utility services will affect adjacent occnpied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other bnildings and structures.
3. Cnt off pipe or conduit a minimum of 24 inches below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jnrisdiction.

C. Existing Utilities: See Divisions 22 and 26 Sections for shntting off, disconnecting, removing, and sealing or capping utilities. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.

D. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent nnexpected movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of demolition.

3.3 Protection:

A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing bnildings.

B. Existing Utilities: Maintain utility services to remain and protect from damage during demolition operations.

1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and anthorities having jurisdiction
   a) Provide at least 72 hours' notice to occupants of affected buildings if shntdown of service is required dnring changeover.

C. Temporary Protection: Erect temporary protection, snch as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Division 01 Section "Temporary Facilities And Controls."

1. Protect adjacent buildings and facilities from damage due to demolition activities.
2. Protect existing site improvements, appurtenances, and landscaping to remain.
3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
5. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
6. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
7. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupied portions of adjacent buildings.

D. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.4 Demolition, General:

A. General: Demolish indicated buildings and site improvements completely. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
2. Maintain fire watch during and for at least 24 hours after flame cutting operations.
3. Maintain adequate ventilation when using cutting torches.
4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

C. Explosives: Use of explosives is not permitted.

D. Limited Phase II Environmental Site Assessment has been performed by the Southeastern Environmental Services, Inc. (SES). Report is attached following this section. Contractor is to comply with the Opinions and Conclusions of the report, and all costs are included in the Base Bid.

3.5 Demolition by Mechanical Means:

A. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.

B. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

1. Remove structural framing members and lower to ground by method suitable to minimize ground impact and dust generation.

C. Below-Grade Construction: Demolish fonndation walls and other below-grade construction.

1. Remove below-grade construction, including basements, foundation walls, and footings, completely.

D. Existing Utilities: Demolish and remove existing utilities and below-grade utility structures.

3.6 Site Restoration:

A. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations with satisfactory soil materials according to backfill requirements in Division 31 Section "Earth Moving.

B. Site Grading: Uniformly rongh grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.7 Repairs:

A. Promptly repair damage to adjacent buildings caused by demolition operations.

3.8 Disposal of Demolished Materials:

A. Remove demolition waste materials from Project site and legally dispose of them in an EPA-approved landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.

2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Do not burn demolished materials.

3.9 Cleaning:

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

1. Clean roadways of debris caused by debris transport.

END OF SECTION

Section 03 3000
Cast-in-Place Concrete

PART 1 - GENERAL

1.1 Section Includes

A. Section includes cast-in-place concrete work indicated in the Contract Documents or otherwise required for proper completion of the work.

1.2 Related Sections

A. Section 01 3300 - Submittal Procedures

B. Section 01 4000 - Quality Requirements

C. Section 01 4525 - Structural Testing/Inspection Agency Services

1.3 References

A. ACI 214 - Recommended Practice for Evaluation of Strength Test Results of Concrete.

B. ACI 301 - Specifications for Structural Concrete for Buildings.

C. ACI 302.1- Guide for Concrete Floor and Slab Construction.

D. ACI 304 - Guide for Measuring, Mixing, Transporting and Placing Concrete.

E. ACI 305 - Hot Weather Concreting.

F. ACI 306 - Cold Weather Concreting.

G. ACI 308 - Standard Practice for Curing Concrete.

H. ACI 309 - Guide for Consolidation of Concrete.

I. ACI 318 - Building Code Requirements for Structural Concrete.

J. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.

K. ASTM C33 - Standard Specification for Concrete Aggregates.

L. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.

M. ASTM C94 - Standard Specification for Ready-Mixed Concrete.

N. ASTM C138 - Standard Test Method for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete.

O. ASTM C143 - Standard Test Method for Slump of Hydraulic Cement Concrete.

P. ASTM C150 - Standard Specification for Portland Cement.

Q. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.

R. ASTM C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.

S. ASTM C230 - Standard Specification for Flow Table or Use in Tests of Hydraulic Cement.

T. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.

U. ASTM C309 - Standard Specification for Liquid Membrane Forming Compounds for Curing Concrete.

V. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.

W. ASTM C618 - Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.

X. ASTM E1155 - Standard Test Method for Determining Floor Flatness and Levelness Using the F-Number System.

1.4 Notice

A. Notify Design Professional and Structural Testing/Inspection Agency not less than 48 hours prior to placing concrete.

1.6 Quality Assurance

A. Structural Testing/Inspection Agency shall perform the following quality related items:
1. Examine concrete in truck to verify that concrete appears properly mixed.
2. Perform a slump test as deemed necessary for each concrete load. Record if water or admixtures are added to the concrete at the job site. Perform additional slump tests after job site adjustments.
3. Mold four specimens per set for compressive strength testing; one set for each 75 cubic yards of each mix design placed in any one day. For each set molded, record:
   a. Slump
   b. Air content
   c. Unit weight
   d. Temperatnre, ambient and concrete
   e. Location of placement
   f. Any pertinent information, such as addition of water, addition of admixtures, etc.
4. Perform one 7-day and two 28-day compressive strength tests. (Use one as a spare to be broken as directed by the Design Professional if compressive strengths do not appear adequate.)
5. Report in writing, as directed by the Design Professional, on the same day that tests are performed. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing agency, concrete design compressive strength, location of concrete placement in structure, concrete mix proportions and materials, compressive breaking strength and type of break.
6. Test concrete slabs for specified flatness and levelness in accordance with ASTM E1155. As a minimum, test three placements: the first placement and two additional placements as directed by the Design Professional. If the tested placement does not meet the specified overall valnes, test the next placement.

B. The ready-mixed concrete plant shall be certified for conformance with the requirements of the National Ready Mix Concrete Association.

C. The Structural Testing I Inspection Agency shall provide special inspections as required by Chapter 17 of the building code as required in Specification 01 4525.

1.6 Concrete Mix Design

A. Establish concrete mix design proportions in accordance with ACI318, Chapter 5.

B. Submit concrete mix designs. Include the following:
1. Type and quantities of materials.
2. Slump.
3. Air content.
4. Fresh unit weight.
5. Aggregates sieve analysis.
6. Design compressive strength.
7. Location of placement in structure.
8. Method of placement.
9. Method of curing.
10. Seven-day and 28-day compressive strengths.

C. Concrete supplier shall submit certifications that the materials nsed meet applicable ASTM Specifications. Mix designs not conforming to the above will be rejected.

1.7 Slump

A. Design concrete with a maximum slump of five inches.

B. If a slump greater than five inches is desired it shall be achieved with a high-range water reducer. Design the concrete mix with a high range water reducer slump of two aud one-half inches plus or minus one and one-half inches. The maximum slump after high-range water reducers are added shall be eight ineches.

1.8 Fresh Unit Weight

A. Normal weight concrete shall have a fresh unit weight of 140 to 152 pcf.

1.9 Air Content

A. No entrained air content is required in concrete placed inthe foundation.

B. For normal weight concrete, entrained air content shall be five percent plus or minus one and one-half percent, unless specified otherwise.

1.10 Water/Cement Ratio

A. Concrete elements shall have the following maximum water cement ratio:

1.	Below Grade Foundations	0.53
2.	Concrete Exposed to Weather	0.45

1.11 Submittals

A. Submit a concrete mix design as specified above for each type of concrete included in the work.

B. Submit a certification from each manufacturer or supplier stating that materials meet the requirements of the ASTM and ACI standards referenced.

C. Submit manufacturer's data including Product Data and installation instructions for the following items. Manufacturer's Data shall include the name of the manufacturer and date of the publication. All manufacturers' data shall be maintained at the project site by the contractor.
1. Admixtures
2. Curing materials
3. Expansion joint filler
4. Patching compounds
5. Bonding agents

Part 2- Products

2.1 Materials

A. Materials designated by specific manufacturer's trade names are approved, subject to compliance with the quality and performance indicated by the manufacturer. Instructions and specifications, published by the manufacturer of such materials are included in and are a part of these specifications. Upon request, provide certification from manufacturer or supplier that materials desiguated by reference to ASTM and ACI standards meet the requirements of these standards.

2.2 Concrete Strength

A. Provide concrete with 28 Day Compressive Strength of 3,000 psi.

2.3 Cement

A. Portland cement shall conform to ASTM C150, Type I, unless noted otherwise. Use one brand only.

2.4 Aggregate

A. Fine aggregate shall conform to ASTM C33.

B. Coarse aggregate of gravel or crushed stone shall conform to ASTM C33, Class 3M. Size coarse aggregate in accordance with ACI 318.

2.5 Water

A. Water shall be potable and free of deleterious substances in accordance with ACI 318.

2.6 Air Entraining Agent

A. Air entraining agent shall conform to ASTM C260.

2.7 Water Reducer

A. Water reducing agent shall conform to ASTM C494.

2.8 High-Range Water Reducer

A. High-range water reducers (superplasticizers) shall conform to ASTM C494.

2.9 Chloride

A. Use no chlorides of any form in concrete.

2.10 Curing and Sealing Compound

A. Acceptable products:
1. Anti-Hydro International, Inc., A-H Clear Cure.
2. BASF Building Systems, Kure-N-Seal 25 LV.
3. Euclid Chemical Co.,Rez-Seal.
4. Lambert Corp., Crystal Clear Seal 1315.
5. L & M Construction Chemicals, Inc., Dress & Seal.
6. W.R. Meadows Co.,CS-309.

B. Type: Clear, acrylic-based cure/seal compound, non-yellowing, meeting ASTM C309-07, Type I, Class B.

2.11 Fly Ash

A. Fly ash shall be Class F fly ash with a loss on ignition of less than five percent or Class C fly ash with a loss on ignition of less than one percent in accordance with ASTM C618.

2.12 Accelerators

A. Non-chloride accelerators shall conform to ASTM C494.

2.13 Retarders

A. Retarders shall conform to ASTM C494.

Part 3- Execution

3.1 High-Range Water Reducers

A. High-range water reducers are to be added at dosage recommended by the manufacturer. The slump of the concrete shall be one to four inches at the time the high-range water reducers are added. Do not permit fresh concrete containing superplasticizers to come in contact with fresh concrete not containing superplasticizers.

3.2 Addition of Water at Job Site

A. Provide batch tickets indicating the amount of mix water withheld .at the batch plant for each load of concrete delivered. Water may be added to the batch only if neither the maximum permissible water/cement ratio nor the maximum slump is exceeded.

B. Water shall not be added to the batch after the required on-site testing has been performed.

3.3 Placement of Concrete:

A. Deposit concrete as near as practical to final position to prevent segregation of concrete.

B. Do not use vibrators or any other means that could cause segregation to move masses of concrete in the forms.

C. Place floors and slabs in accordance with ACI 302.

D. Do not use aluminum equipment in placing and finishing concrete.

E. Place thickened slabs for partitions integral with floor slabs.

F. Prepare place of deposit, mix, convey, place, and cure concrete in accordance with ACI 301, ACI 304, and ACI 318.Wet forms before placing concrete.

3.4 Time Limit:

A. Deposit concrete within one and one-half hours after batching.

3.5 Vibration:

A. Consolidate concrete in accordance with ACI 301 and ACI 309.

3.6 Curing:

A. Begin curing procedures immediately following the commencement of the finishing operation.

B. Cure concrete in accordance with ACI 308. Keep the concrete surface moist. If an acrylic curing compound is used, apply in accordance with manufacturer's recommendations to surfaces of concrete not protected for five days by formwork .Do not use curing compounds in areas to receive material that does not adhere to concrete cured with a curing compound unless the curing compound is water soluble.

3.7 Environmental Provisions:

A. Perform cold weather concreting in accordance with ACI 306.

B. Perform hot weather concreting in accordance with ACI305.

C. Protect concrete from drying and excessive temperature for the first seven days.

D. Protect fresh concrete from wind.

3.8 Contraction Joints:

A. Obtain Design Professional'sapproval for location ofcontraction joints.

B. Place contraction joints in slabs-on-grade as indicated on the Drawings.

3.9 Cutting Concrete:

A. Obtain Design Professional's written approval prior to cutting concrete for installation of other work.

3.10 Patchwork and Repairs:

A. Notify Design Professional of any defective areas in concrete to be patched or repaired. Repair and patch defective areas with non-shrink grout. Cut out defective areas over two inches in diameter to solid concrete, but no less than a depth of one inch. Make edges of cuts perpendicular to the concrete surface.

3.11 Concrete Finishes:

A. Finish concrete inaccordance with ACI301.

B. Finish concrete slabs to flatness and levelness tolerances which correspond to FF 25/FL 20 minimum overall for composite of all measured values and FF 17/FL 12 minimum for any individual floor section.

C. For shored construction, FL values do not apply if slab is tested after shoring is removed.

D. Slabs, which do not meet the flatness and levelness criteria shall be repaired or replaced.

END OF SECTION

LIGHTING SPECIFICATION
PREPARED FOR

West Jackson Middle School

Football and Track Lighting Project
Jefferson, GA
11/12/15

Project # 174600

SUBMITTED BY:

Musco Sports Lighting, LLC

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We Make It Happen.

SECTION 26 56 68 – EXTERIOR ATHLETIC LIGHTING

PART 1 – GENERAL

1.1 SUMMARY

A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.

B. The purpose of these specifications is to define the performance and design standards for West Jackson Middle School. The manufacturer/contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.

C. The sports lighting will be for the following venues:
   1. Football (360'x160')

D. The primary goals of this sports lighting project are:
   1. Guaranteed Light Levels: Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore light levels are guaranteed to not drop below specified target values for a period of 25 years.
   2. Life-cycle Cost: In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated.
   3. Control and Monitoring: To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Fields should be proactively monitored to detect luminaire outages over a 25-year life cycle. All communication and monitoring costs for 25-year period shall be included in the bid.
   4. Environmental Light Control: It is the primary goal of this project to minimize spill light to adjoining properties and glare to the players and spectators.

1.2 LIGHTING PERFORMANCE

A. **Performance Requirements:** Playing surfaces shall be lit to an average target illumination level and uniformity as specified in the chart below. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below. Average illumination level shall be measured in accordance with the IESNA LM-5-04 (IESNA Guide for Photometric Measurements of Area and Sports Lighting Installations). Illumination levels shall not to drop below desired target values in accordance to IES RP-6-01, Page 5, Maintained Average Illuminance and shall be guaranteed for the full warranty period. Hours of usage shall comply with the following:

Area of Lighting	Annual Usage Hours	25 Year Usage Hours
Football	300	7,500
Track	300	7,500

B. **Mounting Heights**: To ensure proper aiming angles for reduced glare and to provide better playability, minimum mounting heights shall be 70'. Higher mounting heights may be required based on photometric report and ability to ensure the top of the field angle is a minimum of 10 degrees below horizontal.

# of Poles	Pole Designation	Pole Height
4	F1, F2, F3, F4	70'

C. **Lighting Methodology:** There are two methods that will be considered for calculation of the lighting designs for this project. The approved Lighting Method #1, automated timed power adjustments, as described in C.1 utilizes methodology that adjusts light levels through a series of programmed adjustments. The alternate Lighting Method #2, continuous depreciating light, as described in C.2 uses continuous lamp lumen depreciation which is recovered by relamping and cleaning lenses of the luminaires. Computer models shall reflect initial design lumens, end of life design lumens, recoverable light loss factor (RLLF), and the Coefficient Utilization (CU) for the design. Both

methods must be at or above target illumination levels throughout the 25 years of the contract/warranty provided by the manufacturer. A +/- 10% design/testing allowance is **not** permitted in the design logic.

1. **Lighting Method #1: Automated Timed Power Adjustments:**
   a. The lighting system shall use automated timed power adjustments to achieve a lumen maintenance control strategy as described in the IESNA Lighting Handbook 10th Edition, Lighting Controls Section page 16-8: "Lumen maintenance involves adjusting lamp output over time to maintain constant light output as lamps age and dirt accumulation reduces luminaire output. With lumen maintenance control, either lamps are dimmed when new, or the lamp's current is increased as the system ages."
   b. Manufacturers bidding an automated timed power adjustment system must provide an independent test report certifying the system meets the lumen maintenance control strategy above and verifying the field performance of the system for the duration of the useful life of the lamp based on lamp replacement hours. Report shall be signed by a licensed professional engineer with outdoor lighting experience. If report is not provided at least 10 days prior to bid opening, the manufacturer shall provide the initial and maintained designs called for in this specification under Lighting Method #2: Alternate Manufacturers, section 1.2.C.2.
   c. Project References: Manufacturers bidding any form of Automated Timed Power Adjustment light system must provide a minimum of 10 project references within the state of GA that have been completed within the last 12 months utilizing this exact technology. Manufacturer will include project name, project city, and if requested, contact name and contact phone number for each reference.

Area of Lighting	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Football	30fc	2.0:1.0	72	30'x30'
Track	12.8fc	21.56:4.43	40	30.0'

2. **Lighting Method #2 – Continuous Depreciating Light**
   a. The lighting system shall use continuous lamp lumen depreciation which is recovered by relamping and cleaning lenses of the luminaires. Manufacturer shall provide computer models for initial illumination level and target illumination levels on the field over 25 years. The specified maximum Recoverable Light Loss Factor (RLLF) of .65 and maintenance/group relamping schedule shall be provided in accordance with recommendations in the Leukos Abstract Volume 6, Number 3, January 2010, page 183-201: "Light Loss Factors for Sports Lighting", and presented at the 2009 IESNA Annual Conference.

1500w Luminaire RLLF Requirements

Lamp Replacement Interval (hours)	Recoverable Light Loss Factor (RLLF)
3,000	.65

   b. Independent Test Report: If lamp replacement interval is greater than 3,000 hours for 1500 watt lamps, manufacturer shall supply an independent test report with lumen depreciation over proposed lamp life, initial lumens, and end of life lumens.
   c. Based on anticipated hours of usage (300 hours per year), Method #2 systems would require a minimum of 2 group lamp replacements over the 25 years.

Area of Lighting	25 Year Usage Hours	25 Year Group Relamps Required
Football	7,500	2
Track	7,500	2

Area of Lighting	Average Initial Illumination Levels	Average Target Illumination Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Football	46.15fc	30fc	2.0:1.0	72	30'x30'
Track	19.74fc	12.831fc	21.56:4.43	40	30.0'

d. Revised Electrical Distribution: Manufacturer shall provide revised electrical distribution plans to include changes to service entrance, panel, and wire sizing if increased power is required which exceeds specified design loads.

1.3 LIFE CYCLE COSTS

Manufacturer shall submit 25-year life cycle cost calculation as outlined in the required submittal information.

Lamp replacement schedule per charts below:

Lighting Method 1 Lamp Replacement	Lighting Method 2 Lamp Replacement
5,000 hour intervals	3,000 hour intervals

PART 2 – PRODUCT

2.1 SPORTS LIGHTING SYSTEM CONSTRUCTION

A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, ballast and other enclosures shall be factory assembled, aimed, wired and tested.

B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel of 18-8 grade or better, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the crossarms, pole, or electrical components enclosure.

C. System Description: Lighting system shall consist of the following:
1. Galvanized steel poles and crossarm assembly. Alternate: Concrete pole with a minimum of 8,000 psi and installed with concrete backfill will be an acceptable alternative provided building code, wind speed and foundation designs per specifications are adhered to.
2. Non-approved pole technology:
    a. Square static cast concrete poles will not be accepted.
    b. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns.
3. Pre-stressed concrete base embedded in concrete backfill allowed to cure for 12-24 hours before pole stress is applied. Alternate may be an anchor bolt foundation designed such that the steel pole and any exposed steel portion of the foundation is located a minimum of 18 inches above final grade. The concrete for anchor bolt foundations shall be allowed to cure for a minimum of 28 days before the pole stress is applied unless shorter cure time approved by structural engineer of record.
4. All luminaires shall be constructed with a die-cast aluminum housing or external hail shroud to protect the luminaire reflector system.
5. Manufacturer will remote all ballasts and supporting electrical equipment in aluminum enclosures mounted approximately 10 feet above grade. The enclosures shall be touch-safe and include ballast, capacitor and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Disconnect per circuit for each pole structure will be located in the enclosure. Integral ballast fixtures will not be accepted.

6. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
7. All luminaires, visors, and crossarm assemblies shall withstand 150 mph winds and maintain luminaire aiming alignment
8. Control cabinet to provide remote on-off control and monitoring of the lighting system. Cabinet shall be constructed of aluminum and be rated NEMA Type 4. Communication method shall be provided by manufacturer. Cabinet shall contain custom configured contactor modules for 30, 60, and 100 amps, labeled to match field diagrams and electrical design. Manual off-on-auto selector switches shall be provided.
9. Lightning Protection: Manufacturer shall provide integrated lightning grounding via concrete encased electrode grounding system as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A. If grounding is not integrated into the structure, the manufacturer shall supply grounding electrodes, copper down conductors, and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780. The grounding electrode shall be minimum size of 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

A. Electric Power Requirements for the Sports Lighting Equipment:
   1. Electric power: 480Volt, 3Phase
   2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

B. Energy Consumption: The average kW consumption for the field lighting system shall be .08kW. The max kW consumption for the field lighting system shall be 68 kW.

C. Revised Electrical Distribution: Manufacturer shall provide, at their cost, revised electrical distribution plans to include changes to service entrance, panel, and wire sizing if using Lighting Method 2.

2.3 STRUCTURAL PARAMETERS

(Use for 2012 IBC)

A. Wind Loads: Wind loads shall be based on the 2012 International Building Code. Wind loads to be calculated using ASCE 7-10, an ultimate design wind speed of 115mph and exposure category C.

B. Pole Structural Design: The stress analysis and safety factor of the poles shall conform to 2009 AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals (LTS-5).

C. Foundation Design: The foundation design shall be based on soil parameters as outlined in the geotechnical report.

OR

C. Foundation Design: The foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2012 IBC Table 1806.2.

2.4 CONTROL SYSTEM

A. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields to only having permission to execute "early off" commands by phone. Scheduling tool shall be capable of setting curfew limits.

Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

B. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The controller shall determine switch position (manual or auto) and contactor status (open or closed).

C. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of lamp outages, control operation and service scheduling including relamping operations completed and scheduled. Mobile application will be provided suitable for IOS, Android and Blackberry devices.

Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.

1. Cumulative hours: shall be tracked to show the total hours used by the facility
2. Current lamp hours: shall be tracked separately to reflect the amount of hours on the current set of lamps being used, so relamping can be scheduled accurately.
3. Report hours saved by using early off and push buttons by users.

D. Communication Costs: Manufacturer shall include communication costs for operating the controls and monitoring system for a period of 25 years.

PART 3 – EXECUTION

3.1 SOIL QUALITY CONTROL

A. It shall be the Contractor's responsibility to notify the Owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the Owner's approval / payment for additional costs associated with:

1. Providing engineered foundation embedment design by a registered engineer in the State of GA for soils other than specified soil conditions;
2. Additional materials required to achieve alternate foundation;
3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

3.2 DELIVERY TIMING

Delivery Timing Equipment On-Site: The equipment must be on-site 4-6 weeks from receipt of approved submittals and receipt of complete order information.

3.3 FIELD QUALITY CONTROL

A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA LM-5-04. For Lighting Method 1, Timed Power Adjustment systems, light levels must be measured and exceed the specified target levels. For Lighting Method 2, light levels must be measured and meet the specified initial light levels.

B. Field Light Level Accountability
1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warranty period of 25 Years.
2. Manufacturer/Contractor shall provide to the owner as part of the bid package a new light meter that will be utilized both for initial light level testing and annual testing of the system. Initial light test certification at project completion shall be conducted by a third party State of GA Electrical Engineer (P.E.). Light meter specification shall be Gossen Mavloux 5032B or 5032C and shall be new and calibrated at time of delivery.
3. The contractor/manufacturer shall be responsible for an additional inspection one year from the date of commissioning of the lighting system and will utilize the owner's light meter in the presence of the owner.

4. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

C. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including illumination levels, uniformity ratios, and maximum energy consumption do not conform to the requirements of the performance specifications and submitted information, the manufacturer shall be liable to any or all of the following:
   1. Manufacturer shall at his expense provide and install any necessary additional luminaires to meet the minimum lighting standards. The Manufacturer shall also either replace the existing poles to meet the new wind load (EPA) requirements or verify by certification by a licensed structural engineer that the existing poles will withstand the additional wind load.
   2. Manufacturer shall minimize the Owner's additional long term luminaire maintenance and energy consumption costs created by the additional luminaires by reimbursing the Owner the amount of $1,000.00 (one thousand dollars) for each additional luminaire required.
   3. Manufacturer shall remove the entire unacceptable lighting system and install a new lighting system to meet the specifications

3.4 25-YEAR WARRANTY

A. Each manufacturer shall supply a signed warranty covering the entire system for 25 years OR for the maximum hours of coverage based on the estimated annual usage, whichever occurs first. Warranty shall guarantee light levels will not fall below target maintained levels. A +/- 10% design/testing allowance will not be allowed. Warranty shall also cover: lamp replacements, system energy consumption, monitoring, maintenance and control services, spill light control, and structural integrity. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty may exclude fuses, storm damage, vandalism, abuse and unauthorized repairs or alterations.

B. Group lamp replacements for Method 1 systems (Time Powered Adjustment) must occur at end of useful life of lamp as stated by manufacturer. Group lamp replacements for Method 2 systems (Continuous Depreciating Light) must relamp every 3,000 hours.

C. Maintenance: Manufacturer shall monitor the performance of the lighting system, including on/off status, hours of usage and lamp outage for 25 years from the date of equipment shipment. Individual lamp outages shall be repaired when the usage of any field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.

PART 4 – DESIGN APPROVAL

4.0 PRE-BID SUBMITTAL REQUIREMENTS

A. Design Approval: The owner / engineer will review pre-bid submittals per section 4.0.B from all the manufacturers to ensure compliance to the specification 10 days prior to bid. If the design meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.

B. Listed Manufacturers:
   1. Method 1: Time Powered Adjustment Technology - Musco's Green Generation Lighting® sports lighting system is the listed "Lighting Method 1" product.
   2. Method 2: Continuous Depreciating Light –Alternate Manufacturers are the listed "Lighting Method 2" product.

C. All listed manufacturers shall submit the information at the end of this section at least 10 days prior to bid. An addendum will be issued prior to bid; listing approved lighting manufacturers and the design method to be used.

D. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner's representative. Bids received that do not utilize an approved system/design, will be rejected.

REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS 10 DAYS PRIOR TO BID

All items listed below are mandatory, shall comply with the specification and be submitted according to pre-bid submittal requirements. Complete the Yes/No column to indicate compliance (Y) or noncompliance (N) for each item. ***Submit checklist below with submittal.***

Submitting as: ☒ ***Lighting Method 1*** ☐ ***Lighting Method 2***

Yes/ No	Tab	Item	Description
	A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
	B	Equipment Layout	Drawing(s) showing field layouts with pole locations
	C	On Field Lighting Design	Lighting design drawing(s) showing: a. Field Name, date, file number, prepared by b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y), Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, as well as luminaire information including wattage, lumens and optics d. Height of light test meter above field surface. e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaries, total kilowatts, average tilt factor; light loss factor. f. Manufacturer's using Lighting Method 2 shall provide both initial and maintained light scans using a maximum recoverable right loss factor (RLLF) as specified in section 1.2.C.2 and shall be shown on lighting design.
	D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
	E	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed to not fall below target levels for warranty period.
	F	Structural Calculations	Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts. Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of GA. Pole base design shall be completed by contractor and stamped by a structural engineer in the state of GA.
	G	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system to include monitoring. They will also provide ten (10) references currently using proposed system in the state of GA.
	H	Electrical Distribution Plans	Manufacturer using Lighting Method 2 must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of GA.
	I	Warranty	Provide written warranty information including all terms and conditions. Provide ten (10) references of customers currently under specified warranty in the state of GA.
	J	Independent Testing Report	a. Lighting Method 1 is to provide an independent test report certifying the system meets the lumen maintenance control strategy defined in Section 1.2.C.1.a, verifying the field performance of the system for the duration of the useful life of the lamp based on lamp replacement hours. Report shall be signed by a licensed professional engineer with outdoor lighting experience. b. If Manufacturer using Lighting Method 2 desires to provide a recoverable light loss factor other than specified in section 1.2.C.2, Independent field test report from licensed professional engineer will be required to substantiate the ability to maintain light levels in accordance with section 1.7-A of the specification. Both initial and maintained light scans must still be provided. Independent Engineer conducting the report must have no affiliation with the manufacturer and report must be based on actual testing data. Testing must be done on the system as a whole, not on individual

			components.
	K	Project References	Manufacturer to provide a list of 10 projects where the technology and specific fixture proposed for this project has been installed in the state of GA. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number. Manufacturer bidding Lighting Method 2 must supply independent test report if lamp life relamping projection is greater than 3000 hours.
	L	Product Information	Complete bill of material and current brochures/cut sheets for all product being provided.
	M	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
	N	Life-cycle Cost Calculation	Document life-cycle cost calculations as defined in the specification. Identify energy costs for operating the luminaires. Maintenance cost for the system including spot lamp replacement and group relamping costs must be included in the warranty. All costs should be based on 25 Years. (complete table below)

			Lighting Method 1	**Lighting Method 2**
a.	**Luminaire energy consumption** <Enter, F11> luminaires x <Enter, F11> kW demand per luminaire x <Enter, F11> kWh rate x <Enter, F11> annual usage hours x 25 years		<Enter, F11>	<Enter, F11>
b.	**Demand charges, if applicable**	+	<Enter, F11>	<Enter, F11>
	TOTAL 25 -Year Life-cycle Operating Cost	=	<Enter, F11>	<Enter, F11>

The information supplied herein shall be used for the purpose of complying with the specifications for West Jackson Middle School. By signing below I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

Manufacturer: _____ **Signature:** _____

Contact Name: _____ **Date:** _____/_____/_____

Contractor: _____ **Signature:** _____

END OF SECTION

Section 31 0000
Earthwork

Part 1 - General

1.1 Project Conditions

A. Visit the site to become thoroughly familiar with all existing conditions; review all previons drawings and specifications and previous technical reports prior to formulating Bid. Previous drawings, specifications and technical data are available for review at the Owner's and Architect's offices.

B. The Contractor is responsible to coordinate soils/geo-technical testing to be performed by the Contractor's independent Geotechnical Engineer in connection with SRW Wall.

C. At his own expense and prior to bidding, the Contractor may make any soil surveys and investigations he may feel necessary. Obtain authorization of Owner, through Landscape Architect/Engineer, prior to start of boring or subsurface investigations.

D. Survey and establish all property lines, property monumentation, clearing boundaries, and existing grades and lay out grade stakes for structures and appurtenances. If any survey monumentation is disturbed or destroyed, replace in original position. If existing grades are at variance with Drawings, Contractor shall promptly notify Landscape Architect/Engineer and receive instructions prior to proceeding any further with the work. Contractor shall be fully responsible for conditions resulting from his failure to do so. Contractor shall utilize a Registered Land Surveyor currently registered to practice land surveying in the State of Georgia.

E. Contractor is solely responsible for providing a Geotechnical Report by a geotechnical engineer on the existing condition of the site. Upon becoming aware of any subsurface or latent physically conditions that could hinder or delay construction, the contractor shall promptly notify the Owuer and Landscape Architect/Engineer of the conditions.

F. Remove from the project all qualified and quantified uusuitable materials, including all forms of rock, debris, organic materials and poor soils.

G. Contractor is solely responsible for all earth quantities and to render the finished grade elevations of the Project as indicated on the Drawings unless provided for otherwise in this Specification or as otherwise directed by Architect.

H. Provide traffic protection by means of suitable signs, barricades, lights and persounel in accordance with the latest edition of the Manual of Traffic Control Devices (MUTCD).

I. Comply with rules and regulations goveruing respective utilities.

J. Protect downstream properties from encroachment or damage from increased or concentrated storm water flows, erosion, sediment or pollutants.

Part 2 – Products

N/A

Part 3 - Execution

N/A

END OF SECTION

Section 31 1000
Site Clearing

Part 1 - General

1.1 Related Documents:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

12 Summary:

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stoekpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, and removing site utilities/ abandoning site utilities in place.
7. Temporary erosion- and sedimentation-control measures.

13 Definitions:

A. Snbsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil lace surface soil and is the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches in diameter; and free of subsoil and weeds, roots, toxic materials, or other non-soil materials.

D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected duriug construction, and indicated ou Drawings.

E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 Material Ownership:

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall beeome Contractor's property and shall be removed from Project site.

1.5 Submittals:

A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and sitc improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use snfficiently detailed photographs or videotape.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

B. Record Drawings: Identifying and accurately showing locations of capped ntilities and other snbsnrface strnctural, electrical, and mechanical conditions.

16 Projcct Conditions:

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate rontes around closed or obstructed traffic ways if reqnired by Owner or anthorities having jnrisdiction.

B. Improvements on Adjoining Property: If improvements are to be made on adjoining property, authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.

1. Do not proceed with work on adjoining property until directed by Engineer.

C. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

D. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

E. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

F. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Erection of sheds or structures.
4. Impoundment of water.
5. Excavation or other digging unless otherwise indicated.
6. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

G. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

H. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

Part 2 - Products

2.1 Materials:

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

Part 3 - Execution

3.1 Preparation:

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly identify trees, shrubs, and other vegetation to remain. Flag each tree trunk at 54 inches above the ground.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 Temporary Erosion and Sedimentation Control

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 Tree and Plant Protection

A. General: Protect trees and plants remaining on-site according to requirements in Division 01 Section "Temporary Tree and Plant Protection."

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Engineer.

3.4 Existing Utilities

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.

B. Locate, identify, and disconnect utilities indicated to be abandoned in place.

C. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Engineer not less than two days in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without Engineer's written permission.

D. Excavate for and remove underground ntilities indicated to be removed.

3.5 Clearing and Grubbing

A. Remove obstructions, trees, shrnbs, and other vegetation to permit installation of new construction.

B. Do not remove trees, shrnbs, and other vegetation indicated to remain or to be relocated.

C. Grind down stumps and remove roots, obstructions, and debris to a depth of 6 inches below exposed subgrade.

D. Use only hand methods for grubbing within protection zones.

E. Dispose of trees and branches off-site. Do not burn debris on-site.

F. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.7 Topsoil Stripping:

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth indicated in the Geotechnical Report provided by the Contractor's independent geotechnical engineer in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and non-soil niaterials from topsoil, including clay lumps, gravel, and other objects more than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Do not stockpile top soil within protection zones.

2. Dispose of snrplus topsoil. Surplus topsoil is that which exceeds qnantity indicated to be stockpiled or reused.

3.7 Site Improvements:

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw- cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.

2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.8 Disposal of Snrplus and Waste Materials:

A. Remove surplus soil material, nnsnitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

B. No burning allowed.

END OF SECTION

Section 31 2000
Earth Moving

Part 1 - General

1.1 Related Documents:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Geotechnical Report(s) to be provided by the contractor.

1.2 Summary:

A. Section Includes:

1. Preparing subgrades for slabs-on-grade, walks, pavements, turf and grasses, and plants.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for concrete slabs-on-grade.
4. Subbase course for concrete walks.
5. Subbase course and base course for asphalt paving.
6. Subsurface drainage backfill for walls and trenches.
7. Excavating and backfilling trenches for utilities and pits for buried utility structures.

1.3 Unit Prices:

A. Rock Measurement: Volume of rock actually removed, measured in original position, but not to exceed the following. Unit prices for rock excavation include replacement with approved materials.

1. 6 inches outside of concrete forms.
2. 6 inches outside of minimum required dimensions of concrete cast against grade.
3. Outside dimensions of concrete walls or footings indicated, or allowed, to be cast against rock without forms or exterior waterproofing treatments.
4. 6 inches beneath bottom of concrete slabs-on-grade.
5. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

1.4 Definitions:

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.

2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade· that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.

3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 1/2 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:

1. Trench Excavation: Late-model, hydraulic excavator; equipped with a 42-inch- wide, maximum, short-tip-radius rock bucket; with bucket-curling force of not less than 40,000 lbf ; measured according to SAE J-1179 (John Deere 790 or larger).
2. Open Excavation: Late-model, crawler tractor; with a single-tootb ripper; having a minimum draw bar pull rating of not less than 80,000 lpf usable pull, measured according to SAE J-732 (Caterpillar D-8 or larger).
3. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
4. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix aspbalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
5. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
6. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.5 Submittals:

A. Product Data: For each type of the following manufactured products required:

1. Geotextiles.
2. Warning tapes.

B. Material Test Reports: For each borrow soil material proposed for fill and backfill as follows:

1. Classification according to ASTM D2487.
2. Laboratory compaction curve.

C. Blasting plan approved by authorities having jurisdiction.

D. Seismic survey report from seismic survey agency, if required by local jurisdiction.

E. Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by earth moving operations. Submit before earth moving begins.

1.6 Quality Assurance:

A. Blasting: Comply with applicable requirements in NFPA 495, "Explosive Materials Code," and prepare a blasting plan reporting the following:

1. Types of explosive and sizes of charge to be used in each area of rock removal, types of blasting mats, sequence of blasting operations, and procedures that will prevent damage to site improvements and structures on Project site and adjacent properties.

2. Seismographic monitoring during blasting operations.

1.7 Project Conditions:

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.

2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth moving operations.

C. Do not commence earth moving operations until temporary erosion- and sedimentation- control measures are in place.

D. Do not commence earth moving operations until plant-protection measures specified in Division 01 Section "Temporary Tree and Plant Protection" are in place.

Part 2 - Products

2.1 Soil Materials:

A. General: Provide borrow soil materials at no additional cost to the owner when sufficient satisfactory soil materials are not available from excavations.

B. Refer to the Contractor's independent Geotechnical Report for descriptions of satisfactory soil materials for each portion of the project.

2.2 Geotextiles:

A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with the Geotechnical Engineer's recommendations.

B. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with the Geotechnical Engineer's recommendations.

2.3 Accessories:

A. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

Part3 - Execution

3.1 Preparation:

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.

B. Protect and maintain erosion and sedimentation controls during earth moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 Dewatering:

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Remove water if necessary.

C. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.3 Explosives:

A. Explosives: Obtain written permission from authorities having jurisdiction before bringing explosives to Project site or using explosives on Project site.

1. Perform blasting without damaging adjacent structures, property, or site improvements.

2. Perform blasting without weakening the bearing capacity of rock subgrade and with the least-practicable disturbance to rock to remain.

3.4 Excavation, General:

A. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by the contractor's surveyor (see unit price specifications). The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents.

1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.

a) Intermittent drilling; blasting, if permitted; ram hammering; or ripping of material not classified as rock excavation is earth excavation.

b) Rock excavation includes removal and disposal of rock.

3.5 Excavation for Structures:

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

2. Pile Foundations: Stop excavations 6 to 12 inches above bottom of pile cap before piles are placed. After piles have been driven, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.

3. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.

B. Excavations at Edges of Tree- and Plant-Protection Zones:

1. Excavate by hand to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

2. Cut and protect roots according to requirements in Division 01 Section "Temporary Tree and Plant Protection."

3.6 Excavation for Walks and Pavements:

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

B. Excavations at Edges of Tree- and Plant-Protection Zones:

1. Excavate by hand to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

2. Cut and protect roots according to requirements in Division 01 Section "Temporary Tree and Plant Protection."

3.7 Excavation for Utility Trenches:

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: 12 inches each side of pipe or conduit.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. For pipes and conduit less than 6 inches in nominal diameter, hand-excavate trench bottoms and support pipe and conduit on an undisturbed snbgrade.

2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe or condnit circumference. Fill depressions with tamped sand backfill.

3. For flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support conduit on an undisturbed subgrade.

4. Excavate trenches 6 inches deeper than elevation required in rock or other nnyielding bearing material to allow for bedding course.

D. Trench Bottoms: Excavate trenches 4 inches deeper than bottom of pipe and conduit elevations to allow for bedding course where indicated or recommended by pipe or conduit manufacturer. Hand-excavate deeper for bells of pipe.

1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

E. Trenches in Tree- and Plant-Protection Zones:

1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.

3. Cut and protect roots according to requirements in Division 01 Section "Temporary Tree and Plant Protection."

3.8 Subgrade Inspection:

A. Notify Contractor's independent Geotechnical Engineer/ Testing Frim when excavations have reached required subgrade.

B. If Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed by the Contactor's independent Geotechnical Engineer. Notify Owner's Representative Office prior to removing unsuitable soil.

C. Proof-roll subgrade below the building slabs and pavements with a pneumatic-tired and loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.

2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Engineer, and replace with compacted backfill or fill as directed.

3. Perform proof-rolling in the presence of the Contractor's independent Geotechnical Engineer.

D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer, without additional compensation.

3.8 Storage of Soil Materials:

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.9 Backfill:

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.

2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring and bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.10 Utility Trench Backfill:

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Trenches under Footings: Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings.

D. Trenches under Roadways: Provide a minimum of 12 inches of cover for pipe up to 48" diameter, and 24 inches of cover for larger pipe, measured from the top of the pipe to the bottom of flexible pavement or to top of rigid pavement.

E. Backfill voids with satisfactory soil while removing shoring and bracing.

F. Place and compact initial backfill of satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 6 inches over the pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

G. Controlled Low-Strength Material: Place initial backfill of coutrolled low-strength material to a height of 6 inches over the pipe or conduit. Coordinate backfilling with utilities testiug.

H. Place and compact final backfill of satisfactory soil to fiual subgrade elevatiou.

I. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.

J. Install warning tape directly above utilities, 12 inches below finished grade, except 6 iuches below subgrade under pavements and slabs.

3.13 Soil Fill:

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.14 Soil Moisture Control:

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.

2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.15 Compaction of Soil Backfills and Fills:

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 24 inches of existing subgrade and each layer of backfill or fill soil material at 98 percent Standard Proctor.
2. Under walkways, scarify and recompact top 6 inches below subgrade aud compact each layer of backfill or fill soil material at 98 percent.
3. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 95 percent.

3.16 Grading:

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straight edge.

3.17 Subsurface Drainage:

A. Subdrainage Pipe: Specified in Division 33 Section "Subdrainage."

B. Subsurface Drain: Place subsurface drainage geotextile around perimeter of subdrainage trench. Place a 6-inch course of filter material on subsurface drainage geotextile to support subdrainage pipe. Encase subdrainage pipe in a minimum of 12 inches of filter material, placed in compacted layers 6 inches thick, and wrap in subsurface drainage geotextile, overlapping sides and ends at least 6 inches.

3.18 Subbase and Base Courses under Pavements and Walks:

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:

1. Place base course material over subbase course under hot-mix asphalt pavement.
2. Shape subbase course and base course to required crowu elevations and cross- slope grades.
3. Place subbase course and base course 6 inches or less in compacted thickness in a single layer.
4. Place subbase course and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
5. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 98 percent of maximum dry unit weight according to ASTM D 698.

C. Pavement Shoulders: Place shoulders along edges of subbase course and base course to prevent lateral movemeut. Construct shoulders, at width indicated, of satisfactory soil materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.19 Drainage Course under Concrete Slabs-On-Grade:

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Install subdrainage geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
2. Place drainage course 6 inches or less in compacted thickness in a single layer.
3. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
4. Compact each layer of drainage course to required cross sections and thicknesses to not less than 98 percent of maximum dry unit weight according to ASTM D 698.

3.20 Field Quality Control:

A. Special Inspections: Contractor will engage a qualified special inspector to perform the following special inspections:

1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
2. Determine that fill material and maximum lift thickness comply with requirements.
3. Determine, at the required frequency, that in-place density of compacted fill complies with requirements.

B. Testing Ageucy: Contractor will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

D. Footing Subgrade: At footiug subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Engineer.

E. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.

F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.21 Protection:

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish, grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.14 Disposal of Surplus and Waste Materials:

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them *off* Owner's property.

B. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Engineer.

1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION

Part 1 - General

1.1 Section Include

A. Section includes the excavation, backfilling and compacting required for the structures shown in the Contract Drawings.

1.2 Related Sections

A. Section 01 3300 - Submittal Procedures

B. Section 01 4000 - Quality Requirements

C. Section 01 4525 - Structural Testing/Inspection Agency Services

1.3 References

A. ASTM D422 - Standard Test Method for Particle-Size Analysis of Soils.

B. ASTM D698 - Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 .)

C. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.

D. ASTM 03017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

E. ASTM D4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.4 Definitions

A. Granular subbase: Granular fill directly beneath slabs-on-grade.

B. Backfill: Fill immediately behind foundation elements or retaining walls.

C. Structural fill: Fill under the structure other than the granular subbase.

1.5 Submittals

A. Upon request, submit soil test reports performed by the Structural Testing/Inspection Agency.

1.6 Quality Assurance-Provided by the Contractor

A. Structural Testing/Inspection Firm shall perform the following quality related items:
   1. Verify structural fill complies with specifications.
   2. Determine particle size, liquid limit, plastic limit, plasticity index and maximum density of each type of soil.
   3. Observe proofrolling.

4. Perform a sufficient number of field density tests to verify compaction of structural fill. As a minimum, perform one test per lift for every 2500 square feet of fill placed.
5. Verify foundation bearing capacity.
6. Verify quantities of material removed and quantities of material placed where Unit Prices are involved.

1.7 Survey

A. Prior to construction, have structure location staked and certified by a licensed surveyor. If discrepancies between actual lines and elevations exist, notify Design Professional before proceeding with layout of structure.

1.8 Subsurface Conditions

A. Copies of a subsurface investigation of the site will be made available upon request. The data is not intended as a representation or warranty of the continuity of such conditions. Owner will not be responsible for interpretation or conclusions drawn therefrom by the Contractor. The data is made available for the convenience of the Contractor and is not guaranteed to represent all conditions that may be encountered.

B. Contractor may examine the site and make his own subsurface explorations at no additional cost to the Owner. Notify Owner prior to making any subsurface explorations.

1.9 Existing Utilities

A. Locate existing underground utilities by careful hand excavation. If utilities are to remain in place, provide protection from damage during construction operations.

B. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Do not interrupt existing utility service facilities occupied and used by Owner or others, unless written permission is given by the Design Professional and then only after temporary utility services have been provided.

C. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult the Design Professional immediately for directions.

D. Repair damaged utilities to satisfaction of utility owner.

1.10 Notice

A. Notify the Design Professional 48 hours prior to the beginning of any excavation work.

Part 2 - Products

2.1 GRANULAR SUBBASE

A. Granular subbase shall consist of clean, graded aggregate meeting the requirements of ASTM D 448 Size Number 57 or 67.

2.2 BACKFILL

A. Backfill shall meet the requirements of the granular subbase.

2.3 Structural Fill

A. Structural fill material shall be clean with a plasticity index of less than 30, a maximum partide size of four (4) inches, with not more than 30 percent greater than 3/4-inch.

B. Structural fill shall be free of organics, debris and deleterious materials.

PART 3 - EXECUTION

3.1 STRIPPING

A. Strip vegetation, topsoil, roots, and other unsuitable material to a depth determined by the Structural Testing/Inspection Agency but not less than one foot, nor less than 10 feet outside the perimeter of the structure.

B. Stockpile sufficient amounts of topsoil as required to cover areas to be landscaped with a minimum of six inches of material.

3.2 Excavation

A. Excavation shall be considered unclassified.

B. Perform excavation to the depths and limits on the Drawings and as specified herein.

C. Do uot excavate to full depth when there is probability of frost forming or grouud freezing in excavation before concrete is placed.

D. Ground water may be encountered during the foundation excavatiou. Provide a system for controlliug the ground water to a level at least three feet below the lowest poiut of the excavation.

E. Keep excavations dry by sloping ground away from holes and trenches.

3.3 Proofrolling

A. After stripping or excavation and before auy fill placement, fill areas shall be proofrolled with a minimum of two coverages of a loaded dump truck or scraper in each of two perpeudicular directions.

B. Areas found to be soft or pumping shall have the soft soil removed and replaced with Structural fill and compacted as outlined hereiu.

3.4 Placement of Structural Fill

A. Do not place structural fill on subgrade that contains frost, mud or is frozen.

B. Structural fill shall be placed and compacted in thin lifts not to exceed eight (8)-inch loose layers.

C. Compact structural fill to 98 perceut of the maximum dry density as measured by Standard Proctor, ASTM D698, with water content within +3/-3 percent of the optimum moisture content within the upper two (2) feet below floor slabs aud at least 95 percent of the Standard Proctor(ASTM D698) elsewhere.

3.5 Placement of Granular Subbase

A. Do not place granular subbase ou subgrade that contains frost, mud or is frozen.

B. Compact granular subbase to 98 percent of the maximum dry density as measured by Standard

Proctor, ASTM D698, with the water content within +3/-3 percent of the optimum moisture content.

3.6 Placement of Backfill

A. Backfill behind walls shall be placed in layers of six inches.

B. Compact structural fill to 98 percent of the maximum dry density as measured by Standard Proctor, ASTM D698, with water content within +3/-3 percent of the optimum moisture content within the upper two (2) feet below floor slabs and at least 95 percent of the Standard Proctor (ASTM D698) elsewhere.

3.7 Settlement Monitoring

A. At locations where new building construction will be sited on areas receiving fifteen (15) feet or more of structural fill, areas shall be monitored with settlement plates or surface monnments prior to starting foundation construction. Once settlement ceases in these areas, the site should be re-graded and foundations constructed bearing on the structural fill.
   1. Settlement Plates shall consist of the following
      a. Steel plate 3/8-inch thick x18-inches x 18-inches with a /'2-inch diameter rod or pipe attached at the plate's center. A 2-inch diameter PVC pipe shall be placed around the W' diameter rod.
   2. Surface Monuments shall consist of the following:
      a. Concrete "pads" with a minimum plan size of 1'-0" x 1'-0" with the bottom of the "pad" at least one foot below the fill surface. A survey pin or piece of rebar shall be embedded with the concrete "pad" to be used as an elevation reference.

B. Protect settlement plates and/or surface monuments from being disturbed by construction equipment or personnel.

C. Once settlement plates and/or surface monuments have been constructed the following monitoring plan shall be enacted:
   1. Registered surveyor shall take an initial elevation reading (the "zero" reading) to the nearest one-hundredth of a foot.
   2. Elevations readings shall be taken daily for the first week following completion of fill placement,and weekly thereafter on the same day of the week until settlement ceases.
   3. Settlement readings shall be forwarded to the geotechnical engineer of record for review and direction of when settlement monitoring ean be concluded.

3.8 CLEAN UP

A. Remove excess excavated materials from job site and upon completion leave site in clean condition.

END OF SECTION

Section 31 2290
Multi-Purpose Field Grading and Preparation

Part I- General

1.1. Summary

A. Section includes subgrade preparation for multi-purpose fields (synthetic turf fields), including geotextile, composite drains, geomembrane, drainage aggregate and aggregate base. Section does not include synthetic turf installation.

B. Related Sections:
1. Section 31 32 20 - Geotextiles
2. Section 32 18 13 - Synthetic Turf Field Surfacing
3. Section 33 46 00 – Subdrainage

C. System Description
1. The subsurface drain system should consist of the SportsEdge® HQ6 or SportsEdge® HQ12:
   a. Part # SEHQ12 - 1" x 12" for Synthetic Turf Fields, horizontal installation

2. Geo-composite drain and outlet pipes of the type, size and dimensions in accordance with these specifications and project plans, or as directed by the project engineer. The two-part pre-fabricated system shall consist of a solid formed polystyrene perforated core fully wrapped with non-woven spun-bonnd polypropylene filter fabric glue bonded to the core. The prefabricated drain core is to be made from recycled materials.

1.2. References

A. ASTM International
1. ASTM C 88, Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
2. ASTM D 448, Standard Classification for Sizes of Aggregate for Road and Bridge Construction
3. ASTM D 4833, Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products
4. ASTM D 4873, Standard Guide for Identification , Storage, and Handling of Geosynthetic Rolls and Samples
5. ASTM D 5199, Standard Test Method for Measuring the Nominal Thickness of Geosynthetics
6. ASTM D 5884, Standard Test Method for Determining Tearing Strength of Internally Reinforced Geomembranes
7. ASTM D 7004, Standard Test Method for Grab Tensile Properties of Reinforced Geomembranes

B. Geosynthetic Research Institute (GRI):
1. GRI-GM25 , "Test Methods, Test Properties and Testing Frequency for Reinforced Linear Low Density Polyethylene (LLDPE-R) Geomembranes"

1.3. Submittals

A. Submit the following for review prior to shipment of materials to the Site:
   1. Manufacturers' Product Data Sheets (including material properties sheets) for the following products:
      a. Geotextile (specified in Section 31 32 20)
      b. Underdrain piping (specified in Section 33 46 00)
      c. Composite drains
      d. Geomembrane
   2. Manufacturer 's instruction manual for geomembrane on-site handling and installation, including but not limited to procedures for storage, transport, placement, and testing.
   3. Shop Drawings (for geomembrane): Show a proposed installation panel layout identifying seams and details.
   4. Example material warranty for geomembrane complying with subsection 1.7.
   5. Certificates and test reports for each type of aggregate, signed by the material producer(s).
   6. Soil sample analysis results and recommendations for soil amendments and manufacturer's certification for agricultural lime and fertilizer (if required).
   7. Certification from topsoil vendor (if required) stating source and showing compliance with the Specifications.
   8. Survey Control Drawings showing grid elevation system of 50 feet on center within entire area of each grass turf field to be sodded and 25 feet on center within entire area of synthetic turf field. Key elevations shall be shown such as edges, corners of fields even if not covered in the grid.

B. Submit the following, for review and approval, at time of shipment of the geomembrane to the Site:
   1. The manufacturer's quality control certifications (including results of source quality control testing of the product) to verify that the material supplied for the project is in compliance with the product specifications in this Section. The certifications shall be signed by a responsible party employed by the manufacturer, such as the geomembrane QA/QC Manager, Production Manager, or Technical Services Manager. Certifications shall include lot and roll numbers, and corresponding shipping information.

C. Additional Submittals (In-Progress and at Completion):
   1. Geomembrane manufacturer's material warranty (refer to subsection 1.7)
   2. Record survey drawings of graded surfaces as specified in subsection 3.1.B. Submit two copies of record survey drawings, certified by the Contractor's RLS, along with computer files in AutoCAD, latest format.

1.4. Quality Assurance

A. Manufacturers' Qualifications (for composite drain and geomembrane products): Manufacturers shall be specialists in the manufacture of products of the type specified, and shall have at least five years experience in the manufacture of such products.

B. Contractor shall retain the services of a testing firm to perform analysis of topsoil samples as specified in this Section. The testing firm shall be an independent laboratory approved by the Engineer, having the experience and capability to conduct the testing specified.

1.5. Delivery, Storage and Handling

A. Each roll of geomembrane delivered to the Site shall be laheled by the manufacturer. The label shall be firmly affixed and shall clearly state the manufacturer's name, product identification, lot number, material thickness, roll number, roll dimensions, and roll weight.

B. Procedures for storage and handling of geotextile, composite drains and geomembrane shall conform to ASTM D 4873 and the manufacturer's instructions.

C. Aggregate of different gradations shall be delivered to the Site and stoekpiled in separate areas approved by the Owner and Engineer. The material shall be adequately protected to preserve the fitness and quality of the different materials.

D. Aggregate for synthetic turf field shall contain 90 to 100 percent of the optimum moisture content to ensure that fines do not migrate in transit or during placement and to facilitate proper compaction. Contractor shall adjust moisture content as required to attain and maintain the specified moisture content.

1.6. Project Conditions

A. Geomembrane shall not be installed in the presence of standing or ponded water, while precipitation is occurring, where the subgrade has been softened by precipitation, or in the presence of excessive winds.

B. Geomembrane and composite drain materials shall not be installed when material and ambient temperatures are outside the limits recommended by the manufacturers.

I.7. Material Warranty

A. Geomembrane and composite drain manufacturers shall warrant the materials against manufacturing defects and material degradation in the outdoor exposure for a minimum period of five years from the date of installation.

B. The manufacturers shall provide new material to replace, on a prorated basis over the remaining life of the geomembrane or composite drain (as applicable), any material that fails from the above causes within the warranty period.

C. The manufacturers shall furnish written warranties covering the requirements of the above paragraphs 1.7.A and 1.7.B.

Part- 2 Products

2.1. Geotextile

A. Geotextile to be installed between subgrade and drainage aggregate for grass turf fields shall conform to the specifications for Survivability Class 2 geotextile as defined in AASHTO M288 and as specified in Section 31 32 20.

2.2. Underdrain Piping

A. Specified in Section 33 4600.

2.3. Composite Drains

A. Acceptable Manufacturers:

1. Subsurface Drain:
   a) Base: SportsEdge® HQ12 as supplied by:
   SportsEdge®
   P.O. Box 837 259 Murdock Rd.
   Troutman, NC 28166
   Telephone: 800-334-6057
   Fax: 704-528-0179
   Email: info@sportsedge.com
   www.sportsedge.com

   b) Or Approved Equal

2. Components
The two-part pre-fabricated system shall consist of a solid formed polystyrene perforated core fully wrapped with a non-woven spun-bound polypropylene filter fabrie. The prefabricated drain core is to be made from recycled materials.

   a) Core: Solid formed polystyrene
      1. Length: 150 foot
      2. Perforated
      3. Widths: 6, 12, 18 or 24 inches
      4. Depth: 1" minimum
      5. Recycled material

   b) Geotextile Fabric:
      1. Non-woven spun-bound polypropylene filter fabric
      2. Glne bonded to the core

   c) Accessories:
      1. Couplers, Outlets, Geotextile End Caps as required and recommended by the manufacturer.

2.4. Geomembrane

A. Geomembrane shall be scrim-reinforced linear low density polyethylene (LLDPE), minimum 24 mil nominal thickness, meeting or exceeding the values specified in GRI- GM25, as summarized iu the following table.

TECHNICAL DATA			
Physical Property	**Unit of Measure**	**Typical Value**	**ASTM Test Method**
FABRIC			
Grab Tensile	lbs	145	D 4632
Grab Elongation	%	60	D-4632
Puncture Resistance	lbs	50	D-4833
EOS (AOS)	US Std Sieve	70	D-4751
Flow Rate	gpm / ft²	80	D-4491
CORE			
Thickness	in	1	D-1777
Compressive Strength	psf	9,000	D-1621
Flow Capacity per unit width	gpm/ft	21	D-4716

2.5. Aggregate

A. Aggregate for synthetic turf field base (drainage stone layer) and perimeter drain collector trenches shall conform to one of the following specifications.

1. Full-Depth Processed Aggregate Base: Shall consist of durable stone not exceeding 12 percent loss of materials as determined hy sulfate soundness test (ASTM C88), and shall conform to the gradation in the following table.

Sieve Size	Percent Passing by Weight
1 1/2 inch	100
1 inch	95 - 1OO
3/4 inch	80 - 1OO
1/2 inch	60 - 80
3/8 inch	30 - 50
No. 4	20 - 40
No. 8	10 - 30
No. 40	5 - 17
No. 200	1- 4

2. Two-Layer Aggregate Base: Shall consist of a bottom layer of open-graded 3/4- inch maximum size aggregate (such as size numbers 6, 67 or 68 as defined in ASTM D448), and a top layer of aggregate screenings.

Part 3- Execution

3.1. Field Quality Control

A. Record surveying shall be performed by the Contractor's RLS to record completed grading of subgrade and finish surfaces. At a minimum, elevations shall be surveyed on the required grid pattern conforming to the requirements for the Survey Control Drawing specified in paragraph 1.3.A and as required for synthetic turf field in subsection 3.6. The following surfaces shall be surveyed:

1. Subgrade (prior to placement of clean run filter course or drainage stone layer, as applicable).

2. Finish surface of aggregate base layer (drainage stone) on synthetic turf field.

3.2. Preparation

A. General site grading shall be completed within the limits of the multi-purpose fields as specified in Section 31 22 00 and as indicated on the Drawings.

B. Contractor shall meet with the Owner or Engineer at the Site before multi-purpose field grading and preparation activities commence. The scope of the work, construction proeedures, coordination issnes and other pertinent topics will be discussed.

C. The Contractor's surveyor shall lay out the limits and elevations for mnlti-purpose field grading.

D. Unless otherwise approved by the Owner and Engineer, laser grade the subgrade for synthetic turf to within plus or minus 1/2 inch of the required elevations indicated on the Drawings using laser controlled grading equipment with a dual slope laser. A minimum of two passes is required.

E. Based on the results of surveying of the finished subgrade, areas that are not constructed to the required elevations shown on the Drawings, withiu specified tolerance, shall be adjusted to the proper elevations using methods approved by the Eugineer. The limits of reworking will be determined by the Engineer.

F. Snbgrade for geomembrane shall be smooth and uniform, and free of protruding stones and other debris that might damage the liner.

G. Initiate mnlti-purpose field preparation only after snbgrade construction within the limits of the fields has been completed and accepted by the Owner and Engineer.

3.3. Construction of Underdrain Trenches

A. Construct underdrain trenches (including excavation, pipe installation and draiuage aggregate placement) as indicated on the Drawings and as specified in Section 33 46 00.

3.4. Geomembrane Installation

A. Install geomembrane in accordance with the manufacturer's recommendations and as specified in the following paragraphs.

B. No geomembraue shall be deployed until the applicable documentation listed in subsection 1.3 are submitted to and approved by the Owuer aud Engineer.

C. Iustall geomembraue on prepared subgrade and in perimeter trenches to the full limits of the synthetic turf field where indicated on the Drawings. Place geomembrane in perimeter trenches prior to placement under the field. Overlap adjaceut panels of geomembrane in trench.es a minimnm of 18 inches. Overlap adjacent panels in other areas a miniinuin of 8 inches. All overlaps shall be in the direction of water flow.

D. All geomembrane handling and installation procedures shall be performed using equipment and methods that will uot daunage the geomembrane. Conform to manufacturer's recommendations for restrictions on equipment travel over the installed geomembrane.

E. Place a suitable amount of sand bags or other ballast on the installed geomembrane to prevent movement by wind. Ballast material shall in a form that will not damage the geomembrane.

3.5. Composite Drain Installation

A. Install composite drains in accordance with the manufacturer's recommendations and as specified in the following paragraphs.

B. Install composite drains at approximately 15 feet on center at a 45-degree angle to sidelines as iudicated on the Drawings or as otherwise approved by the Owner and Engineer.

C. Composite drains shall be laid directly ou top of the geomembrane, secured every 15 linear feet with duct tape or other approved adhesive.

D. Drape euds of composite drains into the perimeter drain collector trench system

3.6. Placement of Aggregate

A. Place aggregate to the limits and thicknesses iudicated on the Drawings.

B. Place, spread, shape, aud compact aggregate as coutiuuously as practicable during each day's operations. Place the material in a manner to avoid segregation. Uncontrolled spreadiug shall not be permitted.

C. Aggregate Base (Drainage Stone Layer) for Synthetic Turf Field:
1. Utilize laser-controlled equipment for the grading of the processed aggregate to ensure accuracy in grading tolerances.
2. Place processed aggregate, whenever possible, from sideline toward centerline, parallel to the composite drain network, to the lines and grades shown on the Drawings. The distance that the material is pushed from point of discharge shall be limited to that where segregation of materials does not occur.
3. Each layer shall be spread uniformly with equipment that will not cause perceptible separation in gradation (segregation of the aggregates). Use equipment such as a self-propelled paving machine, or a small grader or low ground pressure (LPG) dozer.
4. Aggregate shall be compacted to a minimum of 95 percent of the material's maximum dry density as determined by ASTM D 698.
5. Grade the surface of the processed aggregate acceptable to receive the final synthetic turf surface system as determined by the Owner, Engineer and synthetic turf installer.
6. Place and compact aggregate using equipment and methods that will damage or displace underlying geomembrane, composite drains and underdrain system.
7. The finished aggregate surface shall not deviate (tolerance-to-grade) by more than plus or minus 1/4 inch (.02 foot) from designated compacted grade elevations when checked by 25-foot grid survey. Surface shall also not indicate any deviation more than 1/4 inch (.02 foot) in 10 feet (any direction) when placed under a 10-foot straightedge. This tolerance is required over the entire field.
8. Areas that deviate shall be marked with spray paint and corrected by re-grading or filling low areas with crushed stone, granite chips or screenings, and rolling tight to achieve proper density.

3.3. Geotextile Installation

A. Place geotextile over completed surface of drainage aggregate base layer under synthetic turf fields as shown ou the Drawings and specified in Section 31 32 20.

3.3. TOPSOIL PLACEMENT AND GRADING

A. Place topsoil over the completed drainage aggregate base layer within the liuits of grass turf fields to the required depth iudicated ou the Drawings.

B. Add soil amendmeuts if required based on the results of specified soil tcsting. Till the soil amendments into the topsoil to the required depth to achieve a loose consistency.

C. Unless otherwise approved by the Owner and Engineer, laser grade the tilled topsoil to within plus or minus 1/2 inch of the required elevations indicated on the Drawings using laser controlled grading equipment with a dual slope laser. A mini mum of two passes is required.

D. Based on the results of surveying of the finished topsoil layer, areas that are not constructed to the required elevations shown on the Drawings, within specified tolerance, shall be adjusted to the proper elevations using methods approved by the Engineer. The limits of reworkiug will be dcterminccl by the Eugineer.

3.3. TURF INSTALLATION

A. Install syuthetic turf over the completed drainage aggregate layer where indicated on the Drawings and as specified in Section 32 18 13.

3.3. CLEANING, MAINTENANCE AND PROTECTION

A. Remove all debris from the completed surfaces within the limits of the multi-purpose fields.

B. Protect graded surfaces from erosion aud kccp frec from accumulation of debris.

C. Constructiou equipment shall uot be operated ou the completed surfaces.

D. Damage to the finished surfaces shall be fully repaired prior to placement of any overlying materials.

END OF SECTION

Section 31 3220
Geotextiles

Part 1-General

1.1 Summary

A. Section includes furnishing and installing geotextile for layer separation or subgrade stabilization (as applicable) at locations indicated on the Drawings.

1.2 References

A. American Association of State Highway and Transportation Officials (AASHTO):
1. AASHTO M288, Geotextile Specification for Highway Applications

B. ASTM International:
1. ASTM D 4354, Standard Practice for Sampling of Geosynthetics for Testing
2. ASTM D 4355, Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus
3. ASTM D 4491, Standard Test Methods for Water Permeability of Geotextiles by Permittivity
4. ASTM D 4533, Standard Test Method for Trapezoid Tearing Strength of Geotextiles
5. ASTM D 4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
6. ASTM D 4751, Standard Test Method for Determining Apparent Opening Size of Geotextile
7. ASTM D 4873, Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples
8. ASTM D 6241, Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe

1.3 Submittals

A. Submit the following for review and approval prior to shipment of geotextile products to the Site:
1. Manufacturers' descriptive documentation (including material properties sheets) for each product

B. Submit the following for review and approval at time of shipment of each product:

1. The manufacturers ' quality control certifications (including results of source quality control testing of the products as specified in subsection 2.1) to verify that the materials supplied for the project are in compliance with all product specifications in this Section. The certifications shall be signed by a responsible party employed by the manufacturer, such as the QNQC Manager, Production Manager, or Technical Services Manager. Certifications shall include lot and roll numbers, and corresponding shipping information.

1.4 Quality Assurance

A. Manufacturer's Qualifications: The manufacturer(s) shall have at least five years' experience in the manufacture of geotextiles of the type specified.

1.5 Delivery, Storage and Handling

A. Product rolls shall be marked or tagged with manufacturer's name, product identification, lot number, roll number, and roll dimensions.

B. Procedures for storage and handling of geotextile shall conform to ASTM D 4873 and the manufacturer recommendations, including the following:
1. Continuously and uniformly support rolls on a prepared surface elevated above grade away from traffic areas. Cover rolls with tarp for protection from sun, dirt and other deleterious conditions if the protective wrap around the geotextile is damaged.
2. No hooks, tongs, or other sharp instruments shall be used for handling the geotextile. Geotextile rolls shall not be lifted by use of cables or chains in contact with the products. Deploy geotextile using equipment and methods that will minimize dragging of the material along the ground surface.

C. Geotextile shall be inspected upon delivery and during installation. Geotextile that is damaged by the Contractor to the extent that it is no longer usable shall be removed from the Site and replaced with new material.

Part- 2 Products

2.1 Source Quality Control

A. Quality control testing of each geotextile product shall be performed by the manufacturer prior to shipment in accordance with ASTM D 4354.

B. For manufacturer's quality coutrol testing of each geotextile product, the sample average test results (weaker principle direction for mechauical tests) for a particular property for any individual roll tested within a lot designated as first quality shall meet or exceed the Minimum Average Roll Value indicated in the mauufacturer's certification.

2.2 Geotextile Products

A. All geotextile products shall be resistant to ultraviolet degradation and biological and chemical environments normally found in soils.

B. Geotextile to be installed as separation geotextile (such as in subsurface drainage pipe treuches, beneath riprap, and at other indicated locations) shall be a coutinuous filament polypropylene nonwoven needle-punched fabric, Survivability Class 2 (as defined in AASHTO M 288), meeting or exceeding the following specifications:

TECHNICAL DATA			
Physical Property	**Unit of Measure**	**Typical Value**	**ASTM Test Method**
FABRIC			
Grab Tensile	lbs	145	D 4632
Grab Elongation	%	60	D-4632
Puncture Resistance	lbs	50	D-4833
EOS (AOS)	US Std Sieve	70	D-4751
Flow Rate	gpm / ft²	80	D-4491

C. Geotextile to be installed under aggregate surfacing (if required by the Engineer) shall be a continuous filament polypropylene nonwoven needle-punched fabric, Survivability Class I (as defined in AASHTO M 288), meeting or exceeding the following specifications:

TECHNICAL DATA			
Physical Property	**Unit of Measure**	**Typical Value**	**ASTM Test Method**
FABRIC			
Grab Tensile	lbs	145	D 4632
Grab Elongation	%	60	D-4632
Puncture Resistance	lbs	50	D-4833
EOS (AOS)	US Std Sieve	70	D-4751
Flow Rate	gpm / ft²	80	D-4491

Part 3- Execution

3.1. Preparations

A. Prepare subgrade for geotextile as specified in applicable sections and as shown on the Drawings.

B. Surfaces to receive geotextile shall be free of litter, sharp protrusions, and large stones.

3.2 Geotextile Installation

A. Geotextile shall not be deployed until the required submittals specified in subsection 1.3 are submitted to and approved by the Owner and Engineer. If the material does not meet project specifications, it shall be removed at no additional cost to the Project.

B. The appropriate type of geotextile shall be placed where shown on the Drawings, and installed in such a manner that placement of overlying material will not excessively stretch or tear the geotextile. Anchor geotextile as necessary to prevent wind uplift.

C. Install geotextile on graded and excavated surfaces prior to placement of riprap and other materials as indicated on the Drawings. Subgrade shall be smooth and free of litter, sharp protrusions, and large stones prior to geotextile placement. Geotextile shall be installed on the subgrade so that placement of the overlying materials do not stretch or tear the fabric.

D. Overlapping of panels without seaming will be allowed for installation of geotextile. Overlap adjacent sections or rolls of geotextile in the direction of ditch flow or downgradient, as applicable. Overlaps shall be a minimum of one foot. Bury the upper edges of geotextile a minimum of six inches below grade at tops of slopes. Anchor geotextile at overlaps using approved pins or staples.

E. Heavy equipment shall not be allowed to travel directly on installed geotextile.

F. Cover geotextile as soon as possible after installation and approval. Installed geotextile shall not be left exposed for more than 15 days.

3.3. Geotextile Repair

A. Holes or tears in the geotextile shall be repaired with a patch of the same material, unless otherwise approved by the Owner and Engineer.

B. Geotextile patches shall be sized to cover a minimum of 36 inches beyond the limits of the damaged area in all directions.

END OF SECTION

Section 32 1216
Asphalt Paving

Part 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 Summary

A. Section Includes:

1. Cold milling of existing hot-mix asphalt pavement.
2. Hot-mix asphalt patching.
3. Hot-mix asphalt paving.
4. Hot-mix asphalt paving overlay.
5. Asphalt surface treatments.
6. Pavement-marking paint.

1.3 Definition

A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.

1.4 Submittals

A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.

1. Job-Mix Designs: For each job mix proposed for the Work.

1.5 Quality Assurance

A. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of GDOT for asphalt paving work.

1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.6 Delivery, Storage, and Handling

A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.

B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.7 Project Conditions

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:

1. Prime Coat: Minimum surface temperature of 60 deg F.
2. Tack Coat: Minimum surface temperature of 60 deg F.
3. Slurry Coat: Comply with weather limitations in ASTM D 3910.
4. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
5. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.

B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces deg at a minimum ambient or surface temperature of 40 deg F for oil-based materials, 55 deg F for water-based materials, and not exceeding 95 deg F.

Part 2 - Products

2.1 Aggregates

A. General: Use materials and gradations that have performed satisfactorily in previous installations.

B. Coarse Aggregate: ASTM D692, sound; angular crushed stone, crushed gravel.

C. Fine Aggregate: ASTM D 1073 or AASHTO M29, sharp-edged natural sand or sand prepared from stone, gravel, cured blast-furnace slag, or combinations thereof.

1. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.

2.2 Asphalt Materials

A. Comply with Georgia Department of Transportation Standard Specifications for each mix indicated on the Drawings.

B. Water: Potable.

2.3 Auxiliary Materials

A. Pavement-Marking Paint: Use traffic line paints that meet the applicable requirements of GDOT Section 870.2.02.

1. Color: As indicated.

2.4 Mixes

A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction and complying with the following requirements:

1. Comply with Georgia Department of Transportation Standard Specifications for each mix indicated on the Drawings.

2. Base Course: as indicated on the Drawings.

3. Surface Course: as indicated on the Drawings.

B. Emulsified-Asphalt Slurry: ASTM D 3910, Type 2.

Part 3 - Execution

3.1 Examination

A. Verify that subgrade is dry and in suitable condition to begin paving.

B. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
2. Proof roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Contractor's independent Geotechnical Engineer, and replace with compacted backfill or fill as directed.

C. Proceed with paving only after unsatisfactory conditions have been corrected as verified by the Contractor's independent Geotechnical Engineer.

3.2 Cold Milling

A. Clean existing pavement surface of loose and deleterious material immediately before cold milling. Remove existing asphalt pavement by cold milling to grades and cross sections indicated.

1. Mill to depth indicated.
2. Mill to a uniform finished surface free of excessive gouges, grooves, and ridges.
3. Control rate of milling to prevent tearing of existing asphalt course.
4. Repair or replace curbs, manholes, and other construction damaged during cold milling.
5. Excavate and trim unbound-aggregate base course, if encountered, and keep material separate from milled hot-mix asphalt.
6. Keep milled pavement surface free of loose material and dust.

3.3 Patching

A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.

B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd..

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

C. Patching: Fill excavated pavements with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

3.4 Repairs

A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.

1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.

B. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4 inch.

1. Clean cracks and joints in existing hot-mix asphalt pavement.
2. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.
3. Use hot-applied joint sealant to seal cracks and joints more than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.

3.5 Surface Preparation

A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.

B. Prime Coat: Apply uniformly over surface of compacted unbound-aggregate base course at a rate of 0.15 to 0.50 gal. /sq. yd. Apply enough material to penetrate and seal bnt not flood snrface. Allow prime coat to cure.

1. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
2. Protect primed snbstrate from damage until ready to receive paving.

A. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal. /sq. yd.

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.6 Hot Mix Asphalt Placing

A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.

1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
2. Spread mix at minimum temperature of 250 deg F.
3. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.

2. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot- mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.7 Joints

A. Construct joints to ensure a continuous bond between adjoiuing paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat to joints.
2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
3. Offset transverse joints, in successive courses, a minimum of 24 inches.
4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" inethod according to Al MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."
5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
6. Compact asphalt at joints to a density within 2 percent of specified course density.

3.8 Compaction

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessihle to rollers.

1. Complete compaction before mix temperature cools to 185 deg F.

B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot- mix asphalt course has been uniformly compacted to the following density:

3. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to the specified density and surface smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.9 Installation Tolerances

A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:

1. Base Course: Plus or minus 1/2 inch.
2. Surface Course: Plus 1/4 inch, no minus.

B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straight edge applied transversely or longitudinally to paved areas:

1. Base Course: 1/4 inch.
2. Surface Course: 1/8 inch.
3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

3.10 Pavement Marking

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Engineer.

B. Allow paving to age for 30 days before starting pavement marking.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.

1. Broadcast glass beads uniformly into wet pavement markings at a rate of 6 lb /gal. where indicated.

3.11 Field Qnality Control

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.

C. Snrface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.

D. In-Place Density: Testing agency will take samples of uncompacted paving mixtures and compacted pavement according to GDOT standards.

E. Replace and compact hot-mix asphalt where core tests were taken.

F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.12 Disposal

A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow milled materials to accumnlate on-site.

B. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for oil-based materials, 55 g F deg for water-based materials, and not exceeding 95 deg F.

END OF SECTION

Section 32 1813
Synthetic Grass Surfacing

Part 1 - General

1.1 Submittals

A. The submittals as detailed in this section are each individually a requirement to be considered as a responsive Contractor/Subcontractor for the project. All Items Listed in this section must be within 30 calendar days after receiving Notice to Proceed.

B. Proposed substitutions of products shall be evaluated based on product construction, appearance and performance. The Contractor will be responsible for submitting all documentation supporting proposed products not less than 90 days prior to the intended installation date of the product. The acceptance or rejection of products offered as Equal or Substitution shall be at the sole discretion of the Owner.

1.2 Material Samples

A. 12" by 12" raw piece of the actual green color turf surface (with perforations).

B. One (1) sample of material with infill in standard sample container.

C. 12" by 12" raw sample of a 4" tufted line (white) - without infill.

D. 12" by 12" raw sample of the specified seaming method - without infill.

E. 12" by 12" raw sample of an inlaid line (Yellow or White) - without infill.

F. One (1) pound of the proposed infill material.

G. Sample Hand Wraps of the actual fiber construction and color to be utilized, Green, Yellow and White.

1.3 Insurance Requirements

A. Sample Warranty certificate.

B. Sample Insured Warranty Accord (Minimum 5 Million/300K per occurrence)

C. Sample Insurance Aecord - General Liability, Auto, and Workmen's Compensation.

1.4 Documentation

A. Product Data Sheet (PDS) and Material Safety Data Sheet (MSDS) for the proposed turf product with relative characteristics and all associated details.

B. All testing documents for the actual product, conducted by a third party laboratory, as required and listed in the Bid.

C. Document - Specifications: Mandatory Testing Requirements.

D. Submit a copy of the Turf Vendors mainteuance manual.

E. Submit a copy of the Turf Vendors installation standards.

F. Suhmit a copy of the Turf Vendors health and safety mauual.

G. Suhmit a copy of the Turf Vendors cnvironmental and recycling policy.

H. Submit a copy of the Turf Vendors drug free policy.

I. Resumes for three potential superintendent or quality assurance professionals, one if which will he directly responsible for overseeing the project directly.

J. Submit a copy of any required contractors licenses to perform the work proposed in the bid documents.

K. Subinit a copy of any required business licenses and registrations to perform the work proposed in the bid documents.

L. Submit a legal letter to indemnify the Owner for the allegation of patent infringement by other vendors.

M. Submit a Non-Collusion and Anti-Trust Statement from the Turf Vendor for the proposed project.

N. Submit a lead and heavy metal letter, outlining that the synthetic turf system proposed is in compliance with the proposed 2011 standard of a maximum of 100 parts per million for the entire synthetic turf system including infill for lead and heavy metals.

O. Submit a representation letter to outline and confirm the details of the local representative for tbe Turf Vendor, certifying that the local representative is authorized to act on behalf of the Turf Vendor.

P. Submit an installation letter, from the Turf Vendor to confirm the staff that will complete the project has the proper trained and professional experience in the methods required to complete the installation of the synthetic turf system as required in the Bid Document. The letter should certify that the installation will be constructed to the specifications, and that the specifications are approved by the Turf Vendor for use with the proposed synthetic turf system. The synthetic turf installer shall be an approved GA GC license contractor, having the same business name over the last 10 years, who has installed at least 50 acceptable installations of the specified type of product on multi-purpose or sports fields (minimum size of 70,000 sq. ft) within the last five years, having a member on staff who is a ASBA certified field builder and shall be a certified member of the Synthetic Turf Council. Submit proof of certification at time of bid.

Q. Submit fiber manufacturer's name, type of fibers, and fiber composition. Provide documentation of manufacturer's qualification as listed below:

1. Manufacturer's Qualifications: The manufacturer shall be a specialist in the manufacture of synthetic turf of the type specified, and shall have manufactured at least one million square feet of the specified type of product in the last five years. Manufacturer shall provide third-party certification confirming compliance with referenced standards.

15 Mandatory Testing Requirements

A. The mandatory testing requirements are listed below. All testing submitted is to be conducted by independent third party testing laboratories. Any vendor that does not submit all the required testing, or does not meet the minimum qualifications outlined in the specifications, will be immediately disqualified and will no longer be considered a responsible Contractor/Subcontractor for the project:

1. ASTM F355-01 Gmax RATING Standard Test Method for Shock-Absorbing Properties of Playing Surface Systems and Materials.
2. ASTM F1015-03 RELATIVE ABRASIVE INDEX Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces.
3. ASTM F2117-01 AVERAGE BALL REBOUND HEIGHT Standard Test Method for Vertical Rebound Characteristics of Sports Surface Systems; Acoustical Measurement.
4. ASTM F1551-03 COEFFICIENT OF RESTITUTION (CR) Standard Test Methods for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials.
5. ASTM F1551-03 AVERAGE BALL BOUNCE Standard Test Methods for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials.
6. ASTM F1551-03 SOCCER SHOE TRACTION - DRY Standard Test Methods for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials.
7. ASTM F1551-03 SOCCER SHOE TRACTION - WET Standard Test Methods for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials.
8. ASTM F1551-03 FOOTBALL SHOE TRACTION - DRY Standard Test Methods for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials.
9. ASTM F1551-03 FOOTBALL SHOE TRACTION -WET Standard Test Methods for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials.
10. ASTM D5848-07 TOTAL WEIGHT Standard Test Method for Mass per Unit Area of Pile Yarn Floor Coverings.
11. ASTM D5848-07 PILE WEIGHT Standard Test Method for Mass per Unit Area of Pile Yarn Floor Coverings.
12. ASTM D5848-07 PRIMARY BACKING WEIGHT Standard Test Method for Mass per Unit Area of Pile Yarn Floor Coverings.
13. ASTM D5848-07 SECONDARY BACKING Standard Test Method for Mass per Unit Area of Pile Yarn Floor Coverings.
14. ASTM D5823-05a PILE HEIGHT Standard Test Method for Tuft Height of Pile Floor Coverings.
15. ASTM D1335-05 TUFT BIND STRENGTH Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings.
16. ASTM D5034-09 GRAB TEAR STRENGTH Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test).
17. ASTM D5793-05 STITCHES PER 3 INCHES Standard Test Method for Binding Sites per Unit Length or Width of Pile Yarn Floor Coverings.
18. ASTM D5793-05 MACHINE GAUGE Standard Test Method for Binding Sites per Unit Length or Width of Pile Yarn Floor Coverings.
19. ASTM D2859-06 FLAMMABILITY - PILL BURN Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials.
20. ASTM F1951-09 WHEEL CHAIR ACCESSIBILITY Standard Specification for Determination of Accessibility of Surface Systems under and Around Playground Equipment.
21. BS7044-Method 4 INFILTRATION RATE Determination of Infiltration Rate- Buffered Ponding-Type Infiltrometer.
22. ASTM D1907-07 FIBER DENIER Standard Test Methods for Linear Density of Textile Fibers by the Skein Method.
23. ASTM D3218-07 FIBER THICKNESS Standard Specification for Polyolefin

Monofilaments.

24. ASTM D3218-07 FIBER WIDTH Standard Specification for Polyolefin Monofilaments.
25. ASTM D789-07 FIBER MELTING POINT Standard Test Methods for Determination of Solution Viscosities of Polyamide (PA).
26. ASTM D792-08 FIBER SPECIFIC GRAVITY Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
27. ASTM D2256-02 FIBER BREAKING STRENGTH Standard Test Method for Tensile Properties of Yarns by the Single-Strand Method.
28. ASTM D2256-02 FIBER ELONGATION Standard Test Method for Tensile Properties of Yarns by the Single-Strand Method.
29. ASTM 3052@210° LEAD Standard Test Method for Lead-Method 6010 (MDL)
30. RCRA 7471B MERCURY (Hg) Standard Test Method for Mercury - Method 7471B (MDL).
31. RCRA 6010 METALS Standard Test Method for Heavy Metals - Method 6010 (MDL).

1.6 Field Layout Requirements

A. Evaluate all third party survey information and provide the Owner's Representative with CAD drawings of the field with existing conditions and elevations and plans for each step of the construction process. These include, but are not limited to:
   1. Drawing of the project in color to illustrate the lines and layout.
   2. Drawing of the project in Black and White to illustrate the seam locations.
   3. Drawing of the project in Black and White to identify all tufted lines.
   4. Drawing of the project in Black and White to identify all inlaid lines, markings and logos.
   5. Drawing of the site grading plan as required in the survey section of the Bid Document.
   6. Drawing of the project drainage plan as required in the survey section of the Bid Document.
   7. Drawing of the perimeter details as required in the survey section of the Bid Document.
   8. Drawing of the goal post and event details as proposed for the project.
   9. Drawing of all associated design details as proposed for the project.

1.7 All drawings will be approved by the Owner's Representative before construction commences.

1.8 Subsurface Construction Specifications

A. Scope: These specifications are intended as a minimum material and tolerance specifications that must be met for the design and construction of a free-draining base used in conjunction with synthetic turf installations. The design criteria described herein include:
   1. Site evaluation.
   2. Bulk excavation and construction of a stable permeable subgrade.
   3. Excavation of a perimeter drainage collector network and installation of the drainage grid system.
   4. Construction of a stable and permeable aggregate layer.
   5. Modifications to the design criteria described herein may become necessary depending on the site location, soil conditions and county specifications and design practices. The final decision for the design should be left to the Owner's Representative with recommendations from the preferred vendor. Note: Specifications incorporating specific tests to accommodate local conditions and materials are required.

B. Site Evaluation: After initial site preparation is complete for the turf field, the overall soil conditions and drainage properties of the location should be evaluated and documented in writing. During this initial inspection and consequent excavation, the presence of any pavement, wood, rock, ledge, water or other debris should be reported, and the materials removed at no expense to the Owner. The Contactor will retain a Geotechnical Engineer as necessary to make the final recommendation concerning the suitability of the site.

C. Excavation: The field should have a maximum slope of 0.5%. A single benchmark must be established prior to any excavation and maintained by a licensed surveyor of record during the entire construction process. The site shall then be fine graded to a depth per plan design. During fine grading; all grass, topsoil, etc., should be stripped, in their entirety, and stockpiled in pre-selected areas where it will not interfere with the work (or disposed of offsite). All other excavated soil should, depending on its overall properties, be hauled away or put aside for possible use as select-fill. In the event of over-excavation, select-fill material shall be used to achieve design subgrade elevations. Select materials shall be composed of natural materials consisting of hard, durable particles of sand or stone together with silt and/or clay material, as determined by a Geotechnical Engineer if necessary. The Geotechnical Engineer will determine whether the materials in the excavated areas are suitable for use as select-fill. All unsuitable material shall be removed and all new materials shall be approved by a Geotechnical Engineer, prior to use. If necessary, the subgrade shall be constructed using approved select-fill material. This material shall be placed in lifts not greater than 6" in depth. Each lift (layer or course) shall be compacted separately. The moisture in the soil, at the time of compaction, shall be uniformly distributed and should be within 90 and 120% range of the optimum. Within these limits, the Geotechnical Engineer will determine the proper moisture level to be used, by standard proctor. The select-fill material in the first layer shall be rolled until the course has been uniformly compacted to a minimum 95% of the maximum density. The second and succeeding courses shall be placed and mixed and then compacted as specified in the first course. The finished surface of the subgrade shall have a finished grade in accordance with the owner's Plans and Specifications. The subgrade shall be established to within a tolerance of +1/2 to -1/2" of the designed subgrade elevation. Proof roll and mark "soft spots" for additional compaction or correction. Use static tandem drum-type roller of not less than five (5) tons weight. Proof rolling operations must be performed in the presence of a Geotechnical Engineer. Excavate perimeter drainage collector trenches 18" wide and 20" deep (minimum). The trenches should be excavated with a minimum of 0.5% slope starting from the low point of the drainage system at the outlet extending towards the high point(s). Design of the collector trenches should incorporate the following:

i. All loose debris shall be removed from the trenches.
ii. The trenches shall be backfilled using premium materials and compacted by hand tamping (or equivalent machinery) to a minimum 95% of the maximum density. After proper excavation and compaction, a 6" x 12" perimeter curb shall be installed with a proper pressure treated turf attachment system (rated for in-ground use) at the proposed finish grade of the stone base. This will act as the means of adhesion for the turf system. The concrete will have a minimum of 3000 psi.

E. Under-Drain System

1. Permeable Liner: Verify surfaee elevations of the finished subgrade. The surface elevations must conform to the elevations shown on Drawings to be provided before construction. Prior to under drain system construction, the subgrade surface is to be uniform and free of rocks, depressions, voids, and irregularities that might damage liner. Install geotextile liner in accordance with the liner manufacture's written recommendations. Liner shall be UV resistant and shall have the following minimum properties:

Property	Test Method	Requirements
Appearance		Black 42
Weight per 1,000 sq. ft. Tensile		lbs.
Strength	ASTM 0751-88	10,000 psi
% Elongation Grab		40%
Tensile Tongue Tear	ASTM 0751-89	220 lbs. 62
Trapezoid Tear	ASTM 0751-89	lbs.
Hydrostatic Bursting Point	ASTM 0751-89	37 lbs. 123
Mullen Burst	ASTM 0751-89	lbs. 250 lbs.
Puncture	ASTM 0751-89	73 lbs.
(Method 2065)	FTMS 101 C	
Dimensional Stability	ASTM 01204	3%

2. The liner should be placed in the perimeter trench first. The trench liner should be separate from the liner on the field. Overlap field and trench sections a minimum of 18" in the direction of water flow.
3. Overlap joints a minimum of eight inches. All laps shall be overlapped in direction the water flows.
4. Place a suitable amount of hallast on the liner to prevent movement by wind. The ballast shall be in a form which will not damage liner.
5. Direct loading on the fabric by traffic shall not be allowed. A minimum of 6" of material cover must be placed prior to traffic.
6. Punctured or torn fabric shall be repaired by overlapping additional fabric and jointing in accordance with manufacturer's recommendations.
7. The liner must completely line perimeter trench in a continuous manner.
8. Field Composite Drains
   a. Install a Multi-Flow 1" x 12" under drain (or equal) conduits at 15 feet on center at a 45 degree angle on top of the geotextile liner. Secure to the liner every 15 linear feet. Ends of these composite drains must flow into the perimeter drain collector header system.
9. Perimeter Collection Drains
   a. Place double wall perforated HDPE drain pipe as per sizes indicated on the drawings in the perimeter collector trenches. The centerline of the pipe shall coincide with the centerline of trench. The pipes shall be strong and capable of withstanding the anticipated loading without deformation. Each header should be designed to handle the maximum rainfall in that particular location. Collector headers must be drained to an acceptable, efficient storm sewer, or approved discharge outlet. Pre-manufactured fittings shall be used for all connections into the collector drainage network.

10. A minimum of 2" clean, drainable crushed stone aggregate shall be placed in the bottom of the collector trenches, on top of the moisture barrier. The crushed stone shall be fully compacted.

11. Place a minimum of 4" clean, crushed aggregate on the sides of the under drain pipes and headers, and 6" minimum of the aggregate on top of the pipe network. Compact suitably.

12. Aggregate Layer for the Turf System

a. A uniformly mixed processed stone shall be placed over the entire subbase which has been covered with the geotextile barrier and the composite drain system. The aggregate shall comprise of a minimum 5" to 6" compacted, stable, permeable, and processed stone. Care shall be taken to maintain the grade designed for the subbase. The capability of the processed stone drainage layer to meet the stability and permeability sieve requirement must be determined prior to installation. The processed stone layer shall be compacted to a minimum density of 90%. Tests should be performed during aggregate placement and rolling to ensure specified compaction. Material shall be a 100% fractured, by mechanical means, with elongated characters on each individual particle larger than 1/4". Material shall be devoid of mineral fines. All particles smaller than 1/4" shall be produced by manufactured means only. Rounded sands or aggregates are prohibited. Typical aggregate or aggregate blends found acceptable as a processed stone drainage course must conform to the following gradation:

Sieve Sizes

Sieve	Metric (mm)	Percent Passing by Weight
1 1/4"	38.1	100
1"	25.4	95 - 100
3/4"	19.0	80 - 100
5/8"	12.7	60 - 80
3/8"	9.52	30 - 50
No.4	4.75	20 - 40
No.8	2.38	10 - 30
No.40	0.42	5 - 17
No.200	75 mm	1-- 4

1.9 Properties and Installation of Permeable Process Stone

A. Moisture Content - The contractor is required to apply water to the processed stone on site to attain and maintain this minimum moisture content.

B. Handling & Placement.

C. Prior to aggregate placement, remove any excess or contaminated backfill from the drainage trenches.

D. Should any separation of the materials occur, during any stage of the spreading or Stockpiling, the Coutractor must immediately remove and dispose of segregated material and correct or change handling procedures to prevent any further separation. Double handliug of materials is not allowed.

E. The Contractor shall utilize laser control equipment for the grading of the processed stone to ensure accuracy in the grade tolerances of +O" to -1/4".

F. Iustall processed stone base, from sideline toward center-line, parallel to the composite drain network, to the lines and grades shown on the drawings. Under no circumstance shall the material be pushed more than 30' from the point of discharge.

G. The Contractor shall shape the complete surface of the processed stone to receive the elastic layer component and continue until the deviation from the required elevation does not exceed a maximum deviation from grade of +O" to -1/4" in ten feet (10'),when measured in any direction using a 1O' straight-edge.

H. Each layer must be spread uniformly with equipment that will not cause perceptible separation in gradation (segregation of the aggregates) ,preferably a self-propelled paving machine or small laser controlled low ground pressure (LPG) dozer.

I. Compaction and Planarity

1. Proofroll wherever possible and mark "soft spots" for additional compaction or correction. Use static tandem drum-type roller of not less than five (5) tons weight. Proof rolling operations must be performed in the presence of the retained Geotechnical Engineer or Owner's Representative.
2. The finished surface shall not deviate (tolerance-to-grade) from designated compacted grade. This means that the surface shall not deviate more than 1/4" in 10' (any direction) when placed under a 10 foot straight edge. This tolerance is required over the entire field. Areas that deviate should be marked with spray paint and corrected with 3/8" limestone or granite chips and rolled tight to achieve proper density. Such remedial actions should be done by hand and rechecked by means of test procedures described above.

J. Testing -The surface of the processed stone course shall be well drained at all times. No standing water shall be permitted at any time. All test results will he logged and documented by the Owner's Representative or Geotechnical Engineer. If at any time the processed stone base does not meet specifications, it shall he the Contractor's responsibility to restore, at his expense, the processed stone base to the require grade, cross section and density. After the contractor has independently confirmed compliance with all the above tolerances (planarity and elevation verified by a licensed surveyor, they shall notify the appropriate party and schedule a final inspection for approval. The contractor shall make available an orbital laser system to the Owner's Representative for the inspection process as required.

K. Completion and Sign Off - Before proceeding with the turf installation, the field project manager must sign off and approve all site work and submit to site contractor and owner's representative verifying compliance and acceptance of the completed work.

1.10 Synthetic Turf Field Specifications

A. Synthetic Turf specification and materials.

B. Fiber

1. The primary pile fiber shall be a minimum 9000 Denier, 110 micron slit film fiber. No other fiber will be accepted or installed. The fiber shall be non-abrasive 100% polyethylene measuring a minimum of two inches (2 .O") tall. The fiber shall be a proven athletic caliber yarn designed specifically for outdoor use and treated with UV inhibitor and stabilizers to resist the effects of ultraviolet degradation, heat, foot traffic, water and airborne pollutants. The fiber shall contain no toxic substances or unacceptable heavy metals levels. The fiber tufts shall he fanned or unfolded prior to installation, rolling or spiraling will not be accepted.
2. The primary pile fiber shall meet or exceed the following requirements:

a.	Colors: Field - Green, Football - White, Soccer - Yellow, Lacrosse - Red	
b.	Face Weight:40 Ounces per sq. yd. min	ASTM D5848-07
c.	Fiber Thickness I Width: >110 Micron	ASTM D5848-07
d.	Fiber Height: 2.0"	ASTM D5823-05a

c.	Linear Density (Denier): >8,000	ASTM D1907-07
f.	Breaking Load: 22 psi	ASTM D2256-02
g.	Elongation to Break: >45%	ASTM 02256-02
h.	Specific Gravity: 0.90	ASTM D792-08
i.	Melting Point: 220 Degrees Fahrenheit I 104 Celsius	ASTM D789-07

C. Primary Backing: The synthetic Turf Vendor shall construct the backing system of the turf material as detailed in the requirements of this section.
1. The primary backing system must consist of a minimum of three layers, and include the specific three layers as specified in this section.
2. The top layer of the primary backing system must be an 18 pie polybac.
3. The second layer from the top of the primary backing system must be an 80 gram Colbond dimensional stability layer.
4. The bottom layer of the primary backing system must be a 5 pie action back, stitch lock layer.

D. The components and performance shall meet or exceed the following requirements:
1. Weight: 7.5 Ounces per sq. yd. ASTM D5848-07.
2. 5% elongation (warp): 410 minimum.
3. Force @ 5% elongation (weft): 615 minimum.
4. Grab Tear Strength: (MD) minimum 225 lbs. (CMD) minimum 225 lbs.
5. Backing (roll) width: 15 Feet.

E. Secondary Backing - The secondary backing shall saturate the primary backing and effectively lock the fiber tufts in place to the primary backing. The Turf Vendor is to ensure that the urethane applied as the secondary backing layer has adequate penetration through all the multiple layers of the primary backing fabrics. As part of the secondary backing material application, the turf material is to be perforated as part of the inline process. The perforations are to be created through a heat process that is adequate in temperature to cauterize the perforations as they are made through both the primary and secondary backing layers. Perforations are the only acceptable drainage design. Each perforation shall be a minimum of 3/16 of an inch in diameter, and shall not be spaced more than 4 inches apart on a grid both with the machine direction (MD) and across the machine direction (CMD).The perforations are to be constructed with a ninety percent (90%) efficiency. The drainage of the synthetic turf system is to be designed to ensure a minimum drainage of 35 inches per hour. The components and performance shall meet or exceed the following requirements:
1. Material: Heat Activated Polyurethane .
2. Weight: 25 Ounces per sq. yd. ASTM D5848-07.

F. Infill Requirements - Infill material must be installed in a minimum of six uniform lifts to prevent trapped fibers and ensure proper leveling and consistency of material. The exposed fiber height above the infill material shall not exceed half of an inch (1/2"). The entire synthetic turf system shall be resistant to attack by bacteria and to fungal growths. The infill will be a 100% rubber system and will conform to the following requirements and characteristics:
1. Sieve: 10 - 25 mesh.
2. Weight: 3.9 lbs. per sq. ft. minimum.
3. Height: 1.75" minimum.

G. Total Components and Manufacturing Requirement - The product manufacturing process will conform to the following requirements and produce a synthetic turf will the following minimum characteristics:

1.	Total Product Weight: 67.5 Ounces per sq. yd.	ASTM D5848-07.
2.	Tufting Gauge: %" maximum spacing	ASTM D5793-05.
3.	Stitches per 3": 7	ASTM D5793-05.
4.	HUD Density Rating: Min 700 I Max 800HUD Rating.	

5.	Tnft Bind Value: 7 lbs. per sq. ft.	ASTM D1335-05.
6.	Flammability - Pill Bnrn Test: Pass	ASTM D2859-06.
7.	Grab Tear Strength: 220 lbs. per sq. ft.(MD and CMD)	ASTM 05034-09.
8.	Infiltration Rate: 35" per hr.	BS7044-Method
9.	Wheel Chair Accessibility: Pass	ASTM F1951-09.

H. Finished Product Perfonnance Requirements - The total system will exhibit the following minimnm requirements and characteristics:

1.	G-Max Minimum Rating: 100 GMax 1 500 Hie	ASTM F211701.
2.	G-Max Maximum Rating: 120 GMax 1 500 Hie	ASTM F1551-03.
3.	Relative Abrasive Index Minimum: 10 +/- 2	ASTM F1551-03.
4.	Relative Abrasive Index Maximum: 20 +/- 2	ASTM F1551-03.
5.	Average Ball Rebound Height Minimum: 20"	ASTM F1551-03.
6.	Average Ball Rebound Height Maximum: 30"	ASTM F355-01.
7.	Coefficient of Restitution (CR) Minimum: 0.35 (CR)	ASTM F355-01.
8.	Coefficient of Restitution (CR) Maximum: 0.45 (CR)	ASTM F1015-03.
9.	Average Ball Bounce Miuimum: 30"	ASTM F1015-03.
10.	Average Ball Bounce Maximum: 40"	ASTM F2117-01

11. Soccer Shoe Traction Minimum Static COF 1.30 - DynamicCOF0.85 - Dry: ASTM F1551-03.
12. Soccer Shoe Traction Maximum - Dry: Static COF 1.60 - Dynamic COF 1.15 ASTM F1551-03.
13. Soccer Shoe Traction Minimum - Wet: Static COF 1.30 - Dynamic COF 0.85 ASTM F1551-03.
14. Soccer Shoe Traction Maximum - Wet: Static COF 1.60 - Dynamic COF 1.15 ASTM F1551-03.
15. Football Shoe Traction Minimum - Ory: Static COF 1.30 - Dynamic COF 0.85 ASTM F1551-03.
16. Football Shoe Traction Maximum - Dry: Static COF 1.60 - Dynamic COF 1.15 ASTM F1551-03.
17. Football Shoe Traction Minimum - Wet: Static COF 1.30 - Dynamic COF 0.85 ASTM F1551-03.
18. Football Shoe Traction Maximum - Wet: Static COF 1.60 - Dynamic COF 1.15 ASTM F1551-03.

I. Layout and Seaming - The synthetic Turf Vendor shall complete all the sports field seams as detailed in the Field Layout Plan, as supplied, and subject to the requirements as outlined in this section.

1. All synthetic turf material shall be supplied in rolls that are fifteen (15) feet wide.
2. The synthetic turf shall be loose laid across the field, stretching from the edge of the playing surface to the opposite edge of the playing surface. Each individual roll shall he of sufficient length to permit full cross-field installation. No head or cross seams will be allowed within the playing surface.
3. All lines that run the entire expanse of the individual rolls shall be tufted with the fiber color specified in the Field Layout Plan supplied utilizing the exact same fiber as the green field fiber.
4. Any football five (5) yard lines are to be centered in the middle of the roll to ensure straightness. Placing any five (5) yard lines at the edge of the roll will not be accepted.
5. Sideline panels will be installed perpendicular to the field panels and will have the appropriate boundary lines as specified in the Field Layout Plan tufted in the proper locations.
6. All full length field panels are to be sewn utilizing a sewing machine, and thread as

approved by the Turf Vendor.

7. The thread shall be treated to ensure it will maintain its tensile strength for a minimum of eight (8) years, under heavy sports field use and while subjected to outdoor elements. All sewn seams are to be completed utilizing the double locking thread method. The specified sewing method requires a Flat Seam, with no height variance. Sewn seam samples will be submitted and approved by the Owner's Representative with the bid submittals.
8. All adhered inlaid lines, markings, numbers and logos shall be cut-in through the entire thickness of the completed turf material, including the primary and secondary backing. The adhesive utilized shall be approved by the Turf Vendor for use with the turf material proposed in the bid. The approved adhesive shall be applied at the rate specified by the adhesive vendor and utilizing their recommended application method. Adhered samples will be submitted and approved by the Owner's Representative with the bid submittals.
9. Any Inlaid and/or painted lines, markings, numbers and logos are to be as specified in the Field Layout Plan supplied to the Owner's Representative.
10. All dimensions and colors are to be as specified in the Field Layout Plan supplied.
11. The Turf Vendor shall submit the required shop drawings, color samples and logo designs as specified in the bid documents for review and approval by the Owner's Representative.

J. Insured Warranty Requirements - The synthetic turf provider shall provide an eight (8) year pre-paid warranty that is insured by a policy of insurance issued by a reputable insurance company and must have the following policy features:

1. Insurance coverage shall specifically provide for reimbursement to the warranty holder in the event of bankruptcy of the synthetic turf provider.
2. Insurance coverage shall apply to playing surface inclusive of infill, seaming, labor and colored inlays for event markings.
3. Insurance coverage shall apply to the full 8 year period from completion date of project, with no uninsured periods or periods of self-insurance.
4. Insurance is provided by a third party insurer with an A.M. Best financial strength rating of "Excellent" or higher.
5. Insurance coverage shall not have exclusions for epidemic or catastrophic failure.
6. Insurance coverage shall not limit the hours of use.
7. Insurance coverage shall not exclude heavy traffic areas or related uses such as team or band practices.
8. Insurance coverage shall not exclude any colored turf fibers.
9. Insurance coverage offers a minimum claim limit of (US) $5 million in the aggregate per annum.
10. Insurance coverage offers a minimum claim limit of (US) $ 300,000 per field. The following documents must be provided with the bid submittal process: Warranty Certificate, Accord Certificate, the actual Insurance Policy, and proof of A.M. Best Rating for the insured warranty provider.

K. Maintenance Equipment - The Turf Vendor shall provide each field with a non-powered groomer and a sweeper with standard hitches to connect to Client's tractor vehicles. The Turf Vendor shall be responsible for verifying the type of hitch attachment, at the site, with the County's designated personnel. The groomer and sweeper shall be of a design as recommended by the synthetic turf system manufacturer for proper maintenance of the synthetic turf system and to satisfy and maintain the warranty requirements in the Turf Vendor's submitted maintenance manual. The groomer shall be of sufficient size to cover at least a four foot (4') wide swath (and no more than six feet (6')) in a single pass. The sweeper shall operate utilizing rotating synthetic bristle brushes to move debris in to its collection unit. During a single pass the sweeper shall automatically and simultaneously collect foreign surface debris, return any and all collected infill material to the field, level the infill materials and groom the pile fibers to stand upright and uniform. Maintenance shall only be completed by properly trained personnel.

1.11 Goal Post Specifications

A. References
1. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive shall govern.
a. United States Soccer Federation
b. National Federation of State High School Associations (NFSHSA)
c. International Amateur Athletic Foundation (IAAF)
d. ASTM International (F 2056)
e. ASTM International (F 1938)

B. Submittals
1. Comply with County Documents Section.
2. Product Data: Submit manufacturer's product data, including materials, components, fabrication, finish, and installation instructions.
3. Operation and Maintenance Manual: Submit manufacturer's operation and maintenance manual; Ineluding operation, maintenance, adjustment, and cleaning instructions; trouble shooting guide; parts list.
4. All shop drawings and installation instructions.
a. Provide drawings of manufacturer's recommended installation and foundation requirements prior to actual field installation work for architect or owner's representative review.

C. Warranty:Provide 1-year warranty against defects in materials and workmanship, unless otherwise specified.

D. Quality Assurance
1. Fabrication and installation of site improvements by experienced craftsman with excellent record of performance on completed projects of comparable size, scope, and quality.
2. All materials, hardware, and furnishings shall be new, first quality.

E. Field Measurements
1. Contactor shall verify position and layout of all athletic field equipment. Verify dimensions by field measurements.

F. System Description
1. Combination football/soccer goals, aluminum 8'H x 24'W regulation soccer goal, 23'4"W regulation football goal with 15 ft. uprights.

Part 2 – Products

A. Combination Soccer/Football Goals

1. Base: 2D301 Combination Football/Soccer Goal as manufactured by:
   Kwik Goal Ltd.
   140 Pacific Drive
   Quakertown, PA 18951
   P: 800-531-4252
   F: 800-778-8869
   www.kwikgoalspecs.com
2. Other Approved Substitute

B. Components: 2D301 Combination Football/Soccer Goal

1. 2D301 – football cross bar fabricated of 6005T55 T5 extruded aluminum tube, 2.00" x 2.00", having the following attributes:
   a. Length: 286.00"
   b. Square, extruded
   c. 0.125" wall aluminum tube
   d. DuPont powder coated white
2. 2D301 – football uprights fabricated of 6005 T5 extruded aluminum tube, 2.00" outside diameter, having the following attributes:
   a. Length: 180.00"
   b. Round, extruded
   c. 0.125" wall aluminum tube
   d. DuPont powder coated white
3. 2D301 – soccer crossbar fabricated of 6005 T5 extruded aluminum tube, 4.375" outside diameter, having the following attributes:
   a. Length: 280.00"
   b. Round with net channel, extruded
   c. 0.115" wall aluminum tube
   d. MIG weld full seam to football crossbar with seven truss posts
   e. DuPont powder coated white
4. 2D301 – soccer posts fabricated of 6005 T5 extruded aluminum tube, 4.375" outside diameter, having the following attributes:
   a. Length: 129.375"
   b. Round with net channel, extruded
   c. 0.115" wall aluminum tube
   d. DuPont powder coated white
5. 2D301 –ground sleeves fabricated of 6005 T5 extruded aluminum tube, 4.78" outside diameter, having the following attrihutes:
   a. Length: 24"
   b. Round
   c. 0.14" wall aluminum tube
6. 2D301 – backstays fabricated of 6063 T6 extruded aluminum tube, 1.25" outside diameter, having the following attributes:
   a. Length: 36"
   b. Width: 32"
   c. 0.125" wall aluminum tube
   d. DuPont powder coated white

e. Attachment plates MIG welded

C. Accessories:

1. White Polyethylene Soccer Net
   a. 3mm rope thickness
   b. 120mm mesh
2. Kwik Lock® Net Clips
   a. Delrin 127
3. Hardware
   a. Zinc plated stainless steel

Part 3 - Execution

A. All athletic equipment shall be installed as recommended by manufacturer, and as indicated on the drawings.

B. Set goal pole sleeves, goal hardware box and goal footing apparatus as early in the installation process as possible. Surface elevations of all items are to he verified so as to insure they will match final surface elevation of turf. Recheck and verify all items that must match turf surface elevation are correct, prior to beginning turf installation.

END OF SECTION

Section 32 3113
Chain Link Fences and Gates

Part 1 - General

1.1 Summary

A. Work described in this section includes, but is not limited to; all labor, materials, equipmeut and services necessary for and reasonably incidental to the proper construction of chain link fences and gates as indicated on the drawings in various locations.

B. Section includes installation of new chain link fencing, including perimeter control and field fencing.

1.2 References

A. ASTM International:
1. ASTM A 121, Standard Specification for Metallic-Coated Carbon Steel Barbed Wire.
2. ASTM A 392, Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
3. ASTM A 780, Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
4. ASTM A 824, Standard Specification for Metallic-Coated Steel Marcelled Tension Wire for Use With Chain Link Fence.
5. ASTM C 33, Standard Specification for Concrete Aggregates.
6. ASTM C 150; Standard Specification for Portland Cement
7. ASTM F 567, Standard Practice for Installation of Chain-Link Fence.
8. ASTM F 626, Standard Specification for Fence Fittings.
9. ASTM F 668, Standard Specification for Polyvinyl Chloride (PVC) and Other Organic Polymer-Coated Steel Chain-Link Fence Fabric.
10. ASTM F 900, Standard Specification for Industrial and Commercial Swing Gates
11. ASTM F 934, Standard Specification for Standard Colors for Polymer-Coated Chain Link Fence Materials.
12. ASTM F 1043, Standard Specification for Strength and Protective Coatings on Steel Industrial Chain Link Fence Framework.
13. ASTM F 1083, Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.

B. Georgia Department of Transportation (GDOT):
1. "Standard Specifications, Construction of Transportation Systems", 2013 Edition (GDOT Standard Specifications).

1.3 Submittals

A. Snbmit the following for review prior to commencement of the work of this Section:
1. Product data and shop drawings showing materials, finishes and dimensions for fences and gates.

1.3 Delivery, Storage and Handling

A. Store materials off the ground.

B. Handle materials in a way which prevents dents, bends, and scars. Replace materials which are damaged prior to Substantial Completion.

1.4 Quality Criteria

A. Work shall be performed by skilled mechanics experienced in fencing installation. Fence shall be set plumb, on line, properly tensioned and securely fastened. Locate temporary fencing as required to completely surround and enclose areas of construction activity, construction parking and material or tool storage areas to protect the public safety health and welfare. Permanent fencing is shown on the drawings.

Part 2 – Products

2.1 Furnish and install fence types at locations as illustrated on the Drawings.

A. Description of Fence Types
1. 6' Fence is six (6) feet overall height with top and bottom rails. All fencing components including posts shall have fused black vinyl coating per ASTM-F668 Class 28. Gates are included as per the drawings.
a) For fencing installed on top of retaining wall, fence posts shall be anchored in formed or cored holes at the required locations and spacing. Posts shall be inserted into the holes and leveled, plumbed, and aligned. The annular space shall be filled solid with a quick-setting hydraulic cement or non-shrink grout. Alternate materials and methods of post anchorage may be used if approved by the Engineer.
2. 4' Fence is four (4) feet overall height with top and bottom rails. All fencing components including posts shall have fused black vinyl coating per ASTM-F668 Class 28. Gates are included as per the drawings.

B. Fabric
1. All fabric shall be thermally fused black PVC (7 mil minimum) coated continuous galvanized chain link nine (9) gauge (core wire before coating) woven wire with selvage knuckled at top and bottom.

C. Steel Pipe
1. All posts used in the construction of this fence shall be hot-dipped galvanized schedule 40 pipe with a minimum yield strength of 30,000 psi; sizes as indicated.
2. Hot-dipped galvanized with minimum average 1.8 oz. /sq. ft. of coated surface area.
3. All posts to have fused black vinyl coating.

D. Terminal and Gate Posts
1. 6' Fence
a. Terminal, corner and pull posts shall be 3.5" O.D. Schedule 40 pipe weighing 7.58 lb. /ft.
b. Gate posts for up to 1O' leaf shall be 4" O.D. Schedule 40 pipe weighing 9.11 lb. /ft.

2. 4' Fence
   a. Terminal, corner and pull posts shall be 2.88" 0.0.Schedule 40 pipe weighing 5.79 lb. /ft.
   b. Gate posts for up to 10' leaf shall be 3.5" 0.0. Schedule 40 pipe weighing 7.58 lb. /ft.

3. General
   a. Terminal posts shall be installed at every point that fence changes grade or turns a corner. All posts to have fused black vinyl coating.

E. Line Posts
1. All Line Posts for 6' height fence shall be Schedule 40, 2.38" O.D. pipe; 3.65 lb. /lf.
2. All Line Posts for 4' height fence shall be Schedule 40, 2.38" 0.0. pipe; 3.65 lb. /lf.
3. All line posts to be evenly spaced at approximately 6'-0" O.C. or as indicated on plans.
4. All posts to have fused black vinyl coating.

F. Top Rail
1. Shall be 1.66" O.D. Schedule 40 pipe weighing 2.27 lb. /lf.
2. All joints to be swedge type.
3. Top rails shall pass through line post tops and be fastened to terminal posts by pressed steel connectors.
4. Top rail shall be kept parallel to ground - uneven top rail will not be accepted.
5. All rails to have fused black vinyl coating.

G. Bottom and Center Rails
1. Bottom and center rails shall be 1.66" O.D. Schedule 40 pipe weighing 2.27 lb. /lf.
2. All joints to be swedge type.
3. Bottom and center rails to be installed between posts with fittings and accessories of matching finish.
4. Top rail shall be kept parallel to ground - uneven top rail will not be accepted.
5. All rails to have fused black vinyl coating.

H. Braces
1. Braces shall be same as top rail and installed midway between top rail and bottom of fabric.
2. Braces shall be fastened to posts with pressed steel connectors.
3. Truss with 3/8" rod with turnbuckle.
4. Braces to be installed between each terminal post and to adjacent line post each way.
5. All braces to have fused black vinyl coating.

I. Fabric Connections
1. Fabric shall be fastened to terminal posts with 3/16" x 3/4" tension bars with 11- gauge 7/8" wide steel bands fastened at 24" O.C.
2. Fabric shall be fastened to line posts and top rails with steel tie wires.
3. Line posts to be tied at intervals not exceeding 15" and top rails not exceeding 24".
4. All connections to have fused black vinyl coating.

J. Miscellaneous Hardware
1. All hardware including fittings, steel fence ties (no aluminum), and caps to be coated to match posts and fabric.
2. All coating to be fused black vinyl coating as per ASTM-F668 Class 2B.

2.2 All terminal, corner, and pull post to be of sufficient length to extend 36" into a concrete footing that is a minimum diameter of 12" or four times the post diameter (whichever is greater) and all line posts shall be set in concrete footings with a depth of 36" and diameter of 1O" or four times the post diameter (whichever is greater).

2.3 Miscellaneous fittings and hardware shall be furnished as needed and shall be galvanized. All items are to have fused black vinyl coating.

2.4 Temporary Constrnction Fencing shall enclose the work areas, tool and material storage areas and Contractor parking.

2.5 This section provides minimum guide specifications for the installation of a temporary site construct ion fence as specified below. The Contractor has the option to install a fence that provides greater security for the construction site

A. "Field Fence" of 12.5 gauge wire, 6 inch spacing between stays (vertical wires), minimum of 47 inches in height and Type 1 galvanized coating.

B. Studded "T" posts of high strength steel and a minimum of 6' in height and a maximum spacing of 8' on center.

Part 3 - Execution

3.1 Preparation

A. The ground surface along the alignment of the fencing shall be cleared and graded as required to produce a relatively even surface for proper fence construction.

B. Establish required locations for fencing (including gates) as indicated on the Drawings.

C. Do not begin fence installation and erection before other construction is completed at the fence location.

3.2 Installation

A. Brace end, corner and pull posts with horizontal intermediate brace and truss braces.

B. Install top rail continuous with couplings not less than 6" long. Attach barbed wire on supports on exterior side of enclosed space if fence is on property line.

C. Install fabric on exterior of enclosed space.
1. Stretch fabric taut, allowing approximately 2" clearance at grade or paving.
2. Fasten to line posts and to rail with ties; all other areas with stretcher bars.
3. Tie fabric to post at 1'-0" o.c.; top rail at 2'-0" o.c.
4. Fabric shall not by pass end, gate, and corner or pull posts.
5. Stretcher bars shall be threaded through fabric and secured to posts by bands or other mechanical devices.

D. Install bottom rail between posts with fittings and accessories.

E. Install gates complete with specified hardware at locations indicated on the Drawings or as may be acceptable to the Owner. Adjust and lubricate all hardware.

3.3 REPAIR

A. Repair abraded or damaged galvanized surfaces with hot process field galvanizing in accordance with ASTM A 780 and manufacturer's written instructions.

B. For polymer-coated fencing, prepare and recoat damaged coatings in accordance with manufacturer's written iustructions.

END OF SECTION

Section 32 3223
Segmental Retaining Walls

Part 1- General

1.1. Description

A. Segmental Retaining Wall (SRW) - Work includes the complete design/engineering, permitting, furnishing and constructing a system, including leveling pad, masonry block units, geosynthetic soil reinforcement, unit fill, select backfill, and related materials required for SRW construction to fit the lines and grades shown on the Drawings and specified herein. Contractor is responsible to obtain building permit for walls over four (4) feet in height.

B. Segmental Retaining Wall (SRW) may also be referred to as Mechanically Stabilized Earth Wall (MSEW) in some cases. The terms shall be interpreted to refer to the same system.

C. This is a Design-Build portion of the project. The Design-Build Contractor is responsible for all submittal materials and fees for the permit approval and issuance for the work from Jackson County.

1.2. Related Sections

A. Section 31 0000 Earthwork.

B. Section 33 4000 Storm Drainage Utilities.

C. Construction Drawings.

1.3. Reference Standards

A. The latest edition or revision of the following reference documents shall apply. Where specifications and reference documents conflict, the specifications shall govern.

1. ASTM

a.	C 33	Specification for Concrete Aggregates.
b.	C 90	Hollow Load Bearing Masonry Units.
c.	C 140	Methods of Sampling and Testing Concrete Masonry
d.	C 145	Units. Solid Load Bearing Concrete Masonry Units.
e.	C 150	Specification for Portland Cement. Specification for
f.	C 595	Blended Hydraulic Cements.
g.	C 1262	Evaluating the Durability of Concrete Masonry Units and
h.	C 1372	Concrete Masonry.
i.	D 1248	Specifications for Segmental Retaining Wall Units.
j.	D 1557	Specification for Corrugated Plastic Pipe. Moisture Density Relationship for Soils, Modified Proctor Density Method.
k.	D 422	Gradation Analysis.
l.	D 4318	Atterberg Limits.
m.	D 4595	Tensile Properties of Geotextiles by the Wide Width Strip Method.
n.	D 4632	Tensile Properties of Geotextiles.
o.	D 5262	Tensile Creep Testing of Geosynthetics.

p. D 698 Moisture Density Relationship for Soils, Standard Proctor Density Method.
q. D 2166 Triaxial Shear Test.
r. D 3034 Specification for Polyvinyl Chloride (PVC) Plastic Pipe.
s. D 3080 Direct Shear Test.
t. D 5262 Unconfined Tension Creep of Geosynthetics.
u. D 5321 Coefficient of Soil and Geosynthetic.
v. G 51 Alkalinity.
w. G 57 Resistivity.

2. American Association of State Highway and Transportation Officials (AASHTO)
   a. AASHTO Standard Specification for Highway Bridges.
   b. AASHTO T-27 Test Method for Gradation Limits - Fine Filter Material.
3. Federal Highway Administration (FHWA)
   a. Segmental Retaining Walls and Reinforced Soil Slope Design and Construction Guidelines (FHWA NHI-00-043, March 2001).
4. Geo-synthetic Research Institute (GRI)
   a. GG1 Standard Test Method for Geosynthetic Rib Tensile Strength.
   b. GG2 Standard Test Method for Geosynthetic Junction Strength.
   c. GG4-91 Determination of Geosynthetic Long Term Design Strength.
   d. GG5-91 Geosynthetic Pullout.
5. National Concrete Masonry Association (NCMA)
   a. NCMA Design Manual for Segmental Retaining Walls (Second Edition, 1997).
   b. SRWU-1 Connection Strength of Segmental Retaining Wall Units and Geosynthetic.
   c. SRWU-2 Shear Strength between Segmental Retaining Wall Units.

1.4. Design Requirements

A. Design of SRW's with geosynthetic-reinforcement shall conform to the minimum safety factors in this Specification.
   1. Geosynthetic reinforcement (geogrid or geotextile) shall be in accordance with "FHWA NHI-00-043 Segmental Retaining Walls and Reinforced Soil Slopes Design and Construction Guidelines".

B. Design Requirements - Unless otherwise indicated below, the SRW design shall be performed in compliance with the FHWA NHI-00-043 (2001) design method. Design submittals not meeting this design criteria or technical/administrative criteria as specified will be rejected in its entirety 11. Until complete compliance is achieved. Owner or owner's representative reserves all rights in determining compliance for plan approval and may reject any submittals.

Internal Stability	Minimum Factor of Safety
Sliding	1.5
Pullout	1.5
Tensile Overstress	1.5
Facing Connection (Break)	1.5
Facing Connection (Pullout)	1.5
Uncertainties	1.5

External Stability	Minimum Factor of Safety
Base Sliding	1.5
Overturning	2.0
Bearing Capacity	2.0

Global Stability	Minimum Factor of Safety
Global External (Bishop)	1.3
Compound Internal (Bishop)	1.3
Translational 2-Part Wedge (Spencer)	1.3
Global External 3-Part Wedge (Spencer)	1.3

C. In addition the design shall

1. Address hydrostatic, seismic, rapid draw down, surcharge and backfill slope loading as shown on the site grading and drainage plans. A minimum live load of 250-psf shall be used for all walls supporting areas subject to traffic.

2. Seismic analyses must be performed if the project is located in a seismic impact zone, i.e., a horizontal acceleration coefficient greater than or equal to 0.1g. Seismic factors of safety to be 75% of the minimum static factors of safety. Refer to NEHRP seismic maps.

3. Provide a minimum reinforcement length of 70% the total height of the wall, Hw, for cross sections with no toe or crest slopes, i.e., L=0.7Hw.

4. Wall sections with a toe slope, crest slope or both crest and toe slope shall provide a minimum reinforcement length of 70% the total height of the wall, Hw, plus height of slope(s), Hs. i.e. L=0.7(Hw + Hs).

5. Provide 100% geosynthetic coverage (no gaps)

6. The maximum spacing between vertically adjacent reinforcing layers of no more than 2 times the SRW unit depth (face to tail) or a maximum vertical spacing of 2.0- feet.

7. Filter fabric shall he placed to separate drainage stone from the reinforced soil.

D. Soil design parameters shall be as provided in the construction documents. The wall Design Engineer of Record shall be responsible for selecting, specifying and approving reinforced fill material. Reinforced and retained fill material shall have a minimum angle of internal friction of 30-degrees. Contractor is responsihle for ensuring and documenting the reinforced fill meets the specified parameters for both strength and compaction.

1.5. Submittals

A. The SRW contractor shall provide to the Owner a minimum of 30-days prior to the anticipated start date for the SRW, a submittal package including the following:

1. A set of detailed SRW design plans sealed by a registered professional engineer licensed in the State of Georgia. The professional engineer shall have a minimum of five (5) years of experience in designing retaining wall systems of similar type and size to that which is being proposed. The SRW plans shall include all details, dimensions, quantities and cross sections necessary to construct the SRW and shall include:
   a. Plan, elevation and cross section views for each wall,
   b. Details for cap blocks, coping, or barriers constructed as part of the wall contract,
   c. Construction specifications
   d. Computer generated outputs demonstrating compliance with this Specification must be provided.
      i. The computer program SRW (MSEW) 3.0 based on FHWA NHI-00-043 is acceptable. Detailed hand calculations demonstrating compliance with this Specification must be submitted if no computer program is used for design.
      ii. The FHWA method based on NHI-00-043 and AASHT098/Demo 82 are the same with respect to external stability and internal stability. The difference between NHI-00-043 and AASHT098/Demo 82 is related to connection analyses as follows:
         - AASHTO 98/Demo 82 (ASD) is based on *short-term connection tests*, which are commonly done at most testing labs.
         - NHI-043 (ASD) is based on *long-term creep connection tests*. NHI-043 (ASD) method is applicable only if a creep connection test is performed.
         - If a creep connection test has not been performed, then AASHTO 98/Demo 82 (ASD) must be used for the connection analysis.
      iii. Overall stability calculations with respect to global external, compound internal and translation stability can be determined using the following computer program: ReSSA (v3.0).

2. Propriety product literature indicating which Segmental Retaining Wall (SRW) units and soil reinforcement are proposed for use on the project including color, face style and texture. Landscape Architect/Engineer or Owner shall select and approve color, face style, and texture.
3. Documentation for the SRW units and soil reinforcement demonstrating compliance with the requirements of this specification including but not limited to SRW compressive strength, absorption and durability; SRW/geosynthetic reinforcement connection and block shear capacity; geosynthetic reinforcement coefficients for direct sliding and interaction; and geosynthetic reinforcement reduction factors for creep, durability, installation damage and pullout.
4. Manufacturer's certification that SRW units meet the requirements of this specification.
5. Manufacturer's certification that the geosynthetic reinforcement meets the requirements of this specification.
6. Segmental Retaining Wall system engineer's certification that the design complies with this specification and documented proof of current professional and general liability insurance with an aggregate coverage of not less than $1,000,000.00.
7. Contractor's certification that:

a. The specific SRW system proposed for use on this project has been successfully used on a minimum of ten (10) similar projects and has been successfully installed on a minimum of 1,000,000 square feet of retaining walls.
b. The contractor has a minimum of 1,000,000 square feet of experience within the previous five (5) years with the proposed SRW system. Contact names and telephone numbers shall be listed for projects used to document the 1,000,000 square feet.

8. Contractor shall be responsible for providing all required permits for the SRW wall(s) and make submittals of permits to the Owner as per Submittal Procedures.

2.3. Delivery, Storage and Handling

A. Check all the concrete masonry units upon delivery to assure that the specified type; grade, texture, color have been received. Contractor shall prevent excessive mud, wet concrete, epoxies, and like material which may become affixed; from coming in contact with the concrete masonry units. Damaged materials shall not be incorporated into the SRW system.

B. Check the soil reinforcement upon delivery to assure the proper grade and type of material been received. Provide a product certification with each shipment. Store geosynthetic reinforcement in accordance with the manufacturer's recommendations.

C. Store plastic pipe in accordance with the manufacturer's recommendations to prevent deleterious materials from becoming affixed. Store drainage aggregate to prevent contamination with other materials.

Part 2 – Products

2.1. Definitions

A. Segmental Concrete Units - concrete masonry units shall be machine made from Type I, Type II or Type III Portland cement, water and mineral aggregates in accordance with ASTM C150. Concrete masonry units shall have a minimum 28-day compressive strength of 3,000-psi on the net area and have a maximum absorption rate of 8.0 percent.

B. Geosynthetic Reinforcement - structural geogrid or geotextile reinforcement formed by a regular network of integrally connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock or earth and function as reinforcement. Soil reinforcement shall be specifically manufactured for soil reinforcement.

C. Unit Fill - drainage aggregate that is placed within and behind the segmental concrete units. Applicable for block systems utilizing a frictional connection.

D. Reinforced Backfill - compacted soil within the reinforced soil volume as shown on the plans.

E. Retained Soil - compacted imported or in-situ soil behind reinforced zone of the retaining wall.

F. Foundation Soil- compacted imported or in-situ soil beneath entire wall.

G. Leveling Pad - level compacted gravel or un-reinforced concrete footing upon which first course of segmental concrete facing units are placed.

2.3. Segmental Concrete Units Shall Meet the Following Requirements:

A. Manufactured in accordance with ASTM C1372.

B. Minimum 28-day compressive strength of 3000-psi.

C. Maximum moisture absorption of 8%.

D. Pass ASTM C1262 using a water solution. The criteria for passing the test is 100 cycles with less than 1% loss in 5 of 5 samples or 150 cycles with less than 1/5% loss in 4 of 5 samples.

E. Dimensional tolerances shall be within +/-1/8 inch from puhlished standard on overall vertical dimensions, but shall not vary more than +/-1/16 inch as measured from the lowest to highest point across the top surface of the unit from a level base plane.

F. Modular units shall provide an in-place weight of 100-pcf to 120-pcf including the unit fill (vertical core systems only), which is contained within the nominal dimension of the unit.

G. Units shall have angled sides capable of concave and convex alignment curves with a minimum radius of 3.5-feet.

H. Minimum inter-unit shear strength of 500-lbs/ft.at 2-psi normal pressure per NCMA SRWU-2.

I. Minimum geosynthetic to SRW unit peak connection strength of 500-lbs/ft. at 2-psi normal pressure per NCMA SRWU-1.

J. The wall supplier shall demonstrate by laboratory testing and engineering calculations that the strength of the connection between geosynthetic reinforcement and segmental concrete block units is capable of meeting or exceeding the maximum tensile force within a given geosynthetic reinforcement layer with a minimum Factor of Safety of 1.5.

K. SRW units exposed faces shall be free of chips, cracks or other imperfections when viewed from a distance of 10-feet under diffused lighting.

2.3. Soil Reinforcement

A. Geosynthetic Reinforcement-The geosynthetic shall be evaluated inaccordance with FHWA NHI-00-043 where

$$T_{Allowable} = \frac{T_{ultimate}}{RF \times FS} = \frac{T_{ultimate}}{RF_{CR} \times RF_{ID} \times RF_{D} \times FS}$$

B. Tult shall be the minimum average roll value (MARV) ultimate tensile strength per ASTM 04595.

C. RF_{cr}, Creep Reduction Factor shall be determined in accordance with FHWA NHI-00- 043 Appendix B with results extrapolated for a 75-year design life. A minimum of one 10,000-hour creep tension test per ASTM 05262 is required to determine RF_{cr}. Short term testing by itself is insufficient.

D. RF_{ID}, Installation Damage reduction factor, shall be determined from construction damage tests for each product proposed for use with project specific, representative or more severe backfill and construction techniques. The backfill soil used, if other than project specific, shall have a D50>0.6mm (No. 30 sieve). Testing shall be consistent with ASTM D5818. Default RFID value of 3.0 shall be used if such testing has not been conducted. The minimum RF_{ID} shall be 1.10.

E. RFD, Durability reduction factor, is the combined partial factor for potential chemical and biological degradation. A default RFD of 2.0 shall be used if durability testing has not been conducted. The minimum RFD shall be as follows:

1. HDPE.....1.1
2. PET.....1.1

F. Direct Sliding Coefficient, C_{ds} value shall be determined from pullout tests per GRI: GS-6. The maximum pullout force used to determine C_{ds} shall be limited to thelesser of Ta or the force that yields 1.5 inches displacement. The minimum C_{ds} value shall not be greater than 1.0 where the C_{ds} value is determined follows:

$$C_{DS} = \frac{F}{L\sigma_N \tan\Phi}$$

Where:

F	=	Maximum shear resistance from direct shear test (lb. /ft.), per GRI: GS-6
L	=	Geosynthetic Embedment Length in Test (ft.)
σ_N	=	Effective Normal Stress (psf.) at range from 500 to 1000 psf.
Φ	=	Effective Soil Friction Angle, Degrees

G. Soil/ Geosynthetic Interaction Coefficient, C_i value shall be determined from pullout tests per GRI: GG-5. The maximum pullout force used to determine C_i shall be limited to the lesser of Ta or the force that yields 1.5 inches displacement. The minimum C_i value in sand shall be 0.9 where the C_i value is determined follows:

$$C_I = \frac{F}{2Le\sigma_N \tan\Phi}$$

Where

F	=	Pullout force (lb. /ft.), per GRI:GG-5
Le	=	Geosynthetic Embedment Length in the Anchorage Zone Test (ft.)
σ_N	=	Effective Normal Stress (psf.) at range from 500 to 1,000 psf.
Φ'	=	Effective Soil Friction Angel, Degrees

H. The following additional requirements shall apply.

1. Geogrid shall have minimum junction strength of 40-pounds per foot per GR:GG2. If this criterion is not met then the geogrid shall have a minimum mass of 8 oz. / sy. and meet the strength requirements of AASHTO M-288-96 Class 1 geotextile

2. All geogrids shall have a minimum stiffness (flexural rigidity) of 30,000 mg-cm per ASTM D1388. If this criterion is not met then the geogrid shall be staked during placement.
3. PET geogrids shall be coated with a suitable coating immutably bonded to PET bundles. The coating shall contain a minimum of 1% carbon black measured per ASTM 4218. If this criterion is not met then the minimum RFD shall be 1.6.
4. PET geosynthetics shall possess a Molecular Weight greater than or equal to 25,000 grams/mole as per GRl:GG8 and a carboxyl end group number less than or equal to 30 as per GRl:GG7. PET geosynthetics not meeting this criteria shall use a minimum RFD=2.0.
5. HDPE geogrids shall possess a melt flow index value greater than or equal to 0.88. HDPE geogrids not meeting this criteria shall use a minimum RFD=2.0.

I. Manufacturing Quality Control- The purpose of the QC testing program is to verify that the proposed geosynthetic being supplied to the project is representative of the geosynthetic used for all performance testing described above. The geosynthetic manufacturer shall have a manufacturing quality control program that includes QC testing no less frequently than each 400,000 sf of production. All QC testing shall be performed by an independent GAI-LAP facility. The testing as a minimum shall include Tensile Strength per ASTM 04595.

2.5. Unit Fill

A. Shall consist of clean 1" minus crushed stone or crushed gravel meeting the following gradation per ASTM 0422.

Sieve Size	Percent Passing
1 inch	100
½ inch	75-100
No. 4	0-10
No.40	0-5

B. Segmental block systems which rely on friction with respect to connection capacity must use unit fill (typically #57 stone) within vertically oriented cores and 12-inches behind the proposed block units. A minimum of 1.0-cubic foot of unit fill shall be used for each square foot of wall face.

C. Filter fabric must be placed between the unit fill and reinforced soils to minimize migration of fine soil particles into the unit fill.

D. Drainage collection pipe shall be 4-inch perforated/slotted schedule 40 PVC or corrugated HDPE pipe. The pipe may be covered with a knitted or non-woven geotextile sock to function as a filter. Drainage pipe shall be manufactured in accordance with ASTM D3034 or ASTM 01248.

E. Collector drain located at the backside of the reinforced zone shall be constructed using drainage aggregate wrapped in a geotextile filter fabric. The minimum dimension of the collector drain shall be 3.0-feet wide by 1.0-foot high.

2.5. Reinforced Backfill

A. Fill material used to construct the soil reinforced and retained zones (where applicable) shall consist of one of the following inorganic soil types according to their USCS designations (GP,GW,SW,SP,SM). The fill material must also meet the gradation below and the strength requirements noted below. Maximum particle size to be 3/4-inches.

Sieve Size	Percent Passing
½ inch	75-100
No.4 No.	20-100
40	0-60
No. 200	0-35

1. Less than 35% passing the No. 200 sieve per ASTM 0422.
2. Materials passing the No. 40 sieve should have a liquid limit less than 35 and a plasticity index less than 10 as per ASTM 04318.
3. An effective internal angle of friction greater than or equal to 30-degrees per ASTM 02166 or 03080 at compaction standard.
4. The reinforced fill material shall have a maximum dry unit weight greater than or equal to 100-pcf as determined by standard Proctor (ASTM D 698).
5. Fill containing brush, sod, peat, roots, or other organic, perishable, or deleterious matter including, but not limited to snow, ice, or frozen soils, shall be considered unsuitable material and shall be removed. Less than 0.5% organic material.
6. Materials not meeting these criteria may be blended with other materials to achieve the specified characteristics.

B. Use of an effective friction angle greater than 30-degrees for design shall be verified by appropriate testing submitted to and approved by the Geotechnical engineer prior to construction.

C. The pH of the backfill soil shall be between 5 and 8 when tested in accordance with ASTM G51.

Part 3 - Execution

3.1. Preparation and Excavation

A. Include all means of subsurface improvement as required.

B. Comply with all state and local requirements for execution of the work, including local building codes and current OSHA excavation regulations. The General Contractor is responsible for stability of the area during excavation and wall construction. Any excavation support required to maintain/protect existing structures, utilities, landscape features or property shall be the responsibility of the General Contractor.

C. Prior to undertaking any grading or excavation of the site, the contractor should confirm the location of the retaining walls and all underground features, including utility locations within the area of construction. Ensure surrounding structures are protected from effects of wall excavation.

D. Coordinate installation of underground utilities with wall installation.

E. Control surface water drainage and prevent inundation of the SRW wall area during construction.

F. Contractor shall excavate to the lines and grades shown on the construction drawings. Owner's representative shall inspect the excavation and approve prior to placement of leveling material or fill soils. Proofroll foundation area and perform on-site bearing capacity tests as directed to determine if foundation improvement is required.

G. Before construction of the reinforced wall, the contractor shall clear and grub the fill zone area removing topsoil, brush, sod, organics, or other deleterious materials. Any unsuitable soils shall be over-excavated and replaced before placing additional fill soils.

H. Over-excavation and replacement of unsuitable foundation soils and replacement with approved compacted fill will be compensated as agreed upon with the Owner.

I. Foundation bearing capacity shall be evaluated by a local geotechnical testing company. The engineer shall perform a field evaluation that the foundation area has been satisfactorily prepared and the bearing capacity requirements. are assessed to exist before placement of the geosynthetic reinforced zone.

Required Bearing Capacity (psf) > 3,000 psf "or" = Level Backfill: q = yH*1.3
= 2H: 1V Backfill: q = yH*1.6

J. A pre-construction meeting shall be conducted by the General Contractor prior to beginning construction on segmental retaining walls. Owner and Architect shall be notified of the date, time, and location of the meeting. Mandatory attendees include the General Contractor, the wall design engineer of record, the contactor's independent geotechnical engineer, the Contractor's testing agency, Owner's independent testing laboratory, and representatives of all sub-contractors involved with the foundation preparation, erection, and backfilling of the MSE wall. Meeting topics shall include, but are not limited to contractor qualifications as stated above; schedule and phasing of wall construction; coordination with other on-site construction activities; responsibilities of parties; and sources, quality, and acceptance of materials. Location and coordination of backfill soil sources for the retaining wall must be discussed and acknowledged prior to any site grading. If contractor fails to protect and utilize soils designated as suitable backfill for MSE walls contractor will be responsible for providing appropriate suitable backfill at their expense and at no additional cost to owner.

3.2. Base Leveling Pad

A. Leveling pad material shall be placed to the lines and grades shown on the construction drawings, to a minimum thickness of 6-inches and extend laterally a minimum of 6-inches in front and behind the concrete masonry unit.

B. Leveling pad materials to be compacted to at least 95% of the material's standard Proctor maximum dry density per ASTM D-698.

C. Leveling pad shall be prepared to insure full contact to the base surface of the SRW units.

D. First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in full contact with the base and properly seated

3.3. SRW Unit Installation

A. Place the front of unit's side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.

B. Install mechanical shear/connecting devices per manufacturer's recommendation.

C. Place and compact drainage fill within and behind wall units (frictional systems with vertically oriented cores). Place and compact backfill soil behind drainage fill. Follow wall erection and drainage fill closely with structure backfill.

D. Maximum-stacked vertical height of wall units, prior to unit drainage fill and backfill placement and compaction, shall not exceed two courses or 16-inches, whichever is less.

3.4. Geosynthetic Installation

A. Geosynthetic reinforcement shall be oriented with the highest strength axis (machine direction) perpendicular to the wall alignment. Contractor shall verify correct orientation.

B. Reinforced fill zone length is measured from the backside of the masonry block units unless otherwise noted on drawings.

C. Geosynthetic reinforcement shall be continuous throughout embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geosynthetic or gaps between adjacent pieces of geosynthetic are not permitted.

D. Before placing fill, the geosynthetic materials shall be placed to lay flat or slightly sloping downward away from the wall face on compacted backfill and mechanically attached to the masonry block units. Place the next course of masonry block units over the geosynthetic. The geosynthetic shall be pulled taut to remove any slack in the geosyntbetics, and anchored prior to backfill placement on the geosynthetic.

E. Tracked construction equipment shall not be operated directly on the geosynthetic reinforcement. A minimum fill thickness of 6 inches is required for operation of tracked vehicles over the geosynthetic reinforcement. Turning of tracked vehicles should he kept to a minimum to prevent tracks from displacing the fill and the geosynthetic reinforcement.

F. Rubber-tired vehicles may pass over the geosynthetic reinforcement at slow speeds, less than 10-mph. Sudden braking and sharp turning shall be avoided.

G. Geosynthetic reinforcement shall be cut next to the cross machine direction (CMD) apertures. Cross machine direction apertures shall be placed along the front face of the SRW wall.

3.5. Reinforced Backfill Placement

A. Construct wall in location and to top and bottom elevations illustrated on the grading and drainage plans.

B. Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slack in the geosynthetic and installation damage. Reinforced backfill materials shall be placed from the wall face back toward the ends of the geosynthetic to ensure further tensioning of the reinforcement.

C. Reinforced backfill shall be placed and compacted in lifts not to exceed 6-inches where hand compaction is used, or 8-inches where heavy compaction equipment is used. Lift thickne·ss shall be decreased to achieve the required density as required.

D. Reinforced backfill shall be compacted to at least 95% of the material's standard Proctor maximum dry density as determined by ASTM 0698. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be within a range of 2% below to 2% above its standard Proctor optimum moisture content.

E. Fill shall be placed in horizontal layers not exceeding 6-inches in un-compacted thickness for zones where compaction is accomplished with hand-operated equipment. Only lightweight hand-operated equipment shall be allowed within 4-feet from the face of the SRW unit.

F. The infill soil shall be compacted in maximum 8-inch compacted lifts to the following minimum densities (percentage of the material's standard Proctor maximum dry density as determined by ASTM 0698):

1. Fine grained (SM) soils to he a minimum of 95 percent Standard Proctor within -2/ +2 percent of optimum moisture content, whichever is greater;
2. Coarse grained (GP, GW, SW, SP) soils to a minimum 95 percent Standard Proctor.

G. Testing methods and frequency, and verification of material specifications and compaction shall be the responsibility of the Contractor's independent Geotechnical Engineer.

H. Wall including reinforced mass shall be constructed on foundation soils having a minimum internal friction angle of 30-degrees to a minimum depth of one third (1/3) the wall height or a net allowable bearing pressure as stated in Section 3.1.1.

I. Reinforced fill shall be compacted to the top of each row of masonry block units prior to the placement of the next row of masonry hlock units.

J. SRW units shall be placed not more than 2-courses, or 16-inches, above level hackfill.

K. Contractor shall have an approved set of plans and specifications on site at all time during construction of the wall.

3.6. Retained Backfill Placement

A. Retained backfill shall he compacted to at least 95 percent Standard Proctor density (ASTM 0698) in landscape areas. Retained backfill located in the upper two feet below crest slopes or pavement structures shall be compacted to a minimum 98 percent Standard Proctor density or to the density specified hy the Contractor's independent geotechnical engineer.

3.7. Cap Installation

A. If applicable, cap units shall be permanently secured to the masonry block units using an approved construction adhesive conforming to ASTM 2339.

B. The general contractor shall verify the in-place top of wall elevation before installing the top units. Top units may require shifting to comply with the design elevations.

C. Incorporate surface water drainage control (swale) into the finished grade at top of wall, as shown on the construction drawings, where applicable.

3.8. As-Built Construction Tolerances

A. Vertical alignment: ±1.25-inch over any 10.0- foot distance.

B. Wall Batter: Must be within 2.0-degrees of design batter.

C. Horizontal alignment: ±1.5-inch over any 10.0-foot distance and in corners, bends and curves ± 1.0-foot of the theoretical location.

D. Maximum horizontal gap between erected units shall be 1/8-inch.

3.9. Field Quality Control

A. Installer is responsible for quality control of installation of system components. The installer must employ or retain the design engineer of the retaining wall to provide construction verification on a predefined basis by the Contractor's independent Geotechnical Engineer.

B. The General Contractor, at their expense, shall also retain a qualified independent testing agency, approved by the Owner, to act as construction verification engineer to perform quality assurance checks, evaluation of foundation soils, and compaction testing of the installer's work. Also to be verified is correct reinforcement type, elevation, length, orientation, reinforcement tensioning procedures, placement of drainage materials and outlets.

C. Installer shall correct work that does not meet these specifications or the requirements shown on the drawings at the installer's expense.

D. The independent testing agency (Construction Verification Engineer), at the General Contractor's expense; shall be contracted to perform compaction testing of the reinforced backfill placement and compaction in the reinforced backfill zone. The Construction Verification Engineer shall also verify all aspects of construction regarding the MSE wall and certify that the construction meets the design documents and will supply a letter to the Owner's Engineer stating that all design parameters have been met and that the wall is in compliance with all requirements set forth by the Jackson County and the design documents.

E. Quality control testing and inspections services shall only be performed by qualified soil technicians and/or geotechnical engineers.

F. Quality control testing, as a minimum shall include:
   1. Special inspector shall verify I document each of the following:
      a. Correct reinforcement type, vertical location, length, orientation, reinforcement tensioning procedures, placement of drainage materials & outlets to be observed by the Contractor's independent geotechnical engineer.
      b. Verification of entire foundation area (entire reinforcement length, L) must be observed by the contactor's independent geotechnical engineer.
      c. Field location in plan and elevation, wall batter to be observed by the contactor's surveyor.
   2. Reinforced Soil Testing
      a. Every new soil type and/or every 2,000 CY perform pH, Atterberg Limits, Sieve Analysis, and Proctor new soil type per geotechnical field personnel.
      b. Triaxial Test on each appreciably different soil type based on index testing.
      c. Run Consolidated-Undrained Triaxial Shear Tests and report the stress strain test results as well as present the Mohr-Coulomb failure diagram for peak and residual stress levels, as required by ASTM. The geotechnical consultant will provide a recommended effective internal friction angle based on their results.
      d. Perform compaction testing as follows:
         i. Every two-foot change in height and interval of 100-feet of Wall length.
         ii. Perform 4 compaction tests: one within 4-feet of face, and three others randomly throughout the reinforced soil zone.

3. Retained Soils Testing
   a. Every new soil type and/or every 2,500-cy run Atterberg limits, sieve analysis (wash #200), and Proctor testing by geotechnical field personnel and if different from Reinforced Soil.
   b. Cohesion in the retained soil should not be used in design even if the failure envelope determined from shear tests indicates that such value temporarily exists.
   c. Perform compaction tests as follows:
      i. Every two-foot change in height and interval of 200-feet of Wall length.
      ii. Perform 3 compaction tests: one within 3-feet of reinforced zone and two others randomly throughout the retained soil zone.
4. Foundation Soils Testing
   a. Strength testing at time of design. Generally, one in the worst area would suffice.
   b. If foundation fill is required, treat as if it were reinforced soil fill, those criteria apply.
   c. Verify foundation bearing capacity by probe rod and static cone penetrometer testing every 10 feet of wall length for entire Reinforced Soil Zone. Also use hand auger borings to a depth of 12 feet or the reinforcement length, whichever is shorter, every 30-feet along the wall length at third points of the reinforcement length.
   d. For walls in excess of 20-feet tall, power auger holes with cone or SPT testing to depth equal to twice the wall height is required, every SO-feet of wall length or as required by the contractor's independent Geotechnical Engineer to establish appropriate allowable bearing capacity, unless already performed in pre-Wall design geotechnical investigation. If there is soft soil, it should be done to the bottom of the soft soil layer.
5. Please note that the special inspector must notify the contractor of out-of-tolerance work. The inspector cannot observe or test and let out-of-spec work be covered. With all of the parameters established in the MSE wall specifications and the guidelines for testing frequency outlined above the contractor's independent geotechnical engineer can perform their role within those parameters.
6. The SRW wall shall be staked in the field and located as per the civil grading plan by a registered Georgia Surveyor. Stakes shall be placed on 25-foot intervals so as to identify location along the wall alignment with respect to geogrid placement and soil compaction tests.

Part 4 - Changes to Geosynthetic Reinforcement Layout and Placement

5.3. No changes to the masonry block or geosynthetic reinforcement layout, including but not limited to, length, geosynthetic type, or elevation shall be made without the expressed prior written consent of Landscape Architect/Engineer, Owner, and then executed by the Wall Design Engineer.

Part 5 – Site Drainage

5.1. Backfill shall be graded a minimum of 2-percent away from the wall face and rolled at the end of each work day to prevent ponding of water on the surface of the reinforced soil mass. A berm at the crest of the wall shall be constructed at the end of each workday to prevent rainwater from overtopping the wall. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

5.2. Care shall be taken not to contaminate the filter fabric, unit fill, blanket drains, chimney drains and/or the drainage composite with clay or other poor drainage material.

5.3. Drainage aggregate shall extend one foot behind the back of the masonry block units to alleviate the build-up of possible hydrostatic pressure behind the masonry block units.

5.4. The engineering, design, analysis, detailing and mitigation of surface water control related to the MSE wall shall be the responsibility of the project civil engineer.

5.5. The engineering, design, analysis, detailing and mitigation of groundwater seepage shall be the collective responsibility of the contactor's independent geotechnical engineer and MSE wall engineer.

Part 6 - General Construction Notes

6.1. Construction shall conform to all state and local and manufacturers' requirements.

6.2. General or grading contractor is responsible for location and protection of underground utilities in the vicinity of the wall and for maintaining safe excavations and working conditions.

6.3. All utilities located within the reinforced zone are to he installed concurrently with the reinforced backfill placement.

6.4. All liquid carrying utilities located within the reinforced backfill are to be encased in a drainage aggregate and geotextile filter. All liquid carrying utilities located outside of, but within 100-feet of the reinforced backfill shall be water tight to prevent migration of water into the surrounding soils.

6.5. Wall elevation views and locations and geometry of existing structures must be verified by others prior to construction.

6.6. Backfill and compact in compact in front of wall prior to exceeding 5.0-feet of wall height.

6.7. A copy of the design report and the wall drawings should be provided to future owners of the developed property to provide them with a record of the location of the reinforced zone and recommendations regarding permissible construction activities.

6.8. Upon completion, Contractor must submit certification from geotechnical engineer that each wall was constructed in compliance with the approved design drawings and specifications.

END OF SECTION

Section 334100
Storm Utility Drainage Piping

Part 1 - General

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. All construction methods and materials shall comply with GDOT Standards.

1.2 Summary

A. Section Includes:

1. Pipe and fittings
2. Catch basins
3. Stormwater inlets
4. Stormwater detention structure
5. Pipe outlets

1.3 Submittals

A. Product Data: For each type of prodnct indicated.

B. Shop Drawings:

1. Manholes: Include plans, elevations, sections, details, frames, and covers.
2. Catch basins and stormwater inlets. Include plans, elevations, sections, details, frames, covers, and grates.
3. Stormwater Detention Structures: Include plans, elevations, sections, details, frames, covers, and concrete design-mix reports.

1.4 Delivery, Storage, and Handling

A. Do not store plastic manholes, pipe, and fittings in direct sunlight.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

C. Handle manholes according to mannfacturer's written rigging instructions.

D. Handle catch basins and stormwater inlets according to manufacturer's written rigging instructions.

Part2–Products

2.1 Pe Pipe and Fittings

A. ADS N-12 WT IB Pipe or approved equal: AASHTO M 252M, Type S, with smooth waterway for coupling joints and annular exterior corrugations.

1. Fittings: Fittings shall conform to AASHTO M252, AASHTO M294, or ASTM F2306. Bell and spigot connections shall utilize a spun-on or welded bell and valley or saddle gasket meeting the watertight joint performance requirements of AASHTO M252, AASHTO M294 or ASTM F2306.

2.2 Concrete Pipe and Fittings

A. Reinforced-Concrete Sewer Pipe and Fittings: AASHTO M-170 and/or ASTM C 76.

1. Bell-and-spigot ends and gasketed joints with ASTM C 443, rubber gaskets.
2. Class and wall thickness shall be in accordance with 1030-D, GDOT Specification, Table No.1

2.3 Catch Basins

A. Standard Precast Concrete Catch Basins:

1. Description: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for sealant joints.
2. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section, and separate base slab or base section with integral floor.
3. Riser Sections: 4-inch minimum thickness, 48-inch diameter, and lengths to provide depth indicated.
4. Top Section: Eccentric-cone type. Top of cone of size that matches grade rings.
5. Joint Sealant: ASTM C 990, bitumen or butyl rubber.
6. Grade Rings: Include two or three reinforced-concrete rings, of 6- to 9-inch total thickness, that match 24-inch- diameter frame and grate.
7. Steps: 3/4 inch steel steps or ladder bars, wide enough to allow worker to place both feet on one step and designed to prevent lateral slippage off step. Cast or anchor steps into sidewalls at 12 inch intervals. Omit steps if total depth from floor of catch basin to finished grade is less than 48 inches.

B. Frames and Grates: ASTM A 536, Grade 60-40-18, ductile iron designed for A-16, structural loading. Include flat grate with small square or short-slotted drainage openings.

1. Size: 24 by 24 inches minimum unless otherwise indicated.

2. Grate Free Area: Approximately 50 percent unless otherwise indicated.

2.4 Stormwater Inlets

A. Curb Inlets: Made with vertical curb opening, of materials and dimensions according to utility standards.

B. Gutter Inlets: Made with horizontal gutter opening, of materials and dimensions according to utility standards. Include heavy-duty frames and grates.

C. Combination Inlets: Made with vertical curb and horizontal gutter openings, of materials and dimensions according to utility standards. Include heavy-duty frames and grates.

D. Frames and Grates: Heavy duty, according to utility standards.

2.5 Stormwater Detention Structures

A. Pre-Cast Concrete, Stormwater Detention Structures: Constructed of reinforced- concrete bottom, walls, and top; designed according to ASTM C 890 for A-16 (AASHTO HS20-44), heavy-traffic, structural loading; of depth, shape, dimensions, and appurtenances indicated.

1. Ballast: Increase thickness of concrete bottom as indicated to prevent flotation.

2. Steps: 3/4 inch steel steps or ladder bars, wide enough to allow worker to place both feet on one step and designed to prevent lateral slippage off step. Cast or anchor steps into sidewalls at 12 inch intervals. Omit steps if total depth from floor of catch basin to finished grade is less than 48 inches.

B. Manhole Frames and Covers: ASTM A 536, Grade 60-40-18, ductile-iron castings designed for heavy-duty service. Include 24-inch ID by 7- to 9-inch riser with 4-inch minimum width flange, and 26-inch- diameter cover. Include indented top design with lettering cast into cover, using wording equivalent to "STORM SEWER."

2.6 Pipe Outlets

A. Head Walls: Cast-in-place reinforced concrete, with apron and tapered sides.

B. Riprap Basins: Broken, irregularly sized and shaped, graded stone according to NSSGA's "Quarried Stone for Erosion and Sediment Control."

1. Average Size: as indicated.

C. Filter Stone: According to NSSGA's "Quarried Stone for Erosion and Sediment Control," size as indicated.

D. Energy Dissipaters: According to NSSGA's "Quarried Stone for Erosion and Sediment Control," size as indicated.

Part 3 - Execution

3.1 Earthwork

A. Excavation, trenching, and backfilling are specified in Division 31 Section "Earth Moving."

3.3 Piping Installation

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.

C. Install manholes for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing sewer is indicated.

D. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

E. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of microtunneling.

F. Install gravity-flow, nonpressure drainage piping according to the following:

1. Install piping pitched down in direction of flow.
2. Install PE corrugated sewer piping according to ASTM D 2321.
3. Install concrete sewer piping according to GDOT specification section 550.

G. Install force-main pressure piping according to the following:

1. Install piping with restrained joints at tee fittings and at horizontal and vertical changes in direction. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place concrete supports or anchors.
2. Install PVC pressure piping according to AWWA M23, or ASTM D 2774 and ASTM F 1668.

3.3 Pipe Joint Construction

A. Join gravity-flow, nonpressure drainage piping according to the following:

1. Join corrugated PE piping according to ASTM D 3212 for push-on joints.

2. Join concrete sewer piping according to ACPA's "Concrete Pipe Installation Manual" for rubber-gasketed joints.

B. Join force-main pressure piping according to the following:

1. Join PVC pressure piping according to AWWA M23 for gasketed joints.

2. Join dissimilar pipe materials with pressure-type couplings.

3.4 Drain Installation

A. Install type of drains in locations indicated.

1. Use Light-Duty, top-loading classification drains in earth or unpaved foot-traffic areas.
2. Use Medium-Duty, top-loading classification drains in paved foot-traffic areas.
3. Use Heavy-Duty, top-loading classification drains in vehicle-traffic service areas.

B. Embed drains in 4-inch minimum concrete around bottom and sides.

C. Fasten grates to drains if indicated.

D. Set drain frames and covers with tops flush with pavement surface.

3.5 Catch Basin Installation

A. Construct catch basins to sizes and shapes indicated.

B. Set frames and grates to elevations indicated.

3.6 Stormwater Inlet and Outlet Iustallation

A. Construct inlet head walls, aprons, and sides of reinforced concrete, as indicated.

B. Construct riprap of broken stone, as indicated.

C. Install outlets that spill onto grade, anchored with concrete, where indicated.

D. Install outlets that spill onto grade, with flared end sections that match pipe, where indicated.

E. Construct energy dissipaters at outlets, as indicated.

3.7 Concrete Placement

A. Place cast-in-place concrete according to ACI 318.

3.8 Identification

A. Materials and their installation are specified in Division 31 Section "Earth Moving." Arrange for installation of green warning tape directly over piping and at outside edge of underground structures.

1. Use detectable warning tape over nonferrous piping and over edges of underground structures.

3.12 Field Quality Control

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

1. Submit separate reports for each system inspection.
2. Defects requiring correction include the following:
   a. Alignment: Less than full diameter of inside of pipe is visible between structures.
   b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
   c. Damage: Crushed, broken, cracked, or otherwise damaged piping.
   d. Infiltration: Water leakage into piping.
   e. Exfiltration: Water leakage from or around piping.
3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
4. Reinspect and repeat procedure until results are satisfactory.

B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.

1. Do not enclose, cover, or put into service before inspection and approval.
2. Test completed piping systems according to requirements of authorities having jurisdiction. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours advance notice.
3. Submit separate report for each test.
4. Gravity-Flow Storm Drainage Piping: Test according to requirements of authorities having jurisdiction, UNI-B-6, and the following:
   a. Exception: Piping with soil tight joints unless required by authorities having jurisdiction.
   b. Option: Test plastic piping according to ASTM F 1417.
   c. Option: Test concrete piping according to ASTM C 924.
5. Force-Main Storm Drainage Piping: Perform hydrostatic test after thrust blocks, supports, and anchors have hardened. Test at pressure not less than 1-1/2 times the maximum system operating pressure, but not less than 150 psig.
   a. PVC Piping:Test according to AWWA M23, "Testing and Maintenance" Chapter.

C. Leaks and loss in test pressure constitute defects that must be repaired.

D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.12 Cleaning

A. Clean interior of piping of dirt and superfluous materials. Flush with clean water.

END OF SECTION

Section 33 4600
Subdrainage

Part 1- General

1.1. Summary

A. Section includes construction of subdrainage (underdrain) pipiug systems under multi- purpose sports fields to collect, intercept and discharge infiltrated surface water and groundwater for site drainage control, including installation of piping, geotextile, and drainage aggregatc.

B. Related Sections:
1. Section 31 23 00 -Excavation and Fill.
2. Section 31 32 20 -Geotextiles.

1.2. References

A. American Association of State Highway and Transportation Officials (AASHTO):
1. AASHTO M252, Standard Specification for Corrugated Polyethylene Drainage Pipe.

B. ASTM International:
1. ASTM D 448, Standard Classification for Sizes of Aggregate for Road and Bridge Construction.
2. ASTM D 6707, Standard Specification for Circular-Knit Geotextile for Use in Subsurface Drainage Applications.

1.3. Submittals

A. Submit the following documentation for review and approval prior to commencement of the work of this Section:
1. Manufacturers' documentation (including product data sheets) for all specified and furnished products.
2. Certificates and test reports, signed by the material producer of drainage aggregate, indicating that the material ıneets or exceeds the specifications.
3. Manufacturers' documentation (including ınaterial properties sheets) on geotextile as specified in Section 31 32 30.

B. At project completion, submit the following:
1. Record drawings showing locations and elevations of underdrain pipe.

1.4. Quality Assurance

A. Pipe manufacturer shall have manufacturing and quality control facilities capable of producing and assuring the quality of the pipe and fittings specified.

1.5. Delivery, Storage and Handling

A. During loading, transporting and unloading, exercise care to prevent damage to pipe.

B. Pipe shall be marked with manufacturer's identification symbol, size, date of manufacture, class of pipe and applicable product specification identification number.

C. All materials shall be inspected upon delivery to the Site. Damaged or defective ınaterials shall be rejected and shall be replaced with new materials at no additional cost to the Owner.

Part 2- Products

2.1. Drainage Aggregate

A. Drainage aggregate to be installed under multi-use fields shall consist of coarse aggregate with gradation conforming to size number 7 aggregate as defined in ASTM D 448 and summarized in the following table.

Sieve Size	Percent Passing, by Weight
3/4 inch	100
1/2 inch	90 – 100
3/8 inch	40 -70
No.4	0 – 15
No. 8	0 - 5

B. Aggregate shall meet specified gradation and quality prior to placement. All processing shall be completed at the source.

2.2. Underdrain Pipe

A. Underdrain pipe shall be perforated and non-perforated corrugated polyethylene pipe conforming to AASHTO M252, Type S (full circular cross-section with an outer corrugated pipe wall and a smooth inner liner). Perforated pipe shall have Class 1 perforations as defined by AASHTO M252.

B. Furnish filter sock for perforated piping where indicated on the Drawings. Filter sock shall be sized to fit pipe size and shall conform to ASTM D 6707.

C. Furnish required fittings and connectors for a complete system to provide the layout indicated on the Drawings.

2.3. Geotextile

A. Specified in Section 31 32 20.

2.4. Soil Backfill

A. Soil backfill to be placed over non-perforated underdrain pipe shall conform to the specifications for Initial Trench Backfill in Section 31 23 00.

Part 3- Execution

3.1. Excavation and Preparation of Subgrade

A. Excavate and grade trenches to the width, depth, grade and alignment indicated on the Drawings and as specified in Section 31 23 00.

B. Grade the bottom of the excavation to provide uniform bearing for the pipe.

C. Removal of materials beyond the indicated invert elevations, without authorization by the Engineer, shall be classified as unauthorized excavation and shall be backfilled and compacted at no additional cost to the Project.

3.2. Geotextile Installation

A. Place the geotextile on the bottom and sides of perforated pipe trenches where indicated on the Drawings and as specified in Section 31 32 20. Geotextile is not required for piping furnished with filter socks.

3.3. Pipe Installation

A. Examine pipe and fittings before installation and assure no defective materials are incorporated. Keep inside of pipes and fittings free of dirt and debris.

B. Lay piping on firm bedding for entire length of alignment. Installation of all pipe and fittings shall be subject to the review of the Engineer.

C. Install piping to alignment and grade indicated on the Drawings. Pipe and fittings shall be joined in accordance with the manufacturer's recommendations.

D. Pipe connections to storm drainage structures shall be installed true to line and grade as shown on the Drawings. Pipe connections shall be made using approved materials in accordance with the manufacturer's recommendations. All pipe connections shall be watertight.

E. Whenever pipe laying is not actively in progress, the open ends of the piping shall be closed by a temporary plng or cap to prevent soil and other foreign matter from entering the piping.

3.4. Backfilling

A. Place aggregate backfill around and over perforated piping as indicated on the Drawings up to required elevation in trench.

B. Place soil backfill around and over non-perforated pipe in layers not exceeding six inches loose thickness up to finish grade. Each layer shall be thoroughly compacted using manually guided compaction equipment.

C. Placement and compaction of aggregate and soil backfill shall be performed in a manner that will not damage the pipe. Pipe that is damaged shall be replaced at no additional cost to the Project.

END OF SECTION