SANDY SPRINGS™
GEORGIA

INVITATION TO BID #19-050

Lake Forest Elementary School
Recreational Improvement Project

Pre-Bid Site Visit:
June 18, 2019 at 11:00 A.M. EST
Lake Forest Elementary School
5920 Sandy Springs Circle
Sandy Springs, GA 30328

Bid Due Date:
July 3, 2019
No later than 2:00 p.m.

Bids shall only be accepted online through the Bonfire Portal at:
https://sandysprings.bonfirehub.com/projects/view/16450 .
Any proposal submitted in any other format (email, paper, fax, mail, etc.) will not be accepted for any reason.

General Information:

1. All communications regarding this solicitation must be with the assigned Procurement Agent, Dezirae Gaines, purchasing@sandyspringsga.gov.
2. All questions or requests for clarification must be sent via Bonfire under Message - Opportunity Q&A: https://sandysprings.bonfirehub.com/projects/view/16450. Questions are due **no later than June 21, 2019 5:00 p.m**. Questions received after this date and time may not be answered.
3. Questions and clarifications will be answered in the form of an addendum. Any addenda, schedule changes and other important information regarding the solicitation related to this solicitation will be posted on Bonfire website at https://sandysprings.bonfirehub.com/projects/view/16450. It is the Offeror's responsibility to check the Bonfire portal for any addendum or other communications related to this solicitation.
4. The form of contract ("Model Contract") the City intends to execute with the selected contractor is included for your review.
5. The City of Sandy Springs reserves the right to reject all bids and to waive technicalities and informalities, and to make award in the best interest of the City of Sandy Springs.
6. The City of Sandy Springs is not responsible for any technical difficulties. It is highly recommended that all potential contractors submit their quotes prior to the due date of this solicitation.

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DEFINITIONS

SSPWD: Sandy Springs Public Works Department

GDOT: Georgia Department of Transportation

Project landscape Architect: The Sandy Springs Director of Public Works or a duly authorized representative.

ADA: Americans with Disabilities Act. The federal act that gives civil rights protections to the disabled similar to those provided to individuals based on race, color, sex, national origin, age and religion. It guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, state and local government services and telecommunications.

EA: Each

GAL: Gallon

LF: Lineal Feet

LS: Lump Sum

SY: Square Yard

TN: Ton

OWNER: City of Sandy Springs

Contractor: The Prime Contractor for the Construction Project.

DOL: U.S. Department of Labor

CONTRACT DOCUMENTS: Contract Agreement, General, Conditions, Appendices, Special Provisions, Technical Specifications, Drawings and Plans, Bidding Documents, Exhibits

DBA: Davis Bacon Act. The federal act that requires the payment of prevailing wage rates, determined by the Department of Labor (DOL), to all laborers and mechanics on federal government and District of Columbia construction projects in excess of $2,000. Construction includes alteration and/or repair, including painting and decorating, of public buildings or public works.

CWHSSA: Contract Work Hours and Safety Standards. The federal act that requires time And one-half for overtime (O/T) hours (over 40 in any workweek) worked on the covered project.

Copeland Act (Anti-Kickback Act): The federal act that makes it a federal crime for anyone to require any laborer or mechanic (employed on a federal or federally assisted project) to kickback (i.e.; give up or pay back) any part of their wages. The Copeland requires every employer (contractors and subcontractors) to submit weekly payroll reports (CPRs) and regulates permissible payroll deductions.

CITY OF SANDY SPRINGS

INVITATION TO BID #19-050
Lake Forest Elementary Recreational Improvement Project

The bidder qualifications for this project are as follows:
(1) Bidders submitting bids over $2,000,000 shall be GDOT prequalified.
(2) Bidders submitting bids $2,000,000 or less shall be prequalified or registered subcontractors with GDOT.

All bidders must comply with all general and special requirements of the bid information and instructions enclosed herein. **A Pre-Bid Site Visit will be held on June 18, 2019; 11:00 am at Lake Forest Elementary School, 5920 Sandy Springs Circle, Sandy Springs, GA 30328.** Deadline for questions from prospective contractors is **June 21, 2019; 5:00 p.m.** Questions received after this date and time may not be answered.

Bid packages are available on Bonfire: https://sandysprings.bonfirehub.com/projects/view/16450 and also may be downloaded from the DOAS website (*www.doas.georgia.gov*). All questions should be forwarded in writing to Dezirae Gaines at *purchsaing@sandyspringsga.gov*. Please refer to **ITB #19-050 Lake Forest Elementary Recreational Improvement Project** when requesting information. The City of Sandy Springs reserves the right to reject all bids and to waive technicalities and informalities, and to make award in the best interest of the City of Sandy Springs.

The selected contractor shall be able to start work within ten (10) calendar days after the "Notice to Proceed" is issued. The time of completion for the project is **sixty (60) calendar days** from the date of the "Notice to Proceed."

BID FORM
(Bidder to sign and return)

TO: PURCHASING MANAGER
CITY OF SANDY SPRINGS
SANDY SPRINGS, GEORGIA 30350

Ladies and Gentlemen:

In compliance with your Invitation To Bid, the undersigned, hereinafter termed the Bidder, proposes to enter into a Contract with the City of Sandy Springs, Georgia, to provide the necessary machinery, tools, apparatus, other means of construction, and all materials and labor specified in the Contract Documents or as necessary to complete the Work in the manner therein specified within the time specified, as therein set forth, for:

ITB #19-050 Lake Forest Elementary Recreational Improvement Project

The Bidder has carefully examined and fully understands the Contract, Specifications, and other documents hereto attached, has made a personal examination of the Site of the proposed Work, has satisfied himself as to the actual conditions and requirements of the Work, and hereby proposes and agrees that if his bid is accepted, he will contract with the City of Sandy Springs in full conformance with the Contract Documents.

It is the intent of this Bid to include all items of construction and all Work called for in the Specifications, or otherwise a part of the Contract Documents.

In accordance with the foregoing, the undersigned proposes to furnish and construct the items listed in the attached Bid schedule for the unit prices stated.

The Bidder agrees that the cost of any work performed, materials furnished, services provided or expenses incurred, which are not specifically delineated in the Contract Documents but which are incidental to the scope, intent, and completion of the Contract, shall be deemed to have been included in the prices bid for the various items scheduled.

The Bidder further proposes and agrees hereby to promptly commence the Work with adequate forces and equipment within ten (10) calendar days from receipt of Notice to Proceed and to complete all Work within **60** calendar days from the initial Notice to Proceed.

The Bidder will be required to sign a “Notice of Intent” (NOI) as the “operator” prior to beginning construction. The Bidder shall be responsible for installing and maintaining the “Best Management Practices” (BMP’s) throughout the term of the project. Upon completion and prior to final payment the Bidder will be required to sign a “Notice of Termination (NOT) upon final approval by COSS.

Attached hereto is an executed Bid Bond (bond only: certified checks or other forms are not acceptable)) _____ in the amount of _____ Dollars ($ Five Percent of Amount Bid).

If this bid shall be accepted by the City of Sandy Springs and the undersigned shall fail to execute a satisfactory contract in the form of said proposed Contract, and give satisfactory Performance and Payment Bonds, or furnish satisfactory proof of carriage of the insurance required within ten days from the date of Notice of Award of the Contract, then the City of Sandy Springs may, at its option, determine that the undersigned abandoned the Contract and there upon this bid shall be null and void, and the sum stipulated in the attached Bid Bond or certified check shall be forfeited to the City of Sandy Springs as liquidated damages.

Bidder acknowledges receipt of the following addenda:

Addendum No.	Date Received
_____	_____
_____	_____
_____	_____
_____	_____

Bidder further declares that the full name and resident address of Bidder's Principal is as follows:

Signed, sealed, and dated this _____ day of _____

Bidder _____
Company Name

Seal

Bidder Mailing Address:

_____
_____
_____
_____

By: _____

Title: _____

By: _____

Title: _____

BIDDING INSTRUCTIONS

Failure to submit the following bid documents shall result in the bid being deemed non-responsive and the bid shall be rejected:

City Bid Form and Addenda Acknowledgment Insurance Requirements
City Bid Bond Form
City Qualification Signature and Certification Form City
Corporate Certificate
City List Subcontractors
Affidavit Verifying Status for City Public Benefit Application

Contract Agreement-including all related Articles and Exhibits (Unit Price and Bid Proposal Form)filled out, and authorized by the Contractor.

In addition, upon award of contract the following items shall also be submitted:

City Performance Bond Form
City Payment Bond Form
City Maintenance Bond
Completed Federal Aid Certification
Georgia Security Immigration Compliance Act Affidavit
Certificate of Insurance

INSURANCE REQUIREMENTS

Upon Notice of Award, and at all times that this Contract is in force, the Contractor shall obtain, maintain and furnish the City Certificates of Insurance from licensed companies doing business in the State of Georgia with an A.M. Best Rating A-10 or higher and acceptable to the City covering:

1. Workers' Compensation & Employer's Liability Insurance. Workers' Compensation Insurance in compliance with the applicable Workers' Compensation Act(s) of the state(s) wherein the work is to be performed or where jurisdiction could apply in amounts required by statutes. Employer's Liability Insurance, with limits of liability of not less than $1,000,000 per accident for bodily injury or disease.

2. Commercial General Liability Insurance, including contractual liability insurance, product and completed operations, personal and advertising injury, and any other type of liability for which this Contract applies with limits of liability of not less than $1,000,000 each occurrence / $2,000,000 policy aggregate for personal injury, bodily injury, and property damage. Commercial General Liability Insurance shall be written on an "occurrence" form.

3. Automobile Liability Insurance with limits of liability of not less than $1,000,000 per accident for bodily injury and property damage if automobiles are to be used in the delivery of or in the completion of services and work or driven onto the City's property. Insurance shall include all owned, non-owned and hired vehicle liability.

4. Umbrella Insurance with limits of liability excess of Employer's Liability Insurance, Commercial General Liability Insurance and Automobile Liability Insurance in the amount of not less than $3,000,000.

5. Contractors' Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors and Omissions (if project involves environmental hazards) with limits not less than $1,000,000 per occurrence or claim, and $2,000,000 policy aggregate.

6. Professional (Errors and Omissions) Insurance- For Professional Services and for all Design/Build Projects with limits of liability of not less than $3,000,000 per occurrence or claim / $3,000,000 policy aggregate. Such policy shall also include coverage for losses arising from the breach of information security or cyber liability (including Errors & Omissions, Security and Privacy Liability and Media Liability), whether combined with the Professional Liability policy or placed as a separate policy, but carrying the same limits of liability. Such coverage shall insure damage, injury and loss caused by error, omission or negligent acts, including all prior acts without limitation, related to the professional services to be provided under this Contract. The policy shall be amended to include independent contractors providing professional services on behalf of or at the direction of the Contractor. The definition of Contractual Liability shall be amended to state that liability under a contract of professional services is covered. Further, coverage shall be afforded for fraudulent acts, misappropriation of trade secrets, internet professional services, computer attacks, personal injury, regulatory actions, wrongful

acts, contractual liability, privacy policy, and insured versus insured. The Contractor shall ensure that coverage under this policy continues for a period of thirty-six (36) months after completion of services

7. Fidelity Bond (Employee Dishonesty) in the sum of not less than $50,000.

All such insurance shall remain in effect until final payment is made and the Project is accepted by the City. If the Contractor receives notice of non-renewal or material adverse change of any of the required coverages, the Contractor shall promptly advise the City in writing. Failure of the Contractor to promptly notify the City on non-renewal or material adverse change of any of the required coverages terminates the Agreement as of the date that the Contractor should have given notification to the City. The insurance policies shall contain or be endorsed to contain, the following provisions:

A provision that coverage afforded under such policies shall not expire, be canceled or altered without at least thirty (30) days prior written notice to the City.
Workers' Compensation and Employer's Liability and Property insurance policies shall contain a waiver of subrogation in favor of the City and the City's boards, officials, directors, officers, employees, representatives, agents, and volunteers.
Commercial General Liability, Automobile Liability Contractors' Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors and Omissions (if project involves environmental hazards) insurance policies shall include an endorsement making the City and the City's boards, officials, directors, officers, employees, representatives, agents, and volunteers Additional Insureds under such policies.

A copy of these endorsements shall be provided to the City.

Certificates of Insurance showing that such coverage is in force shall be filed under this Contract by the Contractor to the City.

The obligations for the Contractor to procure and maintain insurance shall not be construed to waive or restrict other obligations and it is understood that insurance in no way limits liability of the Contractor whether or not same is covered by insurance.

Certificate Holder should read: The City of Sandy Springs, 1 Galambos Way, Sandy Springs, Georgia 30328.

BONDING REQUIREMENTS

Each bid must be accompanied with a BID BOND (bond only: certified checks or other forms are not acceptable) in an amount equal to five percent (5%) of the base bid, payable to the City of Sandy Springs.

Said bid bond guarantees the bidder will enter into a contract to construct the project strictly within the terms and conditions stated in this bid and in the bidding and contract documents, should the construction contract be awarded.

The Successful Bidder shall be required to furnish a bond for the faithful performance on the contract and a bond to secure payment of all claims for materials furnished and/or labor performed in performance of the project.

Bonding shall be in the following amounts:

Bond Type	**Amount**
Payment Bond	**One hundred percent (100%) of the contract**
Performance Bond	**One hundred percent (100%) of the contract**
Maintenance Bond	**To be issued after project one-third (1/3) of contract completion**

The Successful Bidder shall also be required to furnish a Maintenance Bond guaranteeing the repair or replacement caused by defective workmanship or materials for a period of one (1) year from the completion of construction.

Bonds shall be issued by a corporate surety appearing on the Treasury Department's most current list (Circular 570 as amended) and be authorized to do business in the State of Georgia.

Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners shall execute Bond.

QUALIFICATIONS SIGNATURE AND CERTIFICATION
(Bidder to sign and return)

I certify that this offer is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a proposal for the same materials, supplies, equipment, or services and is in all respects fair and without collusion or fraud. I understand collusive bidding is a violation of State and Federal Law and can result in fines, prison sentences, and civil damage awards. I agree to abide by all conditions of the proposal and certify that I am authorized to sign this proposal for the proposer. I further certify that the provisions of the Official Code of Georgia Annotated, Sections 45-10-20 et. seq., have not been violated and will not be violated in any respect.

Authorized Signature_____Date_____

Print/Type Name_____

Email Address _____

Print/Type Company Name Here_____

SANDY SPRINGS™
GEORGIA

SAMPLE CONTRACT
AGREEMENT

For

ITB 19-050
Lake Forest Elementary Recreational Improvement Project
("Project")

Between

CITY OF SANDY SPRINGS, GEORGIA
("City")

and

_____
("Contractor")

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APPENDICES CONTAINS THE FOLLOWING:

Affidavit Verifying Status for City Public Benefit Application
Contractor and Subcontractor Affidavits
Corporate Certificate
Bid Bond
Performance Bond
Payment Bond
Maintenance Bond
List of Subcontractors
Drawings

CONTRACT AGREEMENT

This Agreement is made by and between the City of Sandy Springs, a political subdivision of the State of Georgia (hereinafter referred to as the City) and_____, (hereinafter referred to as the Contractor) under seal for construction of the **ITB #19-050 Lake Forest Elementary Recreational Improvement Project**

WHEREAS, the Contractor desires to enter into this Agreement for construction of the Project and has represented to the City that it is qualified and experienced to provide such services necessary for construction of the Project (the City requires that the Contractor and to comply with all federal, state and local legal requirements imposed on the Project as the result of federal funding and the City has relied on such representation);

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, it is agreed by and between the Contractor and the City as follows:

ARTICLE I

THE CONTRACT AND THE CONTRACT DOCUMENTS

1.1 The Contract

1.1.1 The Contract between the City and the Contractor, of which this Agreement is a part, consists of the Contract Documents. It shall be effective on the date this Agreement is executed by the last party to execute it**.**

1.2 The Contract Documents

1.2.1 The Contract Documents consist of this Agreement, General Conditions, Special Provisions, the Technical Specifications, the Drawings and Plans, Bidding Documents, all Change Orders and Field Orders issued hereafter, the base bid made by the Contractor in response to the City's Invitation for Bid No. 19-050 (the "Bid"), and any other amendments hereto executed by the parties hereafter, together with the following (if any):

_____

_____

_____

Documents not enumerated in this Paragraph 1.2 are not Contract Documents and do not form a part of this Contract**.**

1.3 Entire Agreement

1.3.1 The Contract Documents constitute the entire and exclusive agreement between the City and the Contractor with reference to the Project.

1.4 Subletting, Assignment, or Transfer

1.4.1 It is understood by the parties to this Agreement that the Work of the Contractor considered personal by the City. The Contractor agrees not to assign, sublet, or transfer any or all of its interest in this Agreement without prior written approval of the City.

1.4.2 The City reserves the right to review all subcontracts prepared in connection with the Agreement, and the Contractor agrees that it shall submit to the City proposed subcontract documents together with Subcontractor cost estimates for the City's review and written concurrence in advance of their execution.

1.4.3 All subcontracts in the amount of $10,000.00 or more shall include the provisions set forth in this Agreement.

1.5 No Privity with Others

1.5.1 Nothing contained in this Contract shall create, or be interpreted to create, privity or any other contractual agreement between the City and any person or entity other than the Contractor.

1.6 Intent and Interpretation

1.6.1 The intent of this Contract is to require complete, correct and timely execution of the Work. Any Work that may be required, implied or inferred by the Contract Documents, or any one or more of them, as necessary to produce the intended result shall be provided by the Contractor for the Contract Price, as hereinafter defined.

1.6.2 This Contract is intended to be an integral whole and shall be interpreted as internally consistent. What is required by any one Contract Document shall be considered as required by the Contract.

1.6.3 When a word, term or phrase is used in this Contract, it shall be interpreted or construed, first, as defined herein; second, if not defined, according to its generally accepted meaning in the construction industry; and third, if there is no generally accepted meaning in the construction industry, according to its common and customary usage.

1.6.4 The words include, includes, or including, as used in this Contract, shall be deemed to be followed by the phrase, without limitation.

1.6.5 The specification herein of any act, failure, refusal, omission, event, occurrence or condition as constituting a material breach of this Contract shall not imply that any other, non- specified act, failure, refusal, omission, event, occurrence or condition shall be deemed not to constitute a material breach of this Contract.

1.6.6 Words or terms used as nouns in this Contract shall be inclusive of their singular and plural forms, unless the context of their usage clearly requires a contrary meaning.

1.6.7 The Contractor shall have a continuing duty to read, carefully study and compare each of the Contract Documents, the shop drawings and the product data and shall give written notice to the City of any inconsistency, ambiguity, error or omission which the Contractor may discover with respect to these documents before proceeding with the affected Work. The issuance or the express or implied approval by the City of the Contract Documents, shop drawings or product data shall not relieve the Contractor of the continuing duties imposed hereby, nor shall any such approval be evidence of the Contractor's compliance with this Contract. HOWEVER, THE CITY MAKES NO REPRESENTATION OR WARRANTY OF ANY NATURE WHATSOEVER TO THE CONTRACTOR CONCERNING THE DOCUMENTS FOR THE PROJECT, INCLUDING THE DRAWINGS AND SPECIFICATIONS FOR THE PROJECT. By the execution hereof, the Contractor acknowledges and represents that it has received, reviewed and carefully examined such documents, has found them to be complete, accurate, adequate, consistent, coordinated and sufficient for construction, and that the Contractor has not, does not, and will not rely upon any representation or warranties by the City concerning such documents as no such representation or warranties have been or are hereby made.

1.6.8 Neither the organization of any of the Contract Documents into divisions, sections, paragraphs, articles, (or other categories), nor the organization or arrangement of the design, shall control the Contractor in dividing the Work or in establishing the extent or scope of the Work to be performed by Subcontractors.

1.7 Ownership of Contract Documents

1.7.1 The Contractor may be provided, have access to or become aware of the City's Confidential Information including the City's strategic plans, employee data, customer data and other technical and business information of the City (collectively referred to as the "Confidential Information"). The term Confidential Information includes the deliverables as well as all information generated by the Contractor that contains, references or is derived from the Confidential Information and the Services including, without limitation, the Contractor's summaries, analysis, extracts, working papers and notes relating to the Services and the Deliverables (referred to as the "Working Papers"). The Contractor agrees not to disclose the Confidential Information to third parties without the prior written approval of the City and not to make use of the Confidential Information other than as needed to perform the Services. The Contractor further agrees that it will only disclose the Confidential Information to its personnel on a need-to-know basis solely for the performance of the Services and will protect the Confidential Information with the same degree of care that the Contractor uses to protect its own confidential information, but no less than reasonable care or as the various laws may require or impose.

All Confidential Information as well as other documents, data and information provided to the Contractor by the City is and will remain the property of the City to the extent that it was the property of the City at the time it was provided to the Contractor.

All Confidential Information shall be returned to the City by the Contractor within five (5) business days of the completion of the Services under this Contract. The Contractor will keep no copies of the Confidential Information except that the Contractor may retain one copy of the Working Papers as required by law, regulation, professional standards or reasonable business practice. If

requested by the City, an officer of the Contractor will certify in writing that, to the best of his/her knowledge, information and belief, all Confidential Information and all copies thereof (except for one copy of the Working Papers) have been delivered to the City or destroyed.

The Contract Documents, and each of them, shall remain the property of the City. The Contractor shall have the right to keep one record set of the Contract Documents upon completion of the Project; provided, however, that in no event shall Contractor use, or permit to be used, any or all of such Contract Documents on other projects without the City's prior written authorization.

1.8 Hierarchy of Contract Documents

1.8.1 In the event of any conflict, discrepancy, or inconsistency among any of the Contract Documents, the following hierarchy shall control: (a) as between figures given on drawings and the scaled measurements, the figures shall govern; (b) as between large scale drawings and small scale drawings, the large scale shall govern; (c) as between drawings and specifications, the requirements of the specifications shall govern; (d) as between the Contract Agreement and General and the specifications, the requirements of the Contract Agreement shall govern. As set forth hereinabove, any and all conflicts, discrepancies, or inconsistencies shall be immediately reported to the City in writing by the Contractor.

ARTICLE II

THE WORK

2.1 Contractor Responsibility

2.1.1 The Contractor shall perform all of the Work required, implied or reasonably inferable from, this Contract.

2.2 "Work" Defined

2.2.1 The term Work shall mean whatever is done by or required of the Contractor to perform and complete its duties under this Contract, including the following: construction of the whole or a designated part of the Project; furnishing of any required surety bonds and insurance; and the provision or furnishing of labor, supervision, services, materials, supplies, equipment, fixtures, appliances, facilities, tools, transportation, storage, power, permits and licenses required of the Contractor, fuel, heat, light, cooling and all other utilities as required by this Contract. The Work to be performed by the Contractor is generally described in Exhibit A, SCOPE OF SERVICES, attached hereto and incorporated herein.

2.3 Review of Work

2.3.1 Authorized representatives of the City, GDOT, and affected federal agencies may at all reasonable times review and inspect the activities and data collected under the terms of the Contract and any amendments thereto, including but not limited to, all reports, drawings, studies, specifications, estimates, maps, and computations, prepared by or for the City.

2.4 Workday and Restrictions, Suspension and Interruption

2.4.1 Normal workday for the Work shall be from 8:00 A.M. to 5:00 P.M. and the normal work week shall be Monday through Friday. The City will consider extended workdays or work weeks upon written request on a case-by-case basis. The City may restrict work hours in certain locations or at certain times of the day. No work will be allowed on national holidays (i.e., Memorial Day, July 4th, Labor Day, etc.). The City may order the Contractor in writing to suspend, delay or interrupt all or any part of the Work for such period of time as it may determine appropriate for the convenience of the City. The time for completion of the Work shall be extended by the number of days the Work is suspended. The City shall not be responsible for any claims, damages or costs stemming from any delay of the Project.

2.5 Work to be performed by the Prime Contract

2.5.1 Tasks constituting of at least fifty-one percent (51%) of the value of this contract must be performed directly by the prime contractor and shall not be sub-contracted to other firms.

2.5.2 The Contractor shall identify which tasks shall be self-performed.

ARTICLE III

CONTRACT TIME

3.1 Time and Liquidated Damages

3.1.1 The Contractor shall not proceed to furnish such services and the City shall not become obligated to pay for same until a written authorization to proceed ("Notice to Proceed") has been sent to the Contractor from the City. The Contractor shall commence the Work no later than ten (10) days after the effective date of the Notice to Proceed and shall achieve Substantial Completion of the Work, as hereinafter defined, **no later than 60 Calendar Days**, in accordance with the Contract Documents. The number of calendar days from the date on which the Work is permitted to proceed, through the date set forth for Substantial Completion, shall constitute the Contract Time. The Work shall be carried on expeditiously, it being understood, however, that this Agreement may be extended or continued in force by the parties hereto in writing as provided herein.

3.1.2 The Contractor shall pay the City the sum of $500.00 per day for each and every calendar day of unexcused delay in achieving Substantial Completion beyond the date set forth herein for Substantial Completion of the Work. Any sums due and payable hereunder by the Contractor shall be payable, not as a penalty, but as liquidated damages representing an estimate of delay damages likely to be sustained by the City, estimated at or before the time of executing this Contract. When the City reasonably believes that Substantial Completion will be inexcusably delayed, the City shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the City to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving Substantial Completion, or any part thereof, for which the City has withheld payment, the City shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages.

3.2 Substantial Completion

3.2.1 Substantial Completion shall mean the stage of the work when Sandy Springs has determined all pay items are sufficiently complete allowing the newly constructed facilities to be used for their intended purpose. Partial use or occupancy of the Project shall not result in the Project being deemed substantially complete, and such partial use or occupancy shall not be evidence of Substantial Completion**.**

3.3 Time is of the Essence

3.3.1 All limitations of time set forth in the Contract Documents are of the essence of this Contract.

ARTICLE IV

CONTRACT PRICE

4.1 The Contract Price

4.1.1 The total contract amount for the Project (the "Contract Price") shall be as set forth in the bid schedule ("Bid Schedule") attached hereto as EXHIBIT B, BID SCHEDULE and incorporated herein. Payment to the Contractor pursuant to the Bid Schedule is full payment for the complete scope of services. The Contract Price shall not be modified except by Change Order as provided in this Contract.

ARTICLE V

PAYMENT OF THE CONTRACT PRICE

5.1 Bid Schedule

5.1.1 The Contractor shall invoice and be paid pursuant to the Bid Schedule contained in the Contract Documents.

5.2 Payment Procedure

5.2.1 The City shall pay the Contract Price to the Contractor as provided below.

5.2.2 Based upon the Contractor's invoices for payment submitted to the City, the City shall make progress payments to the Contractor on account of the Contract Price.

5.2.3 On or before the **5th** day of each month after commencement of the Work, the Contractor shall submit an invoice for Work satisfactorily completed as evaluated by an inspector representing the City pursuant to the Bid Schedule. The invoice shall be in such form and manner, and with such supporting data and content, as the City may require. Therein, the Contractor may request payment for ninety percent (90%) of that portion of the Contract Price properly allocable

to Contract requirements properly provided, labor, materials and equipment properly incorporated into the Work plus ninety percent (90%) of that portion of the Contract Price properly allocable to materials or equipment properly stored on-site (or elsewhere if approved in advance in writing by the City) for subsequent incorporation into the Work, less the total amount of previous payments received from the City. Payment for stored materials and equipment shall be conditioned upon the Contractor's proof satisfactory to the City, that the City has title to such materials and equipment and shall include proof of required insurance. Such invoice shall be signed by the Contractor and shall constitute the Contractor's representation that the Work has progressed to the level for which payment is requested in accordance with the Schedule of Work, that the Work has been properly installed or performed in full accordance with this Contract, and that the Contractor knows of no reason why payment should not be made as requested. Thereafter, the City will review the invoice and may also review the Work at the Project Site or elsewhere to determine whether the quantity and quality of the Work is as represented in the invoice and is as required by this Contract. The City shall make partial payments on account of the Contract Price to the Contractor within thirty (30) days following receipt of each invoice. The amount of each partial payment shall be the amount approved for payment less such amounts, if any, otherwise owing by the Contractor to the City or which the City shall have the right to withhold as authorized by this Contract. The City shall not be precluded from the exercise of any of its rights as set forth in Paragraph 5.3 herein below; PROVIDED, HOWEVER, that when fifty (50) percent of the Contract value, including Change Orders and other additions to the Contract value, provided for by the Contract Documents is due, and the manner of completion of the Contract Work and its progress are reasonably satisfactory to the City, the City shall withhold no more retainage. At the discretion of the City, and with the approval of the Contractor, the retainage of any Subcontractor may be released separately as the Subcontractor completes its Work. If, however, after discontinuing the retention, the City determines that the Work is unsatisfactory or has fallen behind schedule, retention may be resumed at the previous level. If retention is resumed by the City, the Contractor and Subcontractors shall be entitled to resume withholding retainage accordingly. The rights of the City set forth herein to retainage are in addition to all of the other rights and remedies of the City set forth in this Agreement.

5.2.4 The Contractor warrants that upon submittal of an invoice, all Work for which payments have been received from the City shall be free and clear of liens, claims, security interest or other encumbrances in favor of the Contractor or any other person or entity whatsoever.

5.2.5 The Contractor shall promptly pay each Subcontractor out of the amount paid to the Contractor on account of such Subcontractor's Work, the amount to which such Subcontractor is entitled. In the event the City becomes informed that the Contractor has not paid a Subcontractor as herein provided, the City shall have the right, but not the duty, to issue future checks in payment to the Contractor of amounts otherwise due hereunder naming the Contractor and such Subcontractor as joint payees. Such joint check procedure, if employed by the City, shall create no rights in favor of any person or entity beyond the right of the named payees to payment of the check and shall not be deemed to commit the City to repeat the procedure in the future.

5.2.6 No progress payment, nor any use or occupancy of the Project by the City, shall be interpreted to constitute an acceptance of any Work not in strict accordance with this Contract.

5.3 Withheld Payment

5.3.1 The City may decline to make payment, may withhold funds, and, if necessary, may demand the return of some or all of the amounts previously paid to the Contractor, to protect the City from loss because of:

(a) defective Work not remedied by the Contractor or, in the opinion of the City, unlikely to be remedied by the Contractor;

(b) claims of third parties against the City or the City's property;

(c) failure by the Contractor to pay Subcontractors or others in a prompt and proper fashion;

(d) evidence that the balance of the Work cannot be completed in accordance with the Contract for the unpaid balance of the Contract Price;

(e) evidence that the Work will not be completed in the time required for substantial or final completion;

(f) persistent failure to carry out the Work in accordance with the Contract; (g) damage to the City or a third party to whom the City is, or may be, liable.

In the event that the City makes written demand upon the Contractor for amounts previously paid by the City as contemplated in this Subparagraph 5.3.1, the Contractor shall promptly comply with such demand**.**

5.4 Punch List

5.4.1 When the Contractor believes that the Work is substantially complete, the Contractor shall so notify the City in writing. If the City deems the work is substantially complete, the City shall make a preliminary final inspection of the Project and shall submit to the Contractor a list of items to be completed or corrected (the "Punch List"). The Contractor shall complete all items on the Punch List within twenty-one (21) calendar days from the date of issuance of the Punch List by the City. If the Contractor is already in liquidated damages, as herein provided, prior to beginning the Punch List, then liquidated damages will be postponed for the twenty-one (21) calendar days. Once the twenty-one (21) calendar days expire, then liquidated damages will continue to accrue. In any case, once the twenty-one (21) calendar days expire after the Punch List is submitted to the Contractor, then liquidated damages will be assessed.

5.5 Completion and Final Payment

5.5.1 When all of the Work is finally complete and the Contractor is ready for a final inspection, the Contractor shall notify the City thereof in writing. Thereupon, the City will make final inspection of the Work and, if the Work is complete in full accordance with this Contract and this Contract has been fully performed, the Contractor is entitled to the remainder of the unpaid Contract Price as hereinafter provided in Subparagraph 5.5.3. Guarantees required by the Contract shall commence on the date of final completion of the Work.

5.5.1.1 If the Contractor fails to achieve final completion within the time fixed therefor by the City, the Contractor shall pay the City the sum of **$ 500.00** (as stipulated in GDOT Standard Specifications 108.08) per day for each and every calendar day of unexcused delay in achieving final completion beyond the date set forth herein for final completion of the Work. Any sums due and payable hereunder by the Contractor shall be payable, not as a penalty, but as liquidated damages representing an estimate of delay damages likely to be sustained by the City, estimated at or before the time of executing this Contract. When the City reasonably believes that final completion will be delayed without excuse, the City shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the City to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving final completion, or any part thereof, for which the City has withheld payment, the City shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages.

5.5.2 The Contractor shall not be entitled to final payment unless and until it submits to the City all documents required by the Contract, including, but not limited to, its affidavit that all payrolls, invoices for materials and equipment, and other liabilities connected with the Work for which the City, or the City's property might be responsible, have been fully paid or otherwise satisfied; releases and waivers of lien from all Subcontractors of the Contractor and of any and all other parties required by the City; consent of Surety, if any, to final payment. If any third party fails or refuses to provide a release of claim or waiver of lien as required by the City, the Contractor shall furnish a bond satisfactory to the City to discharge any such lien or indemnify the City from liability.

5.5.3 Upon a determination by an inspector representing the City that the Work is complete in full accordance with this Contract, the City shall pay the Contractor an amount sufficient to increase total payments to the Contractor to one hundred percent (100%) of the Contract Price less two hundred percent (200%) of the reasonable cost as determined by the City for completing all incomplete Work, correcting and bringing into conformance all defective and nonconforming Work, and handling all unsettled claims.

The City shall make final payment of all sums due the Contractor within thirty (30) days of final completion of the Project as determined by an inspector representing the City.

5.5.4 Acceptance of final payment shall constitute a waiver of all claims against the City by the Contractor except for those claims previously made in writing against the City by the Contractor, pending at the time of final payment, and identified in writing by the Contractor as unsettled at the time of its request for final payment.

ARTICLE VI
THE CITY

6.1 City Responsibility

6.1.1 Excluding permits and fees normally the responsibility of the Contractor, the City shall obtain all approvals, easements, and the like required for construction and shall pay for necessary assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

6.2 Right to Stop Work

6.2.1 If the Contractor persistently fails or refuses to perform the Work in accordance with this Contract, the City may order the Contractor to stop the Work, or any described portion thereof, until the cause for stoppage has been corrected no longer exists, or the City orders that Work be resumed. In such event, the Contractor shall immediately obey such order.

6.3 City's Right to Carry Out Work

6.3.1 If the City determines to order the Contractor to stop the Work under the provisions of Paragraph 6.2, the City shall provide notice to the Contractor and the Contractor's surety under the performance bond that they have seven (7) days to provide adequate assurance to the City that the cause of such stoppage will be eliminated or corrected and provide the City with a plan to remedy the cause of such Work stoppage. If the Contractor and the surety fail within seven (7) days of such Work stoppage to provide such assurance, then the City may, without prejudice to any other rights or remedies the City may have against the Contractor, proceed to carry out the remedies necessary to eliminate or correct the cause of such Work stoppage. Upon proceeding to perform or cause to be performed any corrective actions, the City shall provide notice to the Contractor and the surety of action being taken by the City. In such a situation, an appropriate Change Order shall be issued deducting from the Contract Price the cost of correcting the subject deficiencies. If the unpaid portion of the Contract Price is insufficient tocover the amount due the City, the Contractor and the surety shall be responsible for paying the difference to the City.

ARTICLE VII

THE CONTRACTOR

7.1 Duties with Respect to Documents

7.1.1 The Contractor is again reminded of its continuing duty set forth in Subparagraph 1.6.7. The Contractor shall perform no part of the Work at any time without adequate Contract Documents or, as appropriate, approved shop drawings, product data or samples for such portion of the Work. If the Contractor performs any of the Work knowing it involves a recognized error, inconsistency or omission in the Contract Documents without such notice to the City, the Contractor shall bear responsibility for such performance and shall bear the cost of correction.

7.2 Manner of Performance

7.2.1 The Contractor shall perform the Work strictly in accordance with this Contract.

7.3 Supervision

7.3.1 The Contractor shall supervise and direct the Work using the Contractor's best skill, effort and attention. The Contractor shall be responsible to the City for any and all acts or omissions of the Contractor, its employees and others engaged in the Work on behalf of the Contractor.

7.4 Compliance

7.4.1 Equal Employment Opportunity

During performance of this Agreement, Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender, national origin, age, disability, or military or veteran status, or any other status or classification protected by applicable federal, state and local laws. This practice shall apply to all terms and conditions of employment, including but not limited to, hiring, placement, promotion, termination, layoff, recall, transfer, leave of absence, compensation, and training.

Contractor shall undertake equal employment opportunity efforts to ensure that applicants and employees are treated without regard to their race, color, religion, sex, sexual orientation, gender, national origin, age, disability, or military or veteran status, or any other status or classification protected by applicable federal, state and local laws. Contractor's equal employment opportunity efforts shall include, but not be limited to, all terms and conditions of employment, including but not limited to, hiring, placement, promotion, termination, layoff, recall, transfer, leave of absence, compensation, and training.

Contractor will, in all solicitations or advertisements for employees placed by, or on behalf of Contractor, state that all qualified applicants will receive consideration for employment without regard to their race, color, religion, sex, sexual orientation, gender, national origin, age, disability, or military or veteran status, or any other status or classification protected by applicable federal, state and local laws. Contractor will cause the foregoing provisions to be inserted in all subcontracts for any work covered by the Agreement so that such provisions will be binding upon each subcontractor, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

7.4.2 The Contractor's performance of the Work shall comply with all federal and state legal requirements imposed on GDOT including specifically, but not limited to, the provisions governing GDOT's authority to contract, Sections 32-2-60 through 32-2-77 of the Official Code of Georgia Annotated; GDOT's Rules and Regulations Governing the Prequalification of Prospective Bidders, Chapter 672-5; and GDOT's Standard Specifications, Construction of Transportation Systems (current edition), and Special Provisions modifying them, except as noted in the General Conditions to the Contract including in the Contract Documents. The Contractor shall require all subcontracts for construction of the Project to incorporate the requirements of this Subparagraph.

7.4.3 The Contractor shall comply with the provisions of Federal Form-1273, attached hereto as **EXHIBIT C, REQUIRED CONTRACT PROVISIONS – FEDERAL AID CONSTRUCTION CONTRACTS**, and incorporated herein. The Contractor further agrees to require compliance with and physical

incorporation of the provisions of Federal Form-1273 into all subcontracts for construction of the Project.

7.4.4 The Contractor shall comply with and shall require its Subcontractors to comply with the regulations for compliance with Title VI of the Civil Rights Act of 1964, as amended, and 23 CFR 200, as stated in **EXHIBIT D, NOTICE TO CONTRACTORS - COMPLIANCE WITH TITLE VI OF THE CIVIL RIGHTS ACT OF 1964**, attached hereto and incorporated herein.

7.4.5 The Contractor shall comply with the provisions of **Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246) (43 CFR 14895)** and shall physically include the **provisions of Executive Order 11246** in each subcontract in excess of $10,000. The Contractor shall comply with **EXHIBIT E Executive Order 11246 (43 CFR 14895) STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246) (43 CFR 14895)** and incorporated herein.

7.4.6 The Contractor shall certify that the provisions of Section 50-24-1 through 50-24-6 of the Official Code of Georgia Annotated relating to the "Drug-Free Workplace Act" have been complied with in full, in the form attached hereto as **EXHIBIT F, CERTIFICATION OF SPONSOR - DRUG-FREE WORKPLACE**, and incorporated herein.

7.4.7 The Contractor shall subcontract a minimum of **0** percent (0%) of the total amount of Project funds to **Disadvantaged Business Enterprise ("DBE"),** as defined and provided for under the Federal Rules and Regulations 49 CFR 23 and 26, and as outlined in **EXHIBIT G, DBE REQUIREMENTS**, attached hereto and incorporated herein.

7.4.8 The Contractor shall comply with and shall require its Subcontractors to comply with all applicable requirements of the American with Disabilities Act of 1990 ("ADA"), 42 U.S.C. 12101, et seq. and 49 U.S.C. 322; Section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. 791, and regulations and amendments thereto.

7.4.9 The Contractor shall provide to the City in the form attached hereto as **EXHIBIT H, CONTRACTOR CERTIFICATION REGARDING DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS**, a certification regarding debarment, suspension, ineligibility and voluntary exclusion in compliance with Executive Order 12549 and 49 CFR 29, according to instructions attached to the certification form. As a part of the Exhibit H certification, the Contractor agrees to include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transaction," as provided by GDOT without modification, in all lower tier covered transactions and in all solicitations for lower tier transactions, and shall cause the lower tier participant or Subcontractor to submit the certification attached hereto as **EXHIBIT I, LOWER TIER CONTRACTOR CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS**, according to the instructions attached to the certification form.

7.4.10 The Contractor shall comply with and shall require its Subcontractors to comply with all applicable requirements of **Davis-Bacon Act of 1931, 40 U.S.C. 276(a)**, as prescribed by 23 U.S.C. 113 for federal aid highway projects, except roadways classified as local roads or rural minor collectors.

7.4.11 The Contractor shall comply with and shall require its Subcontractors to comply with Section 25-9-1, et seq. of the Georgia Code Annotated, "Georgia Utility Facility Protection Act", CALL BEFORE YOU DIG 1-800-282-7411.

7.4.12 The Contractor shall comply with and shall cause its Subcontractors to comply with the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330), as supplemented by Department of Labor Regulations (29 CFR Part 5).

7.4.13 The Contractor shall comply with and shall cause its Subcontractors to comply with the Copeland "Anti-Kickback" Act (18 U.S.C. 874), as supplemented in Department of Labor Regulations (29 CFR, Part 3).

7.4.14 The Contractor shall execute a certification and shall cause all Subcontractors to execute a certification in the form of **EXHIBIT J, CERTIFICATION OF CONTRACTOR – GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT**, attached hereto and incorporated herein. Pursuant to the certification, Contractor agrees to comply with all applicable requirements of the Georgia Security and Immigration Compliance Act of 2006 as codified in O.C.G.A. Sections 13-10-90 and 13-10-91 and regulated in Chapter 300-10-1 of the Rules and Regulations of the State of Georgia, "Public Employers, Their Contractors and Subcontractors Required to Verify New Employee Work Eligibility Through a Federal Work Authorization Program," accessed at *http://www.dol.state.ga.us*.

7.4.15 The Contractor acknowledges and agrees that the failure to complete appropriate certifications or the submission of a false certification as required herein shall result in the termination of this Agreement as provided in Article XII herein.

7.5 Warranty

7.5.1 The Contractor warrants to the City that all labor furnished to progress the Work under this Contract will be competent to perform the tasks undertaken, that the product of such labor will yield only first-class results, that materials and equipment furnished will be of good quality and new unless otherwise permitted by this Contract, and that the Work will be of good quality, free from faults and defects and in strict conformance with this Contract. All Work not conforming to these requirements may be considered defective. Unless otherwise specified in this Contract, acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the City's rights under any warranty or guarantee. The Contractor shall remedy all defects in the Work and pay for damage to the Work and/or to other City property resulting from defective Work, which shall appear within a minimum period of one (1) year from the date of acceptance of the Work under this Contract, unless a longer period is specified. The one (1) year warranty period shall begin after any repairs are performed, if needed.

7.6 Permits, Inspections, Fees and Licenses

7.6.1 Except as otherwise provided herein, the Contractor shall obtain and pay for all permits, inspections, fees and licenses necessary and ordinary for the Work. The Contractor shall comply with all lawful requirements applicable to the Work and shall give and maintain any and all notices required by applicable law, ordinance, or regulation pertaining to the Work.

7.7 Supervision

7.7.1 The Contractor shall employ and maintain at the Project Site only competent supervisory personnel. Absent written instruction from the Contractor to the contrary, the superintendent shall be deemed the Contractor's authorized representative at the Project Site and shall be authorized to receive and accept any and all communications from the City.

7.8 Schedules

7.8.1 The Contractor shall submit to the City on a weekly basis a Schedule of Work to be performed for the next two (2) weeks. The Schedule of Work must be delivered to the City each Thursday no later than 12:00 noon. The Contractor's Schedule of Work shall be prepared in such form, with such detail, and supported by such data as the City may require. The City reserves the right to prohibit Work on any section of the Project not included in the weekly Schedule of Work. The Schedule of Work must accurately represent the intended Work and cannot be vague or broad, such as listing all Work in the Contract. The violation of this provision by the Contractor shall constitute a material breach of this Contract. THE PARTIES SPECIFICALLY AGREE THAT ANY FLOAT CONTAINED IN THE SCHEDULES SHALL BELONG TO THE PROJECT AND IN NO EVENT SHALL THE CONTRACTOR MAKE CLAIM FOR ANY ALLEGED DELAY, ACCELERATION, OR EARLY COMPLETION SO LONG AS THE PROJECT IS COMPLETED WITHIN THE CONTRACT TIME. Strict compliance with the requirements of this Paragraph is a condition precedent for payment to the Contractor, and failure by the Contractor to strictly comply with said requirements shall constitute a material breach of this Contract.

7.9 Contract to be maintained at Project Site

7.9.1 The Contractor shall continuously maintain at the Project Site, for the benefit of the City, one record copy of this Contract marked to record on a current basis changes, selections and modifications made during construction. Additionally, the Contractor shall maintain at the Project Site for the City the approved shop drawings, product data, samples and other similar required submittals. Upon final completion of the Work, all of these record documents shall be delivered to the City.

7.10 Shop Drawings, Product Data and Samples

7.10.1 Shop drawings, product data, samples and other submittals from the Contractor do not constitute Contract Documents. Their purpose is merely to demonstrate the manner in which the Contractor intends to implement the Work in conformance with information received from the Contract Documents.

7.10.2 The Contractor shall not perform any portion of the Work requiring submittal and review of shop drawings, product data or samples unless and until such submittal shall have been approved by the City. Approval by the City, however, shall not be evidence that Work installed pursuant thereto conforms with the requirements of this Contract.

7.11 Cleaning the Project Site and the Project

7.11.1 The Contractor shall keep the Project Site reasonably clean during performance of the Work. Upon final completion of the Work, the Contractor shall clean the Project Site and the Project and remove all waste, together with all of the Contractor's property from the Project Site.

7.12 Access to Work

7.12.1 Access to the Work shall be given to the City, GDOT and any affected federal agency requiring access to the Work at all times from commencement of the Work through final completion. The Contractor shall take whatever steps necessary to provide access when requested.

7.13 Indemnity

7.13.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the City and GDOT, their boards, officials, directors, officers, employees, representatives, agents, and volunteers from and against all liability, claims, damages, losses and expenses, including attorneys' fees, arising out of or resulting from performance of the Work, provided that such liability, claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, but only to the extent caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such liability, claim, damage, loss or expense is caused in part by a party indemnified hereunder.

7.13.2 In claims against any person or entity indemnified under this Paragraph 7.13 by an employee of the Contractor, a Subcontractor, any one directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Paragraph 7.13 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

7.13.3 The Contractor shall ensure that the provisions of this Paragraph 7.13 are included in all contracts and subcontracts for the performance of Work under this Agreement.

7.14 Means, Methods, Techniques, Sequences, Procedures and Safety

7.14.1 The Contractor is fully responsible for, and shall have control over, all construction means, methods, techniques, sequences, procedures and safety, and shall coordinate all portions of the Work required by the Contract Documents. The Contractor shall confine its apparatus, material and the operations of its workers to limits/requirements indicated by law, ordinances, permits, codes and any restrictions of the City, and shall not unreasonably encumber the premises with its materials or supplies.

The Contractor shall adequately protect its own property from damage, will protect the City's property from damage or loss, and will take all necessary precautions during the progress of the work to protect all persons and the property of others from injury or damage. The Contractor shall take all precautions for the safety of employees, and shall comply with all applicable provisions of Federal, State and local safety laws, building codes and any restrictions of the City to prevent accidents or injury to persons on, about, or adjacent to the premises where work is being performed.

The Contractor shall erect and properly maintain at all times as required by the conditions, service and work, all necessary safeguards for the protection of its employees, the Contractor's employees, and the public, and shall post signs warning against potential hazards.

7.15 Separate Contracts

7.15.1 The City reserves the right to perform work on the premises with its own forces or by the use of other contractors. In such event, the Contractor shall fully cooperate with the City and such other contractors and shall coordinate, schedule and manage its work so as not to hinder, delay or otherwise interfere with the separate work of the City or other contractors.

7.16 Maintenance of Contract Cost Records

7.16.1 The Contractor shall maintain all books, documents, papers, accounting records, and other evidence pertaining to costs incurred on the Project and used in support of its Bid and shall make such material available at all reasonable times during the period of the Contract, and for three (3) years from the date of final payment under the Contract, for inspection by GDOT and any reviewing agencies, and copies thereof shall be furnished upon request. The Contractor agrees that the provisions of this Subparagraph shall be included in any agreement it may make with any Subcontractor, assignee, or transferee.

ARTICLE VIII

CONTRACT ADMINISTRATION

8.1 Claims by the Contractor

8.1.1 All Contractor claims shall be initiated by written notice and claim to the City. Such written notice and claim must be furnished within seven (7) days after occurrence of the event, or the first appearance of the condition, giving rise to the claim.

8.1.2 Pending final resolution of any claim of the Contractor, the Contractor shall diligently proceed with performance of this Contract and the City shall continue to make payments to the Contractor in accordance with this Contract. The resolution of any claim under this Paragraph 8.1 shall be reflected by a Change Order executed by the City and the Contractor.

8.1.3 **Claims for Concealed and Unknown Conditions** -- Should concealed and unknown conditions encountered in the performance of the Work (a) below the surface of the ground or (b) in an existing structure be at variance with the conditions indicated by this Contract, or should unknown conditions of an unusual nature differing materially from those ordinarily encountered in the area and generally recognized as inherent in Work of the character provided for in this Contract, be encountered, the Contract Price shall be equitably adjusted by Change Order upon the written notice and claim by either party made within seven (7) days after the first observance of the condition. As a condition precedent to the City having any liability to the Contractor for concealed or unknown conditions, the Contractor must give the City written notice of, and an opportunity to observe, the condition prior to disturbing it. The failure by the Contractor to make the written notice and claim as provided in this Subparagraph shall constitute a waiver by the Contractor of any claim arising out of or relating to such concealed or unknown condition.

8.1.4 **Claims for Additional Costs** -- If the Contractor wishes to make a claim for an increase in the Contract Price, as a condition precedent to any liability of the City therefor, the Contractor shall give the City written notice of such claim within seven (7) days after the occurrence of the event, or the first appearance of the condition, giving rise to such claim. Such notice shall be given by the Contractor before proceeding to execute any additional or changed Work. The failure by the Contractor to give such notice prior to executing the Work shall constitute a waiver of any claim for additional compensation.

8.1.4.1 In connection with any claim by the Contractor against the City for completion in excess of the Contract Price, any liability of the City shall be strictly limited to direct costs incurred by the Contractor and shall in no event include indirect costs or consequential damages of the Contractor. The City shall not be liable to the Contractor for claims of third parties, including Subcontractors, unless and until liability of the Contractor has been established therefor in a court of competent jurisdiction.

8.1.5 **Claims for Additional Time** -- If the Contractor is delayed in progressing any task which at the time of the delay is then critical or which during the delay becomes critical, as the sole result of any act or neglect to act by the City or someone acting in the City's behalf, or by changes ordered

in the Work, unusual delay in transportation, unusually adverse weather conditions not reasonably anticipatable, fire or any causes beyond the Contractor's control, then the date for achieving Substantial Completion of the Work shall be extended upon the written notice and claim of the Contractor to the City, for such reasonable time as the City may determine. Any notice and claim for an extension of time by the Contractor shall be made not more than seven (7) days after the occurrence of the event or the first appearance of the condition giving rise to the claim and shall set forth in detail the Contractor's basis for requiring additional time in which to complete the Project. In the event the delay to the Contractor is a continuing one, only one notice and claim for additional time shall be necessary. If the Contractor fails to make such claim as required in this Subparagraph, any claim for an extension of time shall be waived.

8.1.6 Extension of Contract Time for Unusually Adverse Weather Conditions Not Reasonably Anticipated

8.1.6.1 Pursuant to the provisions of Subparagraph 8.1.5 of the Contract Agreement, the Contract time may be extended upon written notice and claim of the Contractor to the City as set forth in such Subparagraph and as further set forth herein. It is, however, expressly agreed that the time for completion as stated in the Contract Documents includes due allowance for calendar days on which work cannot be performed out-of-doors.
Furthermore, in addition to the notice requirements set forth in the aforesaid Subparagraph 8.1.5, the Contractor agrees that it shall provide written notice to the City on the day of any adverse weather not anticipated and for which a request for a time extension has been, or will be, made. Said notice shall state with particularity a description of the adverse weather as well as a description of the nature and extent of any delay caused by such weather. Receipt of this notice by the City is a condition precedent to the submission of any claim for an extension of time as provided by Subparagraph 8.1.5. Furthermore, as required by Subparagraph 8.1.5, the Contractor shall submit a written claim for extension of time within seven (7) days after the occurrence of the adverse weather and such claim shall be supported by such documentation including, but not limited to, official weather reports, as the City may require. To the extent that any of the terms and conditions set forth in this paragraph are in conflict with any of the terms and conditions of Subparagraph 8.1.5 as identified herein, the terms and conditions of this paragraph shall govern and control.

ARTICLE IX

SUBCONTRACTORS

9.1 Definition

9.1.1 A Subcontractor is an entity which has a direct contract with the Contractor to perform a portion of the Work.

9.2 Award of Subcontracts

9.2.1 Upon execution of the Contract, the Contractor shall furnish the City, in writing, the names of persons or entities proposed by the Contractor to act as a Subcontractor on the Project. The City shall promptly reply to the Contractor, in writing, stating any objections the City may

have to such proposed Subcontractor. The Contractor shall not enter into a Subcontract with a proposed Subcontractor with reference to whom the City has made timely objection. The Contractor shall not be required to subcontract with any party to whom the Contractor has objection.

9.2.2 All subcontracts shall afford the Contractor rights against the Subcontractor which correspond to those rights afforded to the City against the Contractor herein, including those rights afforded to the City by Subparagraph 12.2.1 below.

9.2.3 All subcontracts shall comply with the requirements of Paragraph 7.4 above.

ARTICLE X

CHANGES IN THE WORK

10.1 Changes Permitted

10.1.1 Changes in the Work within the general scope of this Contract, consisting of additions, deletions, revisions, or any combination thereof, may be ordered without invalidating this Contract, by Change Order or by Field Order.

10.1.2 Changes in the Work shall be performed under applicable provisions of this Contract and the Contractor shall proceed promptly with such changes.

10.2 Change Order Defined

10.2.1 Change Order shall mean a written order to the Contractor executed by the City, issued after execution of this Contract, authorizing and directing a change in the Work or an adjustment in the Contract Price or the Contract Time, or any combination thereof. The Contract Price and the Contract Time may be changed only by Change Order.

10.3 Changes in the Contract Price

10.3.1 Any change in the Contract Price resulting from a Change Order shall be determined as follows by mutual agreement between the City and the Contractor as evidenced by (1) the change in the Contract Price being set forth in the Change Order, (2) such change in the Contract Price, together with any conditions or requirements related thereto, being initialed by both parties and (3) the Contractor's execution of the Change Order.

10.3.2 If unit prices are provided in the Contract, and if the quantities contemplated are so changed in a proposed Change Order that application of such unit prices to the quantities of Work proposed will cause substantial inequity to the City or to the Contractor, the applicable unit prices shall be equitably adjusted.

10.4 Effect of Executed Change Order

10.4.1 The execution of a Change Order by the Contractor shall constitute conclusive evidence of the Contractor's agreement to the ordered changes in the Work, this Contract as thus amended, the Contract Price and the Contract Time. The Contractor, by executing the Change Order, waives and forever releases any claim against the City for additional time or compensation for matters relating to or arising out of or resulting from the Work included within or affected by the executed Change Order.

10.5 Notice to Surety; Consent

10.5.1 The Contractor shall notify and obtain the consent and approval of the Contractor's surety with reference to all Change Orders if such notice, consent or approval are required by the Contractor's surety or by law. The Contractor's execution of the Change Order shall constitute the Contractor's warranty to the City that the surety has been notified of and consents to, such Change Order and the surety shall be conclusively deemed to have been notified of such Change Order and to have expressly consented thereto.

ARTICLE XI

UNCOVERING AND CORRECTING WORK

11.1 Uncovering Work

11.1.1 If any of the Work is covered contrary to the City's request or to any provisions of this Contract, it shall, if required by the City, be uncovered for the City's inspection and shall be properly replaced at the Contractor's expense without change in the Contract Time.

11.1.2 If any of the Work is covered in a manner not inconsistent with Subparagraph 11.1.1 above, it shall, if required by the City, be uncovered for the City's inspection. If such Work strictly conforms with the provisions of this Contract, costs of uncovering and proper replacement shall by Change Order be charged to the City. If such Work does not strictly conform with the provisions of this Contract, the Contractor shall pay the costs of uncovering and proper replacement.

11.2 Correcting Work

11.2.1 The Contractor shall immediately proceed to correct Work rejected by the City as defective or failing to conform to this Contract. The Contractor shall pay all costs and expenses associated with correcting such rejected Work, including any additional testing and inspections, and reimbursement to the City for services and expenses made necessary thereby, if any.

11.2.2 If within one (1) year after Substantial Completion of the Work any of the Work is found to be defective or not in accordance with this Contract, the Contractor shall correct it promptly upon receipt of written notice from the City. This obligation shall survive final payment by the City and termination of this Contract. With respect to Work first performed and completed after Substantial Completion, this one (1) year obligation to specifically correct defective and

nonconforming Work shall be extended by the period of time which elapses between Substantial Completion and final completion of the subject Work.

11.2.3 Nothing contained in this Paragraph 11.2 shall establish any period of limitation with respect to other obligations which the Contractor has under this Contract. Establishment of the one (1) year time period in Subparagraph 11.2.2 relates only to the duty of the Contractor to specifically correct the Work.

11.3 City May Accept Defective or Nonconforming Work

11.3.1 If the City chooses to accept defective or nonconforming Work, the City may do so. In such event, the Contract Price shall be reduced by the greater of (a) the reasonable cost of removing and correcting the defective or nonconforming Work, and (b) the difference between the fair market value of the Project as constructed and the fair market value of the Project had it not been constructed in such a manner as to include defective or nonconforming Work. If the remaining portion of the unpaid Contract Price, if any, is insufficient to compensate the City for its acceptance of defective or nonconforming Work, the Contractor shall, upon written demand from the City, pay the City such remaining compensation for accepting defective or nonconforming Work.

ARTICLE XII

CONTRACT TERMINATION

12.1 Termination by the Contractor

12.1.1 If the Work is stopped for a period of ninety (90) days by an order of any court or other public authority, or as a result of an act of the government, through no fault of the Contractor or any person or entity working directly or indirectly for the Contractor, the Contractor may, upon ten (10) days' written notice to the City, terminate performance under this Contract and recover from the City payment for the actual reasonable expenditures of the Contractor (as limited in Subparagraph 10.3.2 above) for all Work executed and for materials, equipment, tools, construction equipment and machinery actually purchased or rented solely for the Work, less any salvage value of any such items.

12.1.2 If the City shall persistently or repeatedly fail to perform any material obligation to the Contractor for a period of fifteen (15) days after receiving written notice from the Contractor of its intent to terminate hereunder, the Contractor may terminate performance under this Contract by written notice to the City. In such event, the Contractor shall be entitled to recover from the City as though the City had terminated the Contractor's performance under this Contract for convenience pursuant to Subparagraph 12.2.1 hereunder**.**

12.2 Termination by the City

12.2.1 For Convenience

12.2.2 The City may for any reason whatsoever terminate performance under this Contract by the Contractor for convenience. The City shall give written notice of such termination to the Contractor specifying when termination becomes effective.

12.2.3 The Contractor shall incur no further obligations in connection with the Work and the Contractor shall stop Work when such termination becomes effective. The Contractor shall also terminate outstanding orders and subcontracts. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders. The City may direct the Contractor to assign the Contractor's right, title and interest under terminated orders or subcontracts to the City or its designee.

12.2.4 The Contractor shall transfer title and deliver to the City such completed or partially completed Work and materials, equipment, parts, fixtures, information and Contract rights as the Contractor has.

12.2.5

(a) The Contractor shall submit a termination claim to the City specifying the amounts due because of the termination for convenience together with costs, pricing or other data required by the City. If the Contractor fails to file a termination claim within one (1) year from the effective date of termination, the City shall pay the Contractor an amount derived in accordance with sub-paragraph (c) below.

(b) The City and the Contractor may agree to the compensation, if any, due to the Contractor hereunder.

(c) Absent agreement to the amount due to the Contractor, the City shall pay the Contractor the following amounts:

(i) Contract prices for labor, materials, equipment and other services accepted under this Contract;

(ii) Reasonable costs incurred in preparing to perform and in performing the terminated portion of the Work, and in terminating the Contractor's performance, plus a fair and reasonable allowance for overhead and profit thereon (such profit shall not include anticipated profit or consequential damages); provided however, that if it appears that the Contractor would have not profited or would have sustained a loss if the entire Contract would have been completed, no profit shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated rate of loss, if any;

(iii) Reasonable costs of settling and paying claims arising out of the termination of subcontracts or orders pursuant to Subparagraph 12.2.1.2 of this Paragraph. These costs shall not include amounts paid in accordance with other provisions hereof.

The total sum to be paid the Contractor under this Subparagraph 12.2.1 shall not exceed the total Contract Price, as properly adjusted, reduced by the amount of payments otherwise made, and shall in no event include duplication of payment.

12.2.2 **For Cause**

12.2.2.1 If the Contractor persistently or repeatedly refuses or fails to prosecute the Work in a timely manner, supply enough properly skilled workers, supervisory personnel or proper equipment or materials, or if it fails to make prompt payment to Subcontractors or for materials or labor, or persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, or otherwise is guilty of a substantial violation of a material provision of this Contract, then the City may by written notice to the Contractor and the surety, without prejudice to any other right or remedy, terminate the employment of the Contractor and take possession of the Project Site and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor and may proceed to carry out the remedies necessary to finish the Work by whatever methods it may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the Work is finished.

12.2.2.2 If the unpaid balance of the Contract Price exceeds the cost of finishing the Work, including compensation for additional services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the City. This obligation for payment shall survive the termination of the Contract.

12.2.2.3 In the event the employment of the Contractor is terminated by the City for cause pursuant to Subparagraph 12.2.2 and it is subsequently determined by a Court of competent jurisdiction that such termination was without cause, such termination shall thereupon be deemed a termination for convenience under Subparagraph 12.2.1 and the provisions of Subparagraph 12.2.1 shall apply.

ARTICLE XIII

13.1 Insurance Requirements

13.1.1 Prior to beginning Work on the Project, the Contractor shall procure and maintain for the duration of this Contract, and for one (1) years thereafter, at its sole cost and expense such insurance as will fully protect it and the City and the City's boards, officials, directors, officers, employees, representatives, agents, and volunteers from incidents, accidents and claims for personal injury, bodily injury, and property damage which may arise from or in connection with the performance of the work and for the Contractor's professional liability (errors and omissions) under this Contract, whether such services and work are performed by the Contractor, its agents, representatives, employees, or by any subcontractor or any tier directly employed or retained by either. The following is the minimum insurance and limits that the Contractor must maintain. If the Contractor maintains higher limits than the minimums shown below, the City requires and shall be entitled to coverage for the higher limits maintained by the Contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City.

All of the insurance herein specified shall be written on a form acceptable to the City and shall be A.M. Best Company rated A X or greater. See EXHIBIT K, INSURANCE REQUIREMENTS attached hereto and incorporated herein.

13.1.2 All such insurance shall remain in effect until final payment is made and the Project is accepted by the City. If the Contractor receives notice of non-renewal or material adverse change of any of the required coverages, the Contractor shall promptly advise the City in writing. Failure of the Contractor to promptly notify the City on non-renewal or material adverse change of any of the required coverages terminates the Agreement as of the date that the Contractor should have given notification to the City. The insurance policies shall contain or be endorsed to contain, the following provisions:

(a) A provision that coverage afforded under such policies shall not expire, be canceled or altered without at least thirty (30) days prior written notice to the City.

(b) Workers' Compensation and Employer's Liability and Property insurance policies shall contain a waiver of subrogation in favor of the City and the City's boards, officials, directors, officers, employees, representatives, agents, and volunteers.

(c) Commercial General Liability, Automobile Liability Contractors' Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors and Omissions (if project involves environmental hazards) insurance policies shall include an endorsement making the City and the City's boards, officials, directors, officers, employees, representatives, agents, and volunteers Additional Insureds under such policies.

A copy of these endorsements shall be provided to the City. Certificates of Insurance showing that such coverage is in force shall be filed under this Contract by the Contractor to the City.

The obligations for the Contractor to procure and maintain insurance shall not be construed to waive or restrict other obligations and it is understood that insurance in no way limits liability of the Contractor whether or not same is covered by insurance.

13.1.3 If the City has any objections to the coverage afforded by or provisions of the insurance required to be purchased and maintained by the Contractor, the City will notify the Contractor thereof within twenty (20) days of the date of delivery of such certificates to the City.

13.1.4 The Contractor shall provide to the City such additional information in respect of insurance provided by it as the City may reasonably request. The right of the City to review and comment on certificates of insurance is not intended to relieve the Contractor of his responsibility to provide insurance coverage as specified nor to relieve the Contractor of his liability for any claims which might arise.

13.1.5 The Contractor agrees to require its Subcontractors to obtain insurance complying with the requirements the requirements of the Contract Documents.

ARTICLE XIV

DISPUTES

No civil action with respect to any dispute, claim or controversy arising out of or relating to this Contract may be commenced without first giving fourteen (14) calendar days written notice to Sandy Springs of the claim and the intent to initiate a civil action.

ARTICLE XV

INDEPENDENT CONTRACTOR

15.1 Relationship between Contractor and City

15.1.1 The Contractor shall perform the services under this Agreement as an independent contractor and nothing contained herein shall be construed to be inconsistent with such relationship or status. Nothing in this Agreement shall be interpreted or construed to constitute the Contractor or any of its agents or employees to be the agent, employee or representative of the City. Inasmuch as the City and the Contractor are contractors independent of one another, 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 City's agent for any purpose to any party or to allow any employee or agent of the Contractor to do so, without specific prior written authorization from the City, and then only for the limited purpose stated in such authorization.

15.1.2 The Contractor shall assume full liability for any contracts or agreements that the Contractor enters into on behalf of the City without the express knowledge and prior written authorization of the City.

ARTICLE XVI

COVENANT AGAINST CONTINGENT FEES

16.1 Warranty by Contractor

16.1.1 Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for any fee, commission, percentage, brokerage or contingent fee, gift or other consideration, excepting bona fide employees maintained by Contractor for the purpose of securing business and that Contractor has not received any non-City fee related to this Agreement without the prior written consent of the City.

16.1.2 For breach or violation of this warranty, the City shall have the right to annul this Agreement without liability or at its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of any such fee, commission, percentage, brokerage or contingent fee, gift or other consideration.

ARTICLE XVII

MISCELLANEOUS

17.1 Governing Law

17.1.1 The Contract shall be administered and interpreted under the laws of the State of Georgia. Jurisdiction of litigation arising from this Agreement shall be in Georgia. If any part of this Agreement is found to be in conflict with applicable laws, such part shall be inoperative, null and void insofar as it is in conflict with said laws, but the remainder of this Agreement shall be in full force and effect.

Whenever reference is made in the Agreement to standards or codes in accordance with which work is to be performed, the edition or revision of the standards or codes current on the effective date of this Agreement shall apply, unless otherwise expressly stated.

17.2 Successors and Assigns

17.2.1 The City and Contractor bind themselves, their successors, assigns and legal representatives to the other party hereto and to successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in this Contract. The Contractor shall not assign this Contract without written consent of the City.

17.3 Surety Bonds

17.3.1 The Contractor shall furnish separate performance and payment bonds to the City. Each bond shall set forth a penal sum in an amount not less than the Contract Price. Each bond furnished by the Contractor shall incorporate by reference the terms of this Contract as fully as though they were set forth verbatim in such bonds. In the event the Contract Price is adjusted by

Change Order executed by the Contractor, the penal sum of both the performance bond and the payment bond shall be deemed increased by like amount. The performance and payment bonds furnished by the Contractor shall be in form suitable to the City and shall be executed by a surety, or sureties, reasonably suitable to the City. Bonds shall be issued by a corporate surety appearing on the Treasury Department's most current list (Circular 570, as amended) and be authorized to do business in the State of Georgia. The date of the bond must not be prior to the date of the Agreement. If the Contractor is a partnership, all partners shall execute the bond.

It is mutually agreed by the parties hereto that if at any time after execution of this Agreement and the surety bonds for its faithful performance, the City shall deem the surety or sureties upon such bonds to be unsatisfactory, or if for any reason such bonds cease to be adequate to cover the performance of the Work, the Contractor shall, at its expense, within five (5) days after receipt of notice from the City to do so, furnish an additional bond or bonds in such form and amount and with such surety or sureties as shall be satisfactory to the City. In such event, no further payment to the Contractor shall be deemed due under this Agreement until such new or additional security for the faithful performance of the Work shall be furnished in manner and form satisfactory to the City.

17.4 Notices

If to the City:	**With copies to:**
John McDonough, City Manager 1 Galambos Way Sandy Springs, Georgia 30328	Dan Lee, City Attorney 1 Galambos Way Sandy Springs, Georgia 30328
If to Contractor:	**With copies to:**
Contractor Contact, Title Address City, State Zip	_____ _____ _____

IN WITNESS WHEREOF, the parties hereto, acting through their duly authorized agents, have signed and sealed this Agreement.

CITY OF SANDY SPRINGS, GEORGIA

By: _____ _____
John McDonough, City Manager Date of Execution

ATTEST:

By: _____
City Clerk

(SEAL)

Approved as to Form:

By: _____
City Attorney

CONTRACTOR

By: _____ _____
Name: Date of Execution
(Typed or printed name)
_____
_____

Title

ATTEST:

By: _____
Secretary for
Corporation

(SEAL)

_____
Witness

Executed in originals of one (1).

EXHIBIT A
TO CONTRACT AGREEMENT
SCOPE OF SERVICES

This project consists of removing playground mulch and borders from 2 existing playgrounds while saving the play equipment. The playground surfacing shall be replaced with rubberized surface, and the surrounding areas around the playground are to receive artificial turf. The remainder of the disturbed area shall be landscaped with sod and shrubs. Modifications to existing storm structures will be required, as well as the installation of underdrains for both rubberized surface and artificial turf. This site will require erosion control for 0.50 acres.

EXHIBIT B
TO CONTRACT AGREEMENT
BID SCHEDULE

ITEM DESCRIPTION	QUANTITY	UNIT OF MEASURE	UNIT COST	TOTAL
TEMPORARY GRASSING	21780	SF	$	$
SEDIMENT BARRIER (Sd-1)	80	LF	$	$
INLET SEDIMENT TRAP (Sd-2)	5	EA	$	$
PLAYGROUND MULCH REMOVAL & DISPOSAL	2810	SF	$	$
PLAYGROUND BORDER REMOVAL & DISPOSAL	1844	LF	$	$
PLAYGROUND RAMP REMOVAL & DISPOSAL	1	EA	$	$
GRADING COMPLETE (MASS)	1	LS	$	$
GRADING COMPLETE (FINISH)	1	LS	$	$
STORM STRUCTURE ELEVATION ADJUSTMENT (COMPLETE)	3	EA	$	$
CONCRETE WALK	1010	SF	$	$
CONCRETE FLUSH HEADER CURB	1844	LF	$	$
BLACK VINYL CHAIN LINK FENCE (6' TALL)	155	LF	$	$
12' WIDE VEHICULAR GATE	1	EA	$	$
5' WIDE PEDESTRIAN GATE	1	EA	$	$
RUBBER MULCH (POURED IN PLACE) WITH COMPACTED G.A.B. BASE	2810	SF	$	$
SYNTHETIC TURF WITH #57 STONE BASE	8250	SF	$	$
PERFORATED HDPE UNDERDRAIN (4")	652	LF	$	$
PERFORATED HDPE COLLECTOR LINE (6")	265	LF	$	$
SOLID HDPE COLLECTOR LINE (8")	56	LF	$	$
SOCK DRAIN (4")	313	LF	$	$
BERMUDA SOD (TIFF TUFF)	1680	SF	$	$
LANDSCAPE BED MULCH 3" PINESTRAW	2011	SF	$	$
DWAFR BURFORD HOLLY	13	EA	$	$
GLOSSY ABELIA	8	EA	$	$
CAST IRON PLANT	46	EA	$	$
GREEN CARPET JUNIPER	374	EA	$	$
SHOW OFF FORSYTHIA	11	EA	$	$
QUANTITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE CONSTRUCTION OF THE PROJECT REGARDLESS OF QUANTITIES SHOWN				

BID PRICE CERTIFICATION

In compliance with the attached Specification, the undersigned offers and agrees that if this Bid is accepted, by the City Council within one hundred and fifty (150) days of the date of Bid opening, that he will furnish any or all of the Items upon which Prices are quoted, at the Price set opposite each Item, delivered to the designated point(s) within the time specified in the Bid Schedule.

COMPANY _____

ADDRESS _____

AUTHORIZED SIGNATURE _____

EMAIL ADDRESS _____

PRINT / TYPE NAME _____

EXHIBIT C
REQUIRED CONTRACT PROVISIONS - FEDERAL AID CONSTRUCTION CONTRACT
NOT APPLICABLE

EXHIBIT D
NOTICE TO CONTRACTORS - COMPLIANCE WITH TITLE VI OF THE CIVIL RIGHTS ACT
NOT APPLICABLE

EXHIBIT E
STANDARD FEDERAL EQUAL OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246) (43 CFR 14895)
NOT APPLICABLE

EXHIBIT F
CERTIFICATION OF SPONSOR DRUG-FREE WORKPLACE

I hereby certify that I am a principal and duly authorized representative of _____, ("Contractor"), whose address is _____, _____, _____ _____, and I further certify that:

(1) The provisions of Section 50-24-1 through 50-24-6 of the Official Code of Georgia Annotated, relating to the "Drug-Free Workplace Act" have been complied with in full; and

(2) A drug-free workplace will be provided for Contractor's employees during the performance of the Agreement; and

(3) Each Subcontractor hired by Contractor shall be required to ensure that the subcontractor's employees are provided a drug-free workplace. Contractor shall secure from that subcontractor the following written certification: "As part of the subcontracting agreement with Contractor, _____ certifies to Contractor that a drug-free workplace will be provided for the Subcontractor's employees during the performance of this Agreement pursuant to paragraph (7) of subsection (b) of the Official Code of Georgia Annotated, Section 50-24-3"; and

(4) The undersigned will not engage in unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana during the performance of the Agreement.

CONTRACTOR:

Date: _____

Signature:_____

Title: _____

EXHIBIT G
DBE REQUIREMENTS
NOT APPLICABLE

EXHIBIT H
CONTRACTOR CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS AND INSTRUCTIONS
NOT APPLICABLE

EXHIBIT I
LOWER TIER CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS AND INSTRUCTIONS
NOT APPLICABLE

EXHIBIT J
TO CONTRACT AGREEMENT
CERTIFICATION OF CONTRACTOR
GEORGIA SECURITY AND IMMIGRATION COMPLIANCE ACT

I hereby certify that I am a principal and duly authorized representative of _____, ("Contractor"), whose address is _____, _____ _____ .

Contractor hereby agrees to comply with all applicable provisions and requirements of the Georgia Security and Immigration Compliance Act of 2006 (the "Act"), as codified in O.C.G.A. Sections 13-10-90 and 13-10-91 and regulated in Chapter 300-10-1 of the Rules and Regulations of the State of Georgia, "Public Employers, Their Contractors and Subcontractors Required to Verify New Employee Work Eligibility Through a Federal Work Authorization Program," accessed at *http://www.dol.state.ga.us*, as further set forth below.

Contractor agrees to verify the work eligibility of all of newly hired employees through the U.S. Department of Homeland Security's *Employment Eligibility Verification (EEV) / Basic Pilot Program*, accessed through the Internet at *https://www.vis-dhs.com/EmployerRegistration*, in accordance with the provisions and timeline found in O.C.G.A. 13-10-91 and Rule 300-10-1-.02 of the Rules and Regulations of the State of Georgia. As of July 1, 2007, the verification requirement applies to contractors and subcontractors with five-hundred (500) or more employees.

Contractor understands that the contractor and subcontractor requirements of the Act apply to contracts for, or in connection with, the physical performance of services within the State of Georgia.

Contractor understands that the following contract compliance dates set forth in the Act apply to the Contract Agreement, pursuant to O.C.G.A. 13-10-91:

On or after July 1, 2007, to public employers, contractors, or subcontractors of 500 or more employees;

On or after July 1, 2008, to public employers, contractors, or subcontractors of 100 or more employees; and

On or after July 1, 2009, to all other public employers, their contractors, and subcontractors.

To document the date on which the Act is applicable to Contractor, and to document Contractor's compliance with the Act, the undersigned agrees to initial one of the three (3) lines below indicating the employee number category applicable to Contractor, and to submit the indicated affidavit with the Contract Agreement if the Contractor has 500 or more employees.

Contractor has:

____ 500 or more employees [Contractor must register with the *Employment/Eligibility Verification/Basic Pilot Program* and begin work eligibility verification on July 1, 2007];

____ 100-499 employees [Contractor must register with the *Employment Eligibility Verification/Basic Pilot Program* and begin work eligibility verification by July 1, 2008]; or

____ 99 or fewer employees [Contractor must begin work eligibility verification by July 1, 2009].

Contractor further agrees to require O.C.G.A. Sections 13-10-90 and 13-10-91 compliance in all written agreements with any subcontractor employed by Contractor to provide services connected with the Contract Agreement, as required pursuant to O.C.G.A. 13-10-91.

Contractor agrees to obtain from any subcontractor that is employed by Contractor to provide services connected with the Contract Agreement, the subcontractor's indication of the employee number category applicable to the subcontractor.

Contractor agrees to secure from any subcontractor engaged to perform services under this Contract an executed "Subcontractor Affidavit," as required pursuant to O.C.G.A. 13-10-91 and Rule 300-10-1-.08 of the Rules and Regulations of the State of Georgia, which rule can be accessed at *http://www.dol.state.ga.us*.

Contractor agrees to maintain all records of the subcontractor's compliance with O.C.G.A. Sections 13-10-90 and 13-10-91 and Chapter 300-10-1 of the Rules and Regulations of the State of Georgia.

CONTRACTOR:
Date: _____
Signature: _____
Title: _____

EXHIBIT K
TO CONTRACT AGREEMENT
INSURANCE REQUIREMENTS

Within 10 days of Notice of Award, and at all times that this Contract is in force, the Contractor shall obtain, maintain and furnish the City Certificates of Insurance from licensed companies doing business in the State of Georgia with an A.M. Best Rating A-10 or higher and acceptable to the City covering:

1. Workers' Compensation & Employer's Liability Insurance. Workers' Compensation Insurance in compliance with the applicable Workers' Compensation Act(s) of the state(s) wherein the work is to be performed or where jurisdiction could apply in amounts required by statutes. Employer's Liability Insurance, with limits of liability of not less than $1,000,000 per accident for bodily injury or disease.

2. Commercial General Liability Insurance, including contractual liability insurance, product and completed operations, personal and advertising injury, and any other type of liability for which this Contract applies with limits of liability of not less than $1,000,000 each occurrence / $2,000,000 policy aggregate for personal injury, bodily injury, and property damage. Commercial General Liability Insurance shall be written on an "occurrence" form.

3. Automobile Liability Insurance with limits of liability of not less than $1,000,000 per accident for bodily injury and property damage if automobiles are to be used in the delivery of or in the completion of services and work or driven onto the City's property. Insurance shall include all owned, non-owned and hired vehicle liability.

4. Umbrella Insurance with limits of liability excess of Employer's Liability Insurance, Commercial General Liability Insurance and Automobile Liability Insurance in the amount of not less than $3,000,000.

5. Contractors' Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors and Omissions (if project involves environmental hazards) with limits not less than $1,000,000 per occurrence or claim, and $2,000,000 policy aggregate.

6. Professional (Errors and Omissions) Insurance- For Professional Services and for all Design/Build Projects with limits of liability of not less than $3,000,000 per occurrence or claim / $3,000,000 policy aggregate. Such policy shall also include coverage for losses arising from the breach of information security or cyber liability (including Errors & Omissions, Security and Privacy Liability and Media Liability), whether combined with the Professional Liability policy or placed as a separate policy, but carrying the same limits of liability. Such coverage shall insure damage, injury and loss caused by error, omission or negligent acts, including all prior acts without limitation, related to the professional services to be provided under this Contract. The policy shall be amended to include independent contractors providing professional services on behalf of or at the direction of the Contractor. The definition of Contractual Liability shall be amended to state that liability under a contract of professional services is covered. Further, coverage shall be afforded for fraudulent acts, misappropriation of trade secrets, internet professional services, computer attacks, personal injury, regulatory actions, wrongful acts, contractual liability, privacy policy, and insured versus insured. The Contractor shall ensure that coverage under this policy continues for a period of thirty-six (36) months after completion of services.

7. Fidelity Bond (Employee Dishonesty) in the sum of not less than $50,000.

All such insurance shall remain in effect until final payment is made and the Project is accepted by the City. If the Contractor receives notice of non-renewal or material adverse change of any of the required coverages, the Contractor shall promptly advise the City in writing. Failure of the Contractor to promptly notify the Cityon non-renewal or material adverse change of any of the required coverages terminates the Agreement

as of the date that the Contractor should have given notification to the City. The insurance policies shall contain or be endorsed to contain, the following provisions:

(a) A provision that coverage afforded under such policies shall not expire, be canceled or altered without at least thirty (30) days prior written notice to the City.
(b) Workers' Compensation and Employer's Liability and Property insurance policies shall contain a waiver of subrogation in favor of the City and the City's boards, officials, directors, officers, employees, representatives, agents, and volunteers.
(c) Commercial General Liability, Automobile Liability Contractors' Pollution Legal Liability and/or Asbestos Legal Liability and/or Errors and Omissions (if project involves environmental hazards) insurance policies shall include an endorsement making the City and the City's boards, officials, directors, officers, employees, representatives, agents, and volunteers Additional Insureds under such policies.

A copy of these endorsements shall be provided to the City.

Certificates of Insurance showing that such coverage is in force shall be filed under this Contract by the Contractor to the City.

The obligations for the Contractor to procure and maintain insurance shall not be construed to waive or restrict other obligations and it is understood that insurance in no way limits liability of the Contractor whether or not same is covered by insurance.

Certificate Holder should read: The City of Sandy Springs, 1 Galambos Way, Sandy Springs, Georgia 30328

EXHIBIT L
TO CONTRACT AGREEMENT
SPECIAL PROVISIONS

SECTION 31 00 01 - SITE PREPARATION AND GENERAL SITE WORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Site work layout and construction survey.
2. Protecting existing vegetation to remain.
3. Protecting existing site improvements to remain.
4. Utility locates.
5. Disposition of utilities.
6. Maintain existing utility services.
7. Spill prevention.
8. Recycling and waste management for site materials.
9. Final Cleanup

B. Related Sections:

1. 31 22 00 “SITE DEMOLITION” for removal of site improvements including utilities.

1.2 REFERENCE SPECIFICATIONS AND DOCUMENTS

A. Manual for Erosion and Sediment Control in Georgia, 2016 Edition, by the Georgia Soil and Water Conservation Commission, “Best Management Practices”. Apply to all land disturbing activities for all phases of Work.

B. American Society of Civil Engineers (ASCE)

1. ASCE CI 38-2: Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data.

1.3 SUBMITTALS

A. Record Drawings: Record active, inactive, relocated, and abandoned utilities encountered.

1. Survey the horizontal and vertical positions, and depths to ground surface, for utilities capped, utilities uncovered during project operations and for utilities relocated. Survey shall be from established project control.

1.4 QUALITY ASSURANCE

A. Qualifications: The person in responsible charge of construction survey and survey of asbuilt/record drawing items shall be a Professional Land Surveyor licensed in the state of Georgia.

1.5 SITE CONDITIONS

A. Subsurface Conditions: Copies of the following subsurface investigation report(s) of the site are provided:

Updated Report of Geotechnical Investigation Xcaliber Site, October 3rd 2018, prepared by Contour Engineering, LLC

1. Copies of the subsurface investigation report(s) are available by contacting James Gough, Contour Engineering, LLC, (770) 794-0266.
2. Report data is not intended as a representation or warranty of conditions or continuity of conditions. Owner is not responsible for interpretation or conclusions drawn by the Contractor. The data is made available for convenience and is not guaranteed to represent conditions that may be encountered.
3. Contractor shall examine the site and may make its own explorations at its own expense. Notify Owner prior to making any subsurface explorations.

B. Safety: Provide all safety fence barricades guards, lights and other installations required to protect persons and property during the work. This is in addition to such protection required elsewhere in the Contract documents. At a minimum, secure all work areas and staging/storage areas with temporary construction safety fencing. Maintain such safety fencing to assure a complete boundary throughout construction.

C. Locate storage sheds, temporary office, and stockpiled material to best advance the progress of work, as approved by the Design Professional or in areas otherwise designated for Contractor's use.

D. Existing conditions are shown on the drawings. Contractor shall visit the site, familiarize himself/herself with existing conditions in the field.

E. Contractor shall strictly adhere to the "Land Disturbance Construction Activity Sequence" As defined in the Phase I Erosion and Sedimentation Control Plan only upon completion of applicable items in the sequence, shall the contractor expand clearing and grubbing operations to the entire site.

F. Items of historic or archaeological value discovered during construction operations shall remain the property of the Owner. Notify Design Professional immediately of any such type finding for instructions.

1.6 RECYCLING AND REFUSE COLLECTION CENTERS (WASTE MATERIALS)

A. The contractor shall provide appropriate refuse collection centers, which allow for glass, paper, and plastic separation. Said refuse collection centers shall be maintained on a weekly basis and transferred to an Owner-approved recycling and refuse center. The contractor shall also provide appropriate refuse containers for construction debris. Construction debris shall be recycled as possible and practical, especially in demolition and renovation situations (i.e., copper pipe, steel, concrete, glass, etc.). Illegal disposal of said materials (including littering) is subject to fines and penalties. The Contractor shall establish construction site policy and educate all construction personnel.

B. All waste materials shall be collected and stored in a securely lidded, metal dumpster. The dumpster shall be rented from and emptied by a Georgia licensed solid waste management company. The dumpster shall meet all County and State Solid Waste Management regulations and ordinances. The dumpster shall be emptied as necessary, and the material shall be hauled to a State licensed landfill. No construction debris shall be buried on the construction site. All personnel shall be informed and instructed regarding the correct procedure for waste disposal. Notices stating these procedures shall be posted in the construction office and the construction superintendent shall be responsible for ensuring that these procedures shall be followed.

1.7 HAZARDOUS WASTE

A. All hazardous waste materials shall be disposed of in a manner specified by Georgia State Solid Management regulations. All personnel shall be informed and instructed regarding the correct procedure for waste disposal. Notices stating these procedures shall be posted in the construction office and the construction superintendent shall be responsible for insuring that these procedures shall be followed.

1.8 SANITARY WASTE

A. All sanitary waste shall be collected from the portable units, as necessary, by a Georgia State licensed sanitary waste management contractor, or as required by local regulations.

1.9 TEMPORARY FUELING TANK AREA

A. Temporary fueling tanks shall have a Georgia E.P.D. approved secondary containment (liner system) basin to prevent and/or minimize site contamination. Temporary fueling tank locations shall be located remotely from drainage ways, drainage systems, and state waters (streams, springheads, etc.).

1.10 EQUIPMENT MAINTENANCE AREA

A. Equipment maintenance areas shall be clearly identified with signage. Said signage shall read as follows:

Equipment Maintenance Area

Discharge of new or used oil, fuel, lubricants, etc. is prohibited. Utilize containment/capture systems. Recycle used oils, contaminated fuels and lubricants. Illegal discharges are subject to fines and penalties.

B. Sign shall be weatherproof and have a minimum size of 36" X 36".

C. Equipment Maintenance Area(s) shall be located remotely from drainage ways, drainage systems, and state waters (streams, springheads, etc.).

PART 2 - PRODUCTS

2.1 CONSTRUCTION SURVEY AND LAYOUT EQUIPMENT

A. Surveyor's transit and measuring devices properly calibrated to accurately layout the work shall be used.

B. Provide stakes and batter boards of size and quality commensurate with function. Use wire or non-stretching cord to establish reference lines for site clearing and grading.

2.2 PROTECTION MATERIALS

A. Materials for protection of existing work remaining shall be of the size, strength, and extent to provide adequate protection of existing work remaining.

2.3 REPAIR MATERIALS

A. Repair materials shall be of the same or better quality and performance as materials that are to be restored. Where possible, reuse existing materials that are removed.

PART 3 - EXECUTION

3.1 SITE WORK LAYOUT AND CONSTRUCTION SURVEY

A. Bench Marks and Monuments: Before commencing work verify bench marks and all reference points. If found at variance with the drawings, notify the Design Professional immediately and prior to continuing with construction activities in that area.

B. Plainly mark all bench marks, and property corners and property lines as follows:

1. Mark all project bench marks and mark all property corners within 100 feet of construction limits by driving a 4-foot lath with appropriate offset (not to exceed 5 feet) from property pin or monument. Paint at least the upper 8" of the lath a bright yellow and clearly label the label the lath with the bench mark number and elevation, or label "property corner" as applicable.
2. Install 2' lath, label "property line", and tie a red ribbon to the lath every 50' along property lines when project work coincides within 50 feet of property boundaries.

C. Carefully maintain all benchmarks, monuments and other reference points. If disturbed or destroyed, replace as directed, at no additional cost to the owner. Establish and maintain stakes as required for drives, parking, walks, underground vaults and structures, and other site improvements.

D. Flag or stake limits of construction and tree protection areas and install tree protection fencing to protect existing trees to remain.

E. As work progresses provide construction staking for grading (including subgrade, gravel courses, finish grade), points of curvature, points of tangency, grade changes, and for structures and miscellaneous site elements. If discrepancies between actual lines, grades, and elevations exist, notify Design professional before proceeding with layout of structure.

3.2 PROTECTING EXISTING VEGETATION TO REMAIN

A. All trees and vegetation marked to be saved or relocated shall be protected by temporary barricades, be watered and maintained where necessary, and replaced if damaged by construction. Root systems cut or damaged within work area during construction shall be pruned and protected from additional damage and covered with soil as soon as possible.

B. Under no circumstance, do not remove vegetation shown on the drawings to be saved, or marked by the Design Professional or Owner to be saved.

3.3 PROTECTING EXISTING SITE IMPROVEMENTS TO REMAIN

A. Protect all existing curbs, sidewalks, buildings, utilities, and paving to remain.

B. If existing site improvements are damaged in performance of this work, restore such improvements without extra cost to the Owner.

3.4 UTILITY LOCATES

A. Utilities Protection Law (Dig Law): Comply with Georgia Utilities Protection Law. Notice must be given to the Georgia Utilities Protection Center; by dialing 8-1-1 or 800-282-7411 at least 48 hours but no more than 10 days preceding the day mechanized digging is to begin. This notice shall contain County (where project is located), Town (or closest City or Town), location (street

address), type of work to be done, name of Contractor, company name and address, telephone number, which company/individual the work is being done for, date and time the Contractor is planning to dig. Locates are valid for 30 days. Renew or call for re-mark as necessary.

B. Secure the services of a private utility locator service in addition to contacting the Utilities Protection Center of Georgia. Perform Subsurface Utility Engineering (SUE) services in accordance with ASCE CI 38-02 Quality Level B: Utility Designation. Such utility designations shall be as necessary to ascertain any wet sewer lines, water supply lines, live electrical conduits, live phone lines, live gas lines and all other utilities, and shall make sure these utilities can be broken or changed without danger or disruption to any necessary service. Disconnect and de-activate all existing utilities that interfere with the new work before proceeding, except as specified above or otherwise shown on plans.

3.5 DISPOSITION OF UTILITIES

A. Follow rules and regulations of authorities having jurisdiction for the respective utilities in executing work under this section.

B. Carefully locate existing underground utilities by hand excavation, potholing, vacuum excavation, or other methods. If utilities are to remain in place, provide protection from damage during construction operations.

C. Active Utilities Shown on Drawings or that are Visible Onsite: Protect from damage and remove or relocate as indicated or specified. All utilities (including but not limited to: existing utility poles, guy wires, hydrants, meters, valve boxes) within the construction area that are evident from a visual inspection of the site shall be protected or relocated as necessary.

D. Active Utilities Not Shown on Drawings or Evident from Visual Inspection: Protect and/or relocate in accordance with written instructions of the Design Professional. Contract Sum may be adjusted for additional work in accordance with Contract Conditions.

E. Inactive and Abandoned Utilities:

1. Fully remove inactive and abandoned utilities only as shown.
2. Plug, cap, abandon in place utilities as shown. In absence of specific requirements, plug or cap such utility lines at least 4 feet outside of existing building walls, excavation limits, or as required by local regulations.

F. Repair damaged utilities to satisfaction of utility owner.

G. Accurately record locations of active and inactive utilities encountered during construction operations on record drawings.

3.6 MAINTAIN EXISTING UTILITY SERVICES

A. 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. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to governing authorities.

B. Provide not less than 72 hours' notice to Owner if shutdown of service is required during a changeover.

1. Arrange to shut off indicated utilities with utility companies.
2. Where utility services are required to be removed, relocated, or abandoned, provide bypass connections to maintain continuity of service to other parts of the building before proceeding with selective demolition.
3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit after bypassing.

3.7 DUST CONTROL

A. Keep airborne dust to a minimum by using water sprinkling or tossing and/or other suitable means to limit dust and dirt from rising and scattering in the air. Water all disturbed earth no later than 5 days from last rain or last watering.

3.8 POLLUTION AND SPILL PREVENTION

A. Control both air and water pollution. No tires, oils, asphalt, paint or coated metals are permitted in combustible waste piles. Pollutants such as fuels, lubricants, bitumens, raw sewage and other harmful materials will not be discharged into or near rivers, streams or man-made channels. Equipment maintenance shall be performed with containment and capture of used oils. Do not pour or drain used lubricants or other necessary mechanical fluids onto the ground. Remove from site and deliver to a recycling center. Utilize a concrete washout area and remove washed out concrete from the site.

B. Material Management Practices

1. The following material management practices shall be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. Follow good housekeeping practices onsite during the construction project.

a. An effort shall be made to store only enough product required to do the job.
b. All materials stored onsite shall be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
c. Products shall be kept in their original containers with the original manufacturer's label.
d. Substances shall not be mixed with one another unless recommended by the manufacturer.
e. Whenever possible, the entirety of a product shall be used up before disposing of the container.
f. Manufacturer's recommendations for proper use and disposal shall be followed.

g. The site superintendent shall inspect daily to ensure proper use and disposal of materials onsite.

C. Hazardous Products

1. The Contractor shall use the following practices to reduce the risks associated with hazardous materials:

a. Products shall be kept in original containers unless they are not resealable.
b. Original labels and material safety data shall be retained with the product by the General Contractor. They contain important product information.
c. Surplus products shall be disposed of following and in conformance with local and State recommended methods, NPDES permit requirements, and Federal Environmental Regulations.

D. Product Specific Practices

1. The following product specific practices shall be followed for products stored on-site:

a. Petroleum Products:

1) All on-site vehicles shall be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products shall be stored in tightly sealed containers that shall be clearly labeled and stored in a clearly identified area. Any asphalt substances used on-site shall be applied according to the manufacturer's recommendations.

b. Fertilizers:

1) Fertilizers used shall be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer shall be worked into the soil to limit the exposure to storm water. Any fertilizers that are to be stored on-site shall be stored in a protected, securable enclosure. The contents of any partially used bags of fertilizers shall be transferred to a clearly labeled sealable plastic container to avoid spills.

c. Paints:

1) All containers shall be tightly sealed and stored when not required for use. Excess paint shall not be discharged to the storm sewer system but shall be properly disposed of according to local and State regulations.

d. Concrete:

1) Concrete trucks shall be allowed to wash out, discharge, and drum wash only at the identified equipment maintenance area(s). Maintenance areas shall be equipped with a discharge containment area (e.g., earth berms surrounding area). The containment area shall be cleaned up and removed from the site upon completion of concrete installation work.

E. Spill Prevention and Cleanup

1. The following practices shall be followed for spill prevention and cleanup:

a. Local, State, NPDES, Federal Environmental, and Manufacturer's recommended methods for spill cleanup shall be clearly posted and site personnel shall be made aware of the procedures and the location of the information and cleanup supplies.
b. Materials and equipment necessary for spill cleanup shall be kept in the material storage area on-site. Equipment and materials shall include but not be limited to brooms, dustpans, mops, rags, gloves, goggles, respirators, cat litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
c. All spills shall be cleaned up immediately upon discovery.
d. The spill area shall be kept well ventilated and personnel shall wear the appropriate protective clothing to prevent injury from contact with a hazardous substance.
e. Spills of toxic or hazardous material shall be reported to the appropriate local and/or State government agency, regardless of size.
f. A spill prevention plan shall be implemented or adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures shall also be included.
g. The General Contractor shall be responsible for assigning personnel to be responsible for spill prevention and cleanup coordination. The General Contractor shall designate, at a minimum, three site personnel to receive spill prevention and cleanup training. These individuals shall each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel shall be posted in the material storage area and in the on-site construction office.

3.9 WASTE MANAGEMENT

A. Clean and remove trash and debris on entire site, including trash and debris deposited from previous operations.

B. During construction, maintain a clean and orderly worksite. Do not dump or store debris on any part of the property unless authorized in writing by the Owner and Design Professional. Debris may include but is not limited to: trash, construction material, cleared vegetative matter, and boulders.

3.10 FINAL CLEAN UP

A. Remove Contractors office trailer, storage shelters, stockpiled materials, and equipment from the site.

B. Remove all remaining debris, or any other extraneous material deposited during construction from the site including all graded areas, and other undisturbed areas. All debris is the property of the Contractor and shall be hauled away from the site and disposed of lawfully.

C. Clean, sweep and wash the entire site, including areas outside of the “limits of disturbance” for final inspection. Provide required lawn maintenance to provide complete and finished appearance. Leave the site in a neat and orderly fashion for use by the Owner.

END OF SECTION 310001

SECTION 31 00 02 - SITE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition of buildings and below grade foundations.
2. Selective demolition of buildings and other site features.
3. Demolition of existing site elements.
4. Protection of existing site elements to remain.
5. Disposal of demolished materials.

B. Related Sections:

1. 31 00 01 “SITE PREPARATION AND GENERAL SITE WORK” for protection of existing facilities, protection of vegetation, utility locates, and utility protection, and maintenance of active utility service to portions of existing facilities schedule to remain open and in service during construction.

1.2 DEFINITIONS

A. Remove: Remove and legally dispose of items except those indicated to be salvaged, or to remain the Owner’s property.

B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner’s property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to Owner’s designated storage area.

C. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Design Professional, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in the original locations.

1.3 SUBMITTALS

A. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damaged caused by demolition operations.

B. As applicable, records indicating receipt and acceptance of solid waste and hazardous wastes by legal and licensed facilities to accept such wastes.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Comply with hauling and disposal regulations of Georgia EPD (Environmental Protection Division) and other authorities having jurisdiction.
2. Comply with applicable demolition requirements of local jurisdictions and the State of Georgia.

1.5 SITE CONDITIONS

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

B. Storage or sale of removed items or materials onsite will not be permitted.

C. All existing curb and gutter, paving, structures, utilities and all other existing items that are located where proposed items are to be built but are not shown specifically for removal, shall be removed only when approved in writing by the Owner or Design Professional.

PART 2 - PRODUCTS

2.1 REPAIR MATERIALS

A. Use Repair Materials Identical to Existing Materials. Except that where identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible and as approved by the Architect.

B. Additionally, use repair materials whose installed performance equals or betters that of existing materials.

PART 3 - EXECUTION

3.1 PREPARATION

A. Perform public and private utility locates in accordance with Section 31 00 01 "Site Preparation and General Site Work." Disconnect and de-activate all existing utilities before proceeding with the work, except as specified herein or otherwise shown on plans.

B. Verify that utilities have been disconnected and capped.

C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

D. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

E. When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Design Professional.

F. Evaluate the condition of site structures to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during selective demolition.

3.2 SAFETY AND PROTECTION

A. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities. Do not close or obstruct streets, walks, 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 governing regulations.

B. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide all barricades, guards, lights and other installations required.
2. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
3. Ensure safe passage of people around demolition area
4. Protect existing site improvements, appurtenances, and landscaping to remain.

3.3 POLLUTION CONTROLS

A. Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust and dirt.

1. Do not use water to the extent that may result in damage to existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

B. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

3.4 DEMOLITION

A. Demolish and remove from site the existing structures, curb & gutter, slabs, walks, paving, steps, and any other item above or below ground that interferes with construction of the project as shown on plans.

B. Remove existing curbs, gutters, slabs, and concrete walkways at the nearest contraction or expansion joint.

C. Provide neat and straight sawcutting as shown on the Plans and as required to provide selective or partial demolition.

D. Where portions of concrete slabs-on-grade are to be removed, first outline the portion with a concrete saw to a depth of at least 1/3 of the thickness.

E. Completely remove below grade construction, including foundations and footings.

F. Contractor is to coordinate the subsurface demolition with any phased utility demolition and construction. The demolition of below grade items shall not interrupt any existing or proposed utility services.

3.5 FILLING BELOW-GRADE AREAS AND VOIDS

A. Completely fill below-grade areas and voids resulting from demolition of structures.

B. Use only clean, non-frozen, and approved fill material, stone, gravel, or sand that is free from deleterious materials. Refer to Section 31 22 00 “GRADING” for general fill or structural back fill.

C. Grade completed surface to drain and to meet adjacent contours.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

B. Send recyclable waste such as asphaltic concrete, Portland cement concrete, plastic, and metals to applicable recycle centers when feasible.

C. Burning: Do not burn demolished materials.

D. Burying: Do not bury materials onsite unless approved or otherwise shown.

E. Disposal of Regulated Materials (in accordance with GDNR, EPD rules):

1. Organic debris such as stumps, limbs, leaves, may be taken to a permitted solid waste landfill or to a permitted inert landfill.
2. Dispose of other non-hazardous trash and debris to a municipal solid waste landfill.
3. Dispose of oils, solvents, fuels, untreated lead paint residue and other solid hazardous wastes in properly licensed hazardous waste disposal facility.

F. Obtain all necessary permits for disposal. Transport demolished materials off Owner’s property and legally dispose of them. Provide copies of disposal certificates to the Design Professional.

3.7 REPAIRS AND PATCHING

A. Repair excess demolition.

B. Employ skilled workmen to perform repair work.

C. Where installation of similar new work is included, perform repairs in manner specified for installation of new work.

D. Where similar new work is not included in the project, perform repairs using approved materials that are appropriate to the repair and, where practicable, are identical to the existing materials being repaired.

E. Restore exposed finished patched areas in a manner, which eliminates evidence of repairs.

1. Continuous surfaces: Extend refinish to nearest intersection, with a neat transition to adjacent surfaces.
2. Assemblies: Refinish entire unit.
3. Painted piping, conduit and duct: Clean and repaint.

3.8 CLEANING

A. Remove tools and equipment. Dispose of scrap.

B. Leave exterior areas free of debris.

C. Existing structures and site features to remain shall be returned to the condition prior to the commencement of construction.

D. Sweep remaining hard surfaces on completion of selective or partial demolition operations.

END OF SECTION 310002

SECTION 31 10 00 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Clearing of vegetative matter and debris.
2. Grubbing.
3. Disposal of cleared and grubbed material.

B. Related Sections:

1. 31 00 01 “SITE PREPARATION AND GENERAL SITE WORK” for layout, public safety, protection of existing facilities, protection of vegetation, utility locates, and utility protection.

1.2 SITE CONDITIONS

A. Tree save and protection of existing vegetation: Unless approved in writing by the Design Professional clearing operations and equipment shall be limited to the “Limits Of Work Area”, “Limits Of Disturbance”, and “Tree Protection Limits” as shown on the drawings. Selective removal of understory trees and brush is included in designated areas. The selective removal shall be accomplished by hand methods with the utmost care as to not damage larger trees to remain.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION

3.1 PREPARATION

A. Verify that utilities have been disconnected and capped as necessary for clearing activities and that clearing limits and tree protection areas are plainly marked.

3.2 CLEARING

A. Strictly adhere to the phased clearing plan as shown on the “Land Disturbance Construction Activity Sequence” Erosion and Sedimentation Control Plan. Only upon completion of initial inspection by the Design Professional shall the contractor expand his clearing and grubbing operations to the entire site.

B. Clear all areas to be graded of remaining debris and extraneous materials.

C. Remove from the general construction /grading areas and proper disposal of all trees, brush, stumps, logs, grass, weeds, roots, decayed vegetable matter, refuse dumps, and all other objectionable matter resting on the original ground surface or appearing or being placed on these areas at any time before final acceptance of the work, except as provided for elsewhere.

D. Remove and properly dispose of any remaining obstructions not to be salvaged or preserved, such as fences and poles, and incidental structures within the construction area.

3.3 GRUBBING

A. Grubbing includes the removal and proper disposal of all stumps, roots, and other vegetation or perishable matter that exists below the original ground surface in cleared areas. Grubbing also includes removal of general buried obstructions, trash, and debris not otherwise removed by demolition.

B. Unless otherwise shown, grub to the following depths:

1. All sound, unsound or decayed stumps shall be removed to a depth of 2 feet below the original ground.
2. Under lawn, planting, or sportsfield areas: Grub to a depth of at least 2 feet below finish grade.
3. Under asphalt, concrete, and gravel pavements: Grub to a depth at least 2 feet below subgrade elevation.
4. Under foundations, slabs, and structures: Grub to a depth of at least 3 feet below the foundation of proposed structures.
5. For other areas: Remove to a depth of at least 1 feet below natural ground surface.

3.4 DISPOSAL OF MATERIALS

A. The removal and disposal of all cleared and grubbed materials is the responsibility of the Contractor. However, burning of organic waste is not allowed without prior approval by the Owner and Design Professional and without obtaining a local jurisdiction burn permit.

B. Contractor may utilize a tub grinder for grinding of clearing operation organic debris. Organic mulch produced may be spread and utilized on cut and fill slope upon reaching finished grade for erosion and sedimentation control purposes. All other debris from clearing and grubbing operations shall be disposed of offsite, unless approved otherwise by the Owner and Design Professional.

C. Comply with all local ordinances and obtain any necessary permits if applicable for disposal of trees, stumps, and other debris. Refer to Section 31 00 02 “Site Demolition” for disposal of debris.

END OF SECTION 311000

SECTION 31 22 00 - GRADING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Temporary grading or ditching to protect the site and adjoining property from water and silt damage.
2. Topsoil Stripping.
3. Grading, excavating, rock excavating, and filling to prepare subgrades for foundations, walks, pavements, grass areas, landscape areas, and general areas.
4. Excavating and backfilling trenches for utilities and pits for buried utility structures.
5. Updated Report of Geotechnical Investigation – Xcaliber Site dated October 3, 2018 and prepared by Contour Engineering (Appendix A).
6. Final Design Report – Mechanically Stabilized Earth Wall Analysis & Design – Xcaliber Middle School dated February 15, 2019 and prepared by Fitzpatrick Engineering Associates, P.C.

B. Related Sections:

1. 31 00 01 “Site Preparation and General Site Work” for layout, protection of existing facilities, protection of vegetation, utility locates, and utility protection.
2. 32 05 00 “Common Works for Exterior Improvements” for import fill, import backfill, geotextile specifications.

1.2 REFERENCE SPECIFICATIONS AND DOCUMENTS

A. Georgia Department of Transportation (GDOT)

1. Department of Transportation, State of Georgia Standard Specifications, Construction of Roads and Bridges, 2013 Edition. Unless otherwise noted, conform with GDOT Standard Specifications where referenced.
2. GDOT Test Procedures (GDT), where referenced.

B. American Society for Testing Materials (ASTM)

1. ASTM D422 - Particle Size Analysis of Soils.
2. ASTM D423 - Test for Liquid Limit of Soils.
3. ASTM D424 - Test for Plastic Limit and Plasticity Index of Soils.
4. ASTM D1556 - Test for Density of Soil In Place Sand Cone Method.
5. ASTM D2487 – Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification).
6. ASTM D6938 – Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

7. ASTM D698 - Standard Test Methods For Moisture-Density Relations of Soil Using Standard Effort.
8. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.

1.3 DEFINITIONS

A. Backfill is defined as fill immediately behind foundation elements or retaining walls.

B. Excavation: Removal of material encountered above subgrade elevations, and to lines and dimensions indicated, or as directed. Excavation may be classified as earth excavation, rock excavation, or subexcavation, or it may be *unclassified* as described below.

1. Unclassified Excavation: Excavation of all material, including rock, regardless of its nature or the manner in which it is removed. All excavation shall be unclassified unless explicitly and otherwise shown on the Drawings, or if unit pay items are provided for Rock Excavation, Earth Excavation, or SubExcavation.
2. Earth excavation or simply “Excavation”: Excavation of all material is except for active utilities and rock.
3. Rock excavation: Excavation of all hard, compacted, or cemented materials that require the use of drilling, blasting or wedging equipment to remove. It shall consist of un-decomposed stone hard enough to ring under a hammer, and the amount of solid stone shall not be less than one (1) cubic yard in volume. If applicable, rock is further defined as follows:

    a. General Excavation (Mass): Any material occupying an original volume of more than one cubic yard which cannot be excavated with a single-tooth ripper drawn by a crawler tractor having a minimum draw bar pull rated at not less than 80,000 pounds (Caterpillar D-8 or larger).
    b. Trench Excavation: Any material occupying an original volume of more than one-half cubic yard which cannot be excavated with a hydraulic excavator having a curling force of no less than 40,000 pounds; such as a John Deere 790 or equivalent.

4. Subexcavation: Authorized additional excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Design Professional or Testing Agency in writing.

C. Fills: Suitable materials placed to raise existing grades. All fill material placed on site by the contractor, regardless of whether fill is from on-site or off-site sources, cannot, by its nature, be classified as unsuitable soils. Contractor is responsible for dewatering or drying out of water saturated soils to the extent necessary to satisfy the requirements for fill.

1. General area fill: all fill in the general grading area covering banks, hollows, drain ditches, etc.
2. Pavement fill zone: The zone occupied by materials supporting asphalt or concrete paving supporting vehicular traffic or parking and extending for a distance of 4 feet on each side paving area measured at the finished grade (including gutter pans), thereafter tapering away at a 45° angle. Pavement fill zone for asphalt or concrete pedestrian areas

are 2 feet on each side of paving area measured at finish grade and tapering down at a 45° angle.

3. Structural fill zone: The zone occupied by materials supporting floor slabs, building foundations or other structures and extending for a distance of 10 feet on each side of said structure measured at the finished grade, thereafter tapering away at a 45° angle.

D. Neat line: The shown, directed or described line or plane defining the limits of work. Work beyond neat line(s) is not subject to payment when included in a unit pay item.

E. 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.

F. Trenches: Foundation: The area beneath the bedding.

1. Bedding: The area above the foundation and below the bottom of the pipe.
2. Haunching: The area above the bottom of the barrel of the pipe up to a specified height above the bottom of the barrel of the pipe.
3. Initial backfill: The area above the haunching material and below a plane 18 inches above the top of the pipe.
4. Final backfill: The area above a plane 18-inches above the top of the barrel of the pipe.

G. Conserved Topsoil: Excavated soil material, with organics, conserved from grading areas that is suitable for growth of grass, cover crops, or planting areas. Identification and use of all conserved topsoil is subject to approval by the Testing Lab and/or Design Professional. Refer to 32 05 00 “COMMON WORKS FOR EXTERIOR IMPROVMENTS” for definition of Furnished Topsoil.

H. Unsuitable Soils:

1. Existing undisturbed soils which are determined by the Testing Laboratory or Design Professional to be unsuitable for use as fill, in a particular application, for reasons other than moisture or water content.

   a. Water saturated soils, regardless of the source of the water (rainfall, storm runoff, ground water or other sources) shall not be considered as unsuitable.

   b. Dewater or dry out water saturated soils to the extent necessary to satisfy the requirements for fill.

   c. The Contractor is solely responsible for the scheduling and sequencing of the work. If necessary, to maintain the Contractor’s schedule, wet soils shall be removed and replaced with suitable fill to replace water saturated soils. The removal and replacement of water saturated soils shall be performed at the Contractor’s expense.

2. In general, existing undisturbed soils that are highly organic or highly plastic (classified as Class IV Roadway Material per Georgia DOT Standard Specification Section 810) may be classified as unsuitable depending on application.

3. Fill material placed on site by the Contractor, regardless of whether fill is on-site or off-site borrow cannot, by its nature, be classified as unsuitable soils.

a. Materials placed as fill shall not be classified as unsuitable soils regardless of conditions encountered, since only suitable soils shall be used as fill.

b. Fill shall be placed, compacted and tested as required by the Contract documents.

c. The Contractor shall be responsible for maintaining compacted fill, in condition and at compaction levels required, until improvements (site and/or building) are placed on fill.

d. Should compacted soil be disturbed or become water saturated, the Contractor shall be responsible for conducting whatever work is necessary to restore to the soils to the specified criteria at no cost to the Owner.

4. Water Saturated Soils: Should soils become saturated the Contractor shall, as part of the scope of this Contract, perform activities necessary to mediate and / or replace water saturated soils as required to obtain suitable fill as required by the Testing Agency or Design Professional.

1.4 UNIT PRICES

A. Rock Excavation: Unit prices for rock excavation include replacement with approved materials. Measurement of rock excavation shall be based on the volume of rock actually removed, measured in its original position, but not to exceed the following (payment neat lines).

1. 2.0 ft outside of concrete forms other than at footings.
2. 1.0 ft outside of concrete forms at footings.
3. Outside dimensions of concrete walls indicated 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 2.0 ft wider than pipe but not less than 3.0 ft wide.

B. Sub Excavation: Unit prices for subexcavation shall include replacement of unsuitable material with geotextile for separation and approved backfill material. Volumetric measurement of subexcavation is based on neat line quantities as directed or approved by the Design Professional or Testing Agency.

C. Imported Fill Material: Unit prices for import fill (structural fill, general fill when shown and not including any fill material for rock excavation or subexcavation) shall include disposing of any unsuitable material, procuring fill materials and transporting them to the site.

1. Unless otherwise specified in the General Conditions, when mass measurements are shown on the bid form, measurement of additional import material are based on weight tickets for material delivered to the site and incorporated into the work.
2. Unless otherwise specified in the General Conditions, when volume measurements are shown on the bid form, measurement shall be based on volumes measured by surveying the installed volume of fill.

1.5 SUBMITTALS

A. Product data for materials, including but not limited to: geotextiles, utility line markers, import fill material, control density backfill.

B. Quantities of stripped and stockpiled topsoil. Provide report within 48 hours of stockpiling.

C. Backup for unit cost documentation, that may include:

1. Survey and computed quantities for Rock Excavation.
2. Delivery tickets (tonnage) for import fill incorporated into the Work.

D. Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, which might be misconstrued as damage caused by earthwork operations including blasting. Submit before earth moving begins.

1.6 QUALITY ASSURANCE

A. Earthwork Testing and Inspection Services: The Owner will engage a qualified independent Testing/Inspection Agency to perform Earthwork Testing as described in this Section.

B. Blasting: Comply with applicable requirements in NFPA 495, "Explosive Materials Code," and prepare an informational 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.
3. Pre-excavation photos or videotape.

1.7 SITE CONDITIONS

A. Protection:

1. Limit grading and filling operations to within the defined clearing limits, work zones, or limits of disturbance. Do not disturb the existing terrain or trees outside these lines.
2. Fill material placed against drainage structures or back-filled around utility pipes shall be placed and compacted by methods which will not cause any damage. Any damage which does occur shall be repaired or replaced by the Contractor at the Contractor’s expense.
3. Graded Areas: Any settlement or washing that occurs prior to acceptance of the work shall be repaired and grades re-established to the required elevations and slopes. Fill to required subgrade levels any areas where settlement occurs.

B. Hazardous Materials:

1. No soil found on site or transported to the site which is contaminated with material containing asbestos, PCB's, radon, gasoline, fuel oil, or other fossil fuels, shall be used for fill, backfill or landscape topsoil.

2. Notify Design Professional of any contaminated soil found on site. Any contaminated soil found on site shall be removed and disposed of in a lawful manner. Any unknown contaminated soil removal and disposal may be subject to Contract Change Order provisions or unit prices if present.

1.8 COORIDINATION AND SCHEDULING

A. Notify the Design Professional a minimum of 48 hours prior to the beginning of any excavation, filling, or grading.

B. The Contractor is solely responsible for the scheduling and sequencing of the work. If necessary to maintain the contractor's schedule, removed wet soils dewater and dry out sufficiently for its application, or remove and replace with suitable fill. The dewatering or removal and replacement of water saturated soils shall be performed at the contractor's expense.

PART 2 - PRODUCTS

2.1 FILL OR BACKFILL MATERIALS

A. The soil used for fill or backfill material shall be free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

B. Fill or backfill for paving areas or supporting buildings shall have a maximum dry density exceeding 90 pounds per cubic foot (pcf).

C. Where specified use Graded Aggregate Base (GAB) as backfill or structural fill: Refer to 32 05 00 "Common Works for Exterior Improvements" for material properties.

D. Structural Fill: Soil Classification Groups GW, GP, GM, SM, ML, CL; SW, SP, SC, SP-SM, SP-SC. (ASTM D 2487). Additionally Class I or Class II (but excluding Class IIB4) Roadway Materials (GDOT Section 810.01) are also acceptable for Structural Fill. Structural Fill shall be free from alluvial soils and organics. All Structural Fill materials shall be approved for use onsite by the Design Professional or Testing Agency.

E. General Fill: Includes soils suitable for structural fill as well as other onsite non organic and non expansive soils that are approved by the Design Professional or Testing Agency that will form a stable and dense mass with or without confinement.

2.2 UTILITY EARTHWORK MATERIALS

A. Foundation Material: Unless otherwise specified, Crushed stone meeting GDOT Standard Specification 800.01, Group 1 (limestone, marble, or dolomite), or Group II (quartzite, granite, or gneiss). Stone size shall be between No. 57 and No. 4, inclusive.

2.3 LINE MARKERS

A. 2” width minimum, 5 mil tape thickness with non-ferrous detectable aluminum backing and shall be printed with the description that the relevant utility is “buried below”. Line marker colors according to APWA corresponding to the utility type as follows:

1. Gas lines- yellow
2. Power – red
3. Communications - orange
4. Sanitary – green
5. Water - blue

2.4 GEOSYTHETICS

A. Refer to 32 05 00 “Common Works for Exterior Improvements” for material properties of geotextiles for separation and stabilization.

PART 3 - EXECUTION

3.1 PREPARATION

A. Construction Survey: Refer to 31 00 01 “Site Preparation and General Site Work” for layout and survey requirements. Provide construction staking as required for drives, parking, walks and other site improvements. Protect benchmarks, monuments and other reference points.

B. Clear and grub the area of vegetation and obstructions.

3.2 EROSION CONTROL AND SEDIMENT CONTAINMENT SYSTEMS

A. Adhere to the “Land Disturbance Construction Activity Sequence” as defined in the Erosion and Sediment Control Plans.

B. Temporary Grading and Drainage: Provide effective drainage for the entire site at all times. Divert watersheds by ditching or embankments to prevent encroachment of surface water in excavations. No impoundment of water will be permitted except as provided. The Contractor is fully responsible for all water damage to the site and to the installed work.

C. Refer to 31 25 00 “EROSION & SEDIMENT CONTROLS” for additional grading operation requirements and storm drainage system installation requirements.

3.3 CONSERVED TOPSOIL

A. After all demolition, clearing and disposal is completed, strip from the top of the existing ground all topsoil from all areas to be graded.

B. Prior to stockpiling of topsoil, screen topsoil via a mobile mechanical screening machine with a 1/2inch size sieve.

C. Stockpile topsoil in designated or approved locations with proper drainage and where it will not interfere with the work. After topsoil has been stockpiled, quantify the stockpiled volumes. Report quantities to the Owner and Design Professional within 2 days of completing stockpiles.

D. Refer to Division 32 Sections "TURFS AND GRASSES" and "PLANTING PREPARATION" for stockpiled topsoil application requirements and additional amendment requirements for turf, lawn, and planting areas.

1. If amount of conserved topsoil is insufficient to provide the necessary amounts as indicated in the Drawings and specifications, it is the Contractor's responsibility to furnish, pay for, and haul (from off-site sources) the necessary amount of topsoil, of the specified quality, to complete the project.

E. Excess topsoil distributed onsite: After completion of topsoil application in lawn areas, planting areas and other areas shown on the Drawings, distribute any remaining topsoil to general disturbed areas as agreeable to the Owner and Design Professional. Distribute excess topsoil to a minimum depth of 4 inch. Scarify ground to a 4" depth before placing topsoil.

F. Excess topsoil hauled off-site: After completion of topsoil application in lawn areas, planting areas and other areas shown on the Drawings, any excess topsoil becomes the property of the Contractor and shall be hauled off site at no additional cost to the Owner.

3.4 GENERAL GRADING REQUIREMENTS

A. Perform exterior grading to provide smooth transitions to and between the proposed contours and spot elevations shown on Drawings.

B. In all cases, grade to a sufficient pitch to drain water.

C. Perform earthwork as required to establish finished grades as indicated on drawings. Grades not otherwise indicated shall be uniform levels of slopes between points where elevations are given (either spot elevations or contours) or between such points and existing finished grades.

D. Excess Cut Material: If quantity of grading material is in excess of quantities necessary to provide finish grade elevations indicated on drawings or if excavated material is deemed unsatisfactory for use as compacted fill, excess material shall be spread onsite as indicated on the Plans or as directed by the Owner and/or Design Professional. Excess material that cannot be spread on site shall be hauled off site and disposed of legally. Hauling and disposal of excess cut material shall be performed at the Contractor's expense.

E. Insufficient Fill Material: If quantity of grading material is insufficient to achieve subgrade elevations, Contractor shall obtain additional fill material of specified quality from an off-site source. Obtaining and hauling of additional fill material shall be performed at the Contractor's expense.

F. Import Fill Material for Areas Determined to be Unsuitable: If the Design Professional or Testing Agency determines that onsite excavated or grading materials are unsuitable for use as compacted fill for a given application, then import fill material shall be obtained from an off-site source. Import fill material shall conform to specifications for the given application.

Disposing of unsuitable material, obtaining and hauling of import fill material shall be performed by change order based on the unit prices included within the contract.

G. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value. All moisture conditioning necessary to permit compaction to the specified density shall be performed at the Contractors expense.

H. Slope subgrade to provide positive drainage within all underdrain systems. Unless shown otherwise on the Drawings, subgrade minimum slope to underdrain collection systems is 0.5%.

I. Subgrade Elevation Tolerance: Cut, place, compact fill and rough grade entire project area to within 0.10 feet above or below design subgrade elevations.

3.5 EXCAVATION AND EMBANKMENT SAFETY

A. Comply with all Federal, State, and Local safety laws and regulations pertaining to trenching, excavation, bracing and shoring that includes but is not limited to:

1. OSHA Excavation Standards, 29 Code of Federal Regulations (CFR) Part 1926, Subpart P- Excavations.

B. If conflict exists between safety laws, regulations, and contract requirements including these specifications, apply the most stringent requirements or standards.

C. Protect all excavations and embankments against collapse. Where possible, temporary excavations over 4 feet high shall be made at a slope not steeper than 1.5H:1V or where the soil is very sandy or wet the slope should be no steeper than 2H:1V.

D. Where it is not possible to provide a safe slope, temporarily support all banks and excavations and maintain secure until permanent support has been provided.

E. Where ditches or trenches that are over 4 feet deep, provide cross bracing and shoring to prevent collapse.

F. Provide bracing, shoring, or shielding systems designed by a Georgia Registered Professional Engineer experienced in such designs. The design drawings shall show the work and sequence in its entirety and be submitted to the Design Professional prior to commencing the work.

3.6 DEWATERING

A. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.

B. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rainwater and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

C. Maintain groundwater a minimum of 3 feet below the bottom of any excavation associated with a foundation. Maintain all excavations free of standing water at all times.

D. Remove all mud caused by standing water from any excavation before the placing of permanent material.

E. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations.

F. No untreated sediment laden water from dewatering operations shall be allowed to enter surface water or a storm drainage system or a permanent stormwater pond.

3.7 TRENCH EARTHWORK

A. General:

1. Conform with the most stringent requirements of these specifications, the Plans, of Utility providers, and of local agency permitting authorities. Requirements may include, but are not limited to: depth of cover, minimum trench width, bedding material, pipe zone backfill, and compaction requirements.
2. Detection wire: Bury continuous and unbroken wire directly above non-metallic piping at a distance not to exceed 12 inches above top of pipe. Terminate wire in junctions (manholes, vaults, boxes) with a minimum of 3 feet of wire coiled, remaining accessible in each manhole.
3. Line Markers: During back filling of utility lines, furnish and install continuous underground-type plastic line marker, located directly over buried utility lines at 12” below finished grade. Under pavements and slabs, bury tape 6” below top of subgrade.
4. Do not exceed 100 feet of open trench in advance of pipe laying, unless approved otherwise by the Design Professional.

B. General Trench Excavation:

1. Excavate trenches to the required depth or elevation allowing for placement of the pipe and bedding to the dimensions shown on the Drawings.
2. Grade bottom of trenches, no larger than necessary, to accommodate bell holes and other joints and junctions to provide uniform bearing along the pipe.
3. At the direction of the Design Professional or Testing Agency remove unstable or unsuitable material shall be removed from the bottom of the trench and backfilled in accordance with Article – “SUBEXCAVATION”.
4. When rock is encountered, excavate to allow a minimum of 6 inches of clearance between rock and any part of the pipe barrel or structure (manhole, vault) and backfill with granular bedding material.

C. Utility Trenches (except sanitary and storm sewer):

1. Excavate to a width as necessary for sheeting and bracing and proper performance of the Work.
2. Support piping on suitable undisturbed earth unless a mechanical support is provided.
3. Bed and provide initial backfill in accordance with the Drawings, and authorities having jurisdiction.

D. Sanitary and Storm Sewer Trenches:

1. The maximum trench width below a plane 6 inches above the top of pipe is:

   a. 24 inches for pipe diameters of 12 inches or less.
   b. Equal to the sum of the outside diameter of the pipe plus 2 feet for pipe diameters greater than 12 inches.

2. Excavate the trench width to allow for the proper compaction of haunching and initial backfill material.
3. Excavate the width of trench above a plane 6 inches above the top of pipe as necessary for proper performance of the work including any sheeting, bracing, or shielding.
4. Bed bottom of pipe on suitable undisturbed soil or as otherwise shown on the Plans.
5. In haunch areas of plastic pipe, install granular fill bedding material up to the springline of the pipe.
6. Install initial backfill in lifts not to exceed 6 inches loose, compacted to 95% of modified proctor and to a minimum depth of 12 inches above the top of pipe. Unless otherwise specified or required by authorities having jurisdiction, immediate backfill material is as follows:

   a. Class 1- Granular fill.
   b. Class 2- Suitable existing earth material (default).

E. Final Fill

1. Once outside of the initial backfill area, continue backfilling to reach subgrade elevation as follows:

   a. For utility trenches in paving and building areas: Provide structural backfill in 6-8” loose lifts, compacted to 95% of the Standard Proctor (ASTM D 698), and within +- 3% of optimum moisture. Except that for structural backfill (supporting structures, pavements, slabs-on-grade, and sidewalks) within 12 inches of subgrade, provide in 4” loose lifts and compact to 98% of the Standard Proctor (ASTM D 698).
   b. For utility trenches in general fill areas or grading areas: Provide general fill in 8” loose lifts, compacted to 95% of standard proctor (ASTM D 698) and within +-3 % of optimum moisture to reach subgrade elevation.

3.8 EXCAVATION

A. Excavate to lines, elevations, dimensions, and depth as indicated on the drawings with allowances made for workspace.

B. Excess Excavation: If excavations for foundations or footings of any kind are carried by the Contractor, without proper authorization, below the indicated or specified levels they shall be backfilled at the expense of the Contractor as follows:

1. In the areas of excess excavation in rock or under structure footings, the excess excavation shall be back filled with control density fill.
2. In the areas of excess excavation in other areas, backfill with approved structural or fill material and constructed in accordance with the fill articles in this Specification.

C. Earth Excavation:

1. **Surface Preparation in excavated areas for foundations:** scarify and uniformly recompact the upper 24 inches of soils intended to support building foundations and floor slabs to 98% of Standard Proctor (ASTM D 698). In confined areas such as utility trenches, utilize portable compaction equipment and lifts of 3 to 4 inches to achieve the required compaction.
2. **Surface Preparation in excavated areas for paving areas:** scarify and uniformly recompact the upper 12 inches of soils to 95% of Standard Proctor (ASTM D 698). In confined areas such as utility trenches, utilize portable compaction equipment and lifts of 3 to 4 inches to achieve the required compaction.
3. **Surface Preparation in infiltration areas, planting bed areas**: unless otherwise shown, scarify and uniformly recompact the upper 12 inches of soils intended for planting areas or infiltration to 75-80% of Standard Proctor (ASTM D 698) to prevent settlement but still allow for infiltration and plant growth.
4. Do not excavate to full depth when freezing temperature may be expected. Protect excavation bottom from frost if placing of concrete or gravel is delayed. All footing excavations shall be free of pin roots.

D. Rock Excavation:

1. When potential rock is encountered, remove overburden soils and notify the Testing Lab or Design Professional prior to **any** rock excavation. The Testing Lab and/or Design Professional shall approve and classify all rock excavation. Once classified, survey grading sections of existing rock surface. When rock is completely removed, survey new grading sections to determine the quantity of rock removed within neat line limits**.**
2. Perform all blasting in accordance with local ordinances, and obtain necessary permits where required.
3. Rock that is excavated is the property of the Contractor and shall be removed from the site. Except that, as allowed by the Contract Documents or as approved in writing by the Testing Agency or Design Professional, rock may be incorporated into the Work if it is processed appropriately or meets material specifications.
4. Decomposed rock and similar material removable by tractor drawn ripper or power machinery smaller than defined for rock excavation is classified as earth excavation.

3.9 PROOFROLLING

A. Proofroll surfaces when specified to check for pockets of soft material in areas associated with buildings and pavements.

B. Proofrolling subgrades within +- 3 % of optimum moisture or as approved by the Design Professional. In all cases, proofroll subgrades free of surface water which may promote degradation of an otherwise acceptable subgrade.

C. Proofroll with a loaded 20-ton dump truck, or other pneumatic-tired vehicle of similar size and weight, operated at 2 to 3 mph. For large areas such as parking lots, proof roll with 2 complete coverages in each of two perpendicular directions.

D. Perform proofrolling under the observation of the Testing Agency or Design Professional. Provide notification 48 hours in advance of all proofrolling operations. Undercut (or subexcavate) Any areas which "pump" or permanently rut under the wheels of the loaded truck and undercut (subexcavate) to a depth and extent directed or confirmed by the Design Professional or Testing Agency.

3.10 SUBEXCAVATION

A. Perform subexcavation below existing ground elevations or subgrade elevations as and when directed by the Design Professional or Testing Agency to correct areas with unsuitable bearing capacity or materials.

1. Remove and dispose of unsuitable soils to the extents and depth as directed by the Design Professional or Testing Agency.
2. Level and clear the bottom of the sub excavation of loose material.
3. Place separation geotextile with all seams overlapped at least 2 feet.
4. In paving and foundation areas, backfill with GAB (Graded Aggregate Base) in 8 inch loose layers and compact to at least 95% of Modified Proctor.

3.11 FILLING AND BACKFILLING

A. STRUCTURAL FILL –BUILDING AND RETAINING WALLS

1. Construct structural fills in areas supporting buildings and retaining walls to establish design subgrades.
2. Schedule construction of structural fill as early as possible in order to allow settlements of underlying soils to occur before building and retaining wall construction commences.
3. Surface Preparation for fill: Bench areas to receive fill to a minimum of 12 ft width, remove all loose material, and proofroll prior to beginning fill operations.
4. Place structural fill material in 6 to 8 inch loose lifts at a moisture content at the time of compaction within 3% of the optimum moisture content. Unless otherwise shown, compact to a minimum of 98 percent of Standard Proctor (ASTM D 698). Compact the upper 24 inches to 100 percent of Standard Proctor.
5. Carefully backfill walls. Do not utilize heavy equipment within 10 feet of any retaining wall. Use hand tampers to compact within the 10 foot backfill zone.

B. STRUCTURAL FILL – PAVED DRIVE, WALKS, AND PARKING AREAS

1. Load, haul, place, grade, and compact all necessary structural fill to establish design grades as shown.

2. Surface Preparation for fill: Bench to a minimum of 12 ft widths, all loose material removed, and proof roll prior to beginning fill operations.
3. Place structural fill material in 6 to 8 inch loose measure lifts with moisture content at the time of compaction within 3% of optimum. Compact to a minimum of 98% of Standard Proctor (ASTM D 698). Compact the upper 12 inches in cut areas and upper 18 inches in fill areas to at least 98% of Standard Proctor.
4. Proofroll completed subgrade when within 0.1 feet of final subgrade elevation.

C. GENERAL AREA FILL

1. Load, haul, place, grade, and compact all necessary general area fill in general grading area, covering banks, hollows, drain ditches, etc.
2. Place fill material in 6 to 8 inch loose lifts, compacted to a minimum of 95% of Standard Proctor (ASTM D 698) and within +- 3% of optimum moisture. Except that in landscape/planting bed areas, and infiltration areas unless otherwise specified or shown, compact the upper 12 inches of soil to 75 to 80% of standard proctor.

3.12 TESTING

A. All failing tests or retests are the responsibility of the Contractor.

B. Minimal testing requirements for Owners Quality Assurance are summarized below. Contractor may elect to collect additional samples and perform additional tests, or prepare additional specimens for testing at its sole discretion in accordance with their own quality control program.

1. Observe fill and subgrades during proof-rolling to evaluate suitability of surface material to receive fill or base course. Verify soil bearing capacity assumptions. Provide recommendations to the Design Professional regarding suitability or unsuitability of areas where proof-rolling was observed. Where unsuitable results are observed, witness excavation of unsuitable material and recommend to Design Professional extent of removal and replacement of unsuitable materials and observe proof-rolling of replaced areas until satisfactory results are obtained.
2. Provide characterization and classification, testing of all fill, backfill and subgrade materials as follows:

    a. Classification: 1 per material type/source
    b. Atterberg Limits: 1 per material type/source
    c. Grain size distribution
    d. Moisture – Density (ASTM D698 Standard Proctor for fine grained material, ASTM D1557Modified for coarse grained): 1 per material type/Source

3. Perform field density and moisture tests (ASTM D6938, GDT 21 ,59). Other test methods based on material type may be proposed and are subject to approval by the Design Professional. Perform and report field density tests at the minimum frequencies listed below.

a. Building Slab: 1 test for each type of soil type on excavated surfaces. 1 test per compacted fill layer each 2,500 sq.ft. of area.
b. Footings- Foundation: 1 test for each layer or type of soil present. In compacted fill layers, perform one test per 100 feet of footing length.
c. Paving Area Fill: 1 test per per layer for every 2 feet of fill each 5,000 sq.ft. of area.
d. General Area Fill: 1 test per every 2 feet of fill for each 10,000 sq.ft. of area.
e. Utility trench, spread footing or retaining wall: 1 test per 2 feet of fill per 50 linear feet of trench.

3.13 MAINTENANCE AND PROTECTION

A. Maintain subgrade, in condition and at compaction levels required, until improvements (site and/or building) are completed.

1. Should subgrade or fill materials be disturbed or become water saturated, restore to the specified criteria as verified by the Design Professional.

B. Provide additional fill material, remove excess material, or redistribute material, should grades be changed from erosion or construction activities.

END OF SECTION 312200

APPENDIX A

SECTION 31 25 00 - EROSION & SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Compliance with NPDES Phase II Construction General Permit No. GAR 100001 for land disturbing activities over 1 acre in extent.
2. Temporary erosion, sedimentation, and pollution controls (air, water, soil) from site preparation through final site stabilization that include, but are not limited to:

    a. Silt dams, traps, barriers and slope stabilization
    b. Temporary grading to manage stormwater and dewatering activities.
    c. Polyacrylamide (PAM) applications.

B. Related Sections:

1. 31 00 01 “Site Preparation and General Site Work” for protection of existing vegetation, waste management, and spill prevention.
2. 31 22 00 “Grading” for dewatering requirements and additional requirements for Temporary Grading and Drainage.
3. 32 92 00 “Turf & Grasses” for temporary vegetation and mulching and for permanent grassing.

1.2 REFERENCE SPECIFICATIONS AND DOCUMENTS

A. The Manual for Erosion and Sediment Control in Georgia, 2016 Edition, by the Georgia Soil and Water Conservation Commission, “Best Management Practices”. Apply to all land disturbing activities.

B. The State of Georgia Department of Natural Resources Environmental Protection Division “National Pollution Discharge Elimination System” General Permit No. GAR 100001. This permit applies to all land disturbing activities for this project.

1.3 SUBMITTALS

A. Schedule of operations: Submit schedule of proposed operations conforming with the “Land Disturbance Activities Sequence” as delineated on the Erosion, Sedimentation & Pollution Control Plan(s), including program for erosion control measures, logs, documentation, identified superintendent with required continuing education certification, maintenance of control facilities 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 sediment control measures.

B. Product Data: For each type of the following manufactured products required provide manufactures data to the Owner for review and comment prior to bringing products onsite and incorporating into the work. Product submittals include, but are not limited to:

1. Silt fence.
2. Rolled erosion control blankets.
3. Anionic polyacrylamide (PAM).

C. Samples: Submit samples of the following items or products prior to incorporating into the work.

1. All Class A and Class B Erosion Control Blanket products proposed for the work.
2. PAM gel bars or logs.

1.4 QUALITY ASSURANCE

A. Comply with "Manual for Erosion and Sediment Control in Georgia" and “Best Management Practices” for practices, procedures, and operations.

B. Obtain NPDES Phase II permit coverage and conform to all provisions under the State of Georgia and Federal Clean Water Act (permit no. GAR 100001). Refer to http://epd.georgia.gov/npdes-construction-storm-water-general-permits. Responsibilities of the Contractor include, but are not limited to:

1. Filing a NOI (Notice of Intent) with State’s Environmental Protection Division (EPD) 72 hours prior to land disturbance activities with both the Owner’s signature and the General Contractor’s signature.
2. Maintain a log book log book on site documenting the inspections of erosion control devices (minimum once/week and within 24 hrs of any storm event) and noting any corrections or modifications. Document all rainfall events. As necessary, coordinate and assist with required stormwater monitoring requirement and maintain monitoring reports prepared by the Testing Agency (with the log book).
3. Filing a NOT (Notice of Termination) with the EPD when the site is fully stabilized and all stormwater discharge associated with the construction activity has ceased.

C. Erosion, Sediment And Pollution Control Superintendent:

1. Provide a designated representative to remain on site during land disturbance activities with the following qualifications:

   a. Minimum 5 years of experience in erosion, sediment and pollution control.
   b. Certification Level 1A (minimum) “blue card” from Georgia Soil & Water Conservation Commission.

2. Duties include:

   a. Oversight of land disturbance operations.

b. Ensure strict adherence to the land disturbance construction activities sequence, strict adherence to all "Best Management Practices" as defined in the "Manual for Erosion and Sediment Control in Georgia"
c. Monitor proper grading (terracing, berming, ect.) to properly divert water, and maximize storm water travel lengths and minimize path slopes.
d. Monitor and provide for temporary or permanent site stabilization as soon as possible and within the required time limits.

1.5 SITE CONDITIONS

A. Furnish and install erosion control measures prior to or concurrent with any land disturbance activity. Conform with the "Land Disturbance Activities Sequence" (if applicable).

B. The Contractor is solely responsible for ensuring that no silt or debris leaves the immediate construction site. Return any silted or eroded area to its natural state.

C. Install and maintain erosion and sediment control "Best Management Practices" prior to land disturbing activities, and continuously through construction until final site stabilization measures (paving, planting, etc.) are effective at controlling erosion from the site.

D. 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.

E. The Contractor is responsible for all quantities of soil erosion control measures regardless if shown on the drawings. The extent of soil erosion control measures shown on the drawings is considered minimum. Install additional erosion and sedimentation control measures when deemed necessary by the Contractor, or on-site inspections from the Owner, Design Professional, Testing Agency or by authorities having jurisdiction.

1.6 PROTECTION OF ADJACENT PROPERTY AND STATE WATER BUFFERS

A. Protection existing State Water Buffers and adjacent property from sediment trespass is of the essence. Flag and fence buffers, tree save areas and property lines prior to any construction activities. Flag stream (State Water) buffers as shown on the approved "Erosion, Sedimentation, and Pollution Control Plan". Unless otherwise shown, install 11"x17" weatherproof signs along State Water buffer(s) at 40 ft intervals, that read:

"STATE WATER BUFFER – DO NOT DISTURB"

B. Protect adjacent property including, but not limited to: landscape areas, stormwater facilities, sidewalks, curbing, roadways and all utilities therein.

PART 2 - PRODUCTS

2.1 TEMPORARY GRASSING MATERIALS

A. Use quick growing temporary grass species suitable to the area and season.

B. Refer to 32 05 00 “Common Works for Exterior Improvements” for soil additives and mulches, refer to 32 92 00 “Turf Grasses” for temporary seed mixes.

2.2 HYDRAULICALLY APPLIED MULCH

A. Wood cellulose fiber containing no germination inhibiting or growth inhibiting agents with characteristics (including acceptance tolerances) as follows:

1. Percent moisture content: 9.0% (+ 3, 0%).
2. Percent organic matter: 99.2% (+ 0.8%).
3. Percent ash content: 0.8% (+ 0.2%).
4. pH: 4.8 (+ 0.5).
5. Min. water holding capacity: 150 grams water / 100 grams fiber.

2.3 BONDED FIBER MATRIX MULCH

A. Bonded Fiber matrix (BFM) manufactured to be hydraulically applied, and upon drying, adheres to the soil in the form of a continuous, 100% coverage, biodegradable, erosion control blanket. Acceptable BFM producers include:

1. Soil Guard as manufactured by Mat, Inc., phone (888) 477-3028
2. Ecoaegis as manufactured by Canfor Panel & Fibre Market, LTD, phone (800) 363-8873
3. Conwed 3000 Profile Products, phone (800) 508-8681

B. The BFM shall be comprised of a long strand, thermally produced wood fibers passing a freeness test at a 760 cc (MLS) level or below (>88% of total volume by weight) held together by organic tackifiers (10%) and mineral bonding agents (>2%) which upon drying become insoluble and non-dispersible.

C. The matrix which forms shall be designed, tested and proven to perform in a manner equal or superior to biodegradable erosion control blankets (ECB’s). Documentation of testing at an independent university laboratory shall be provided which demonstrates superior performance as measured by reduced water runoff, reduced soil loss, and faster plant germination, as compared to ECB’s. The formed matrix shall meet the following requirements:

1. Pass a free liquid quality control test (liquids separate from fibrous solids no greater than one inch in one minute’s time as measured on a standard test board).
2. Does not dissolve or disperse upon rewetting.
3. Does not have holes > 1mm in size and no gaps between product and the soil.

2.4 SILT FENCE (TYPE C)

A. Geotextile: Silt fence fabric shall be woven geotextile for Type C fabric. Type A fabric may be either woven or non-woven. Fabric shall conform with the following properties:

Property *	**Type C Fabric**	**Type A Fabric**
Min. Tensile Strength (lbs) *(ASTM D-4632)*	Warp – 260 Fill – 180	Warp – 120 Fill – 100
Elongation (% Max.) *(ASTM D-4632)*	40	40
AOS (Apparent Opening Size) *(ASTM D-4751)*	No. 30	No. 30
Flow Rate (Gal./Min./Sq.Ft.) *(GDT-87)*	70	25
Ultraviolet Stability *(ASTM D-4632 after 300 hours weathering in accordance with ASTM D-4355)*	80	80
Bursting Strength (PSI Min.) *(ASTM D-3786)*	175	175
Minimum Fabric With (Inches)	36	36

* from GDOT Standard Specification 881.2.07

B. Wood posts:

1. Minimum dimension: 1 ½ inch by 1 ½ inch by 4 feet.
2. Untreated fir, redwood, cedar, or pine cut from sound timber with no loose or unsound knots.

C. Steel posts:

1. 48 inch minimum length.
2. Cross section shape that can resist failure from lateral loads (T-shaped, U-shaped, or L-shaped) and 0.75 pounds per foot minimum mass.

D. Silt fence reinforcement (if used):

1. Wire mesh consisting of 14 gauge steel with mesh spacing of 6 inch x 6 inches (maximum), or prefabricated polymeric mesh of equivalent strength.

2.5 RIPRAP

A. Unless otherwise specified, riprap is well graded GDOT Type 3 (Standard Specification 805). Stone shall be made of sound, durable naturally occurring rock with nor more than 5% by weight being weathered or decomposed material or shales. Type 3 riprap gradation is as follows:

Volume	**Approx. Weight**	**Percent Smaller Than**
1.0 cu-ft	165 lbs	100%
0.1 cu-ft	15 lbs	10-65%
2” square sieve	-	Maximum 15%

2.6 FILTER STONE & SURGE STONE

A. Unless otherwise shown Filter stone, surge stone is in accordance with Appendix C of the Manual for Erosion and Sediment Control in Georgia.

2.7 SLOPE STABILIZATION BLANKET

A. Class A Blanket:

1. Application: Unless otherwise shown on the Plans, apply on slopes steeper than 3H:1V, up to a maximum of 1H:1V.
2. Double net blanket.
3. Rated for extended survivability with at least a 12 month functional longevity.
4. Biodegradable natural fiber netting for blanket for slopes up to 2H:1V.
5. Slow degrading polypropelyne or other manufacturer tested /rated netting for slopes steeper than 2H:1V.
6. Core: Straw and Coir (Coconut) blend fiber or Excelsior (shredded aspen) fiber. Certified weed free straw. Alternative core products may be submitted for approval.
7. Approved Products and Manufacturers:

    a. "Curlex ® II Blanket" by American Excelsior Company.
    b. "SK Straw/Coir Blanket" by Bon Terra. Note- Netting option shall be consistent with the slope application.
    c. "Ero-Mat Excelsior" by Verdyol.

B. Class B Blanket:

1. Application: Unless otherwise shown on the Plans, apply on slopes of 3H:1V or flatter.
2. Single net blanket.
3. Net shall be either biodegradable (natural fiber) or photodegradable synthetic mesh.
4. Rated for short term survivability with up to a 12 month functional longevity.
5. Straw core material, if used, shall be certified weed free.
6. Approved Products and Manufacturers:

    a. "Curlex ® I Blanket" by American Excelsior Company.
    b. "S Straw Blanket" with jute/cotton threading by Bon Terra.
    c. "EroNET TM S75" by North America Green.

2.8 NON-WOVEN GEOTEXTILE FABRIC

A. Non-woven geotextile fabric shall be as indicated on Plans. If not otherwise indicated, fabric weight shall be a minimum of 6 oz. per square yard.

2.9 POLYACRYLAMIDE

A. All polyacrylamide shall be anionic and in emulsion form and gel bars/logs.

PART 3 - EXECUTION

3.1 GENERAL

A. Sedimentation Control: Sediment basins, diversion berms, silt dams, traps, barriers, downlines, check dams, rock filter dams, seep berms, mulching temporary grassing and appurtenances shall be installed and shall be maintained in-place for duration of construction, as shown and detailed on erosion control plan.

B. Silt fence:

1. Construct silt fences as shown in the Plans.
2. Where shown install multiple rows of silt fence.

C. Provide and construct erosion control check dams as shown.

D. Maintain erosion and sedimentation controls in a condition which will retain unfiltered water.

E. Construct sedimentation ponds and control devices prior to clearing and grubbing the site to insure complete silt control.

F. Provide temporary seeding for all exposed soil surfaces that are not to be fine graded or landscaped within 14 calendar days. Multiple temporary seeding applications should be expected.

G. Provide temporary or permanent grassing (season dependent) and\or mulching for all disturbed areas within 7 calendar days of reaching finished grades. Reduce areas of disturbance daily through use of temporary grassing and mulching.

3.2 GRADING OPERATIONS

A. Grading Operations: Phased grading operations so that the ground surface will be disturbed for the shortest possible time before permanent construction is installed. Maintained large areas as flat as possible to minimize soil transport through surface flow. Immediately install graded diversion channels, ditches and berms to direct storm runoff to sediment and filtering basins. Grade fill slopes in a manner which prevents surface areas from flowing over newly constructed fill slope areas through shaping and providing required temporary downlines or diversions to permanent storm structures as construction allows.

1. Protect newly graded areas from actions of the elements. Repair settlement or washing that occurs prior to acceptance of work and maintain established grades until the date of substantial completion.
2. Contractor is responsible for any damage occurring to adjacent property resulting from drainage or siltation from the site.
3. Construct all fills at outmost part of fill and slope towards original ground so that all surface storm water drains back away from fill and does not run over the top of fill slope. Construct swales at bottom of proposed fill slopes prior to construction of any fills.

Construct and maintain a swale /berm at the outermost part of top fills as fills are constructed.

B. Storm Drainage System: Install as much of the permanent storm drainage system as practical, provide the required temporary inlet sediment traps immediately and divert surface water into the system. Install temporary inlet sediment traps shall as base of structure is set and adjust up periodically as the grading operation raises the grades around the structure.

1. Maintain temporary sediment barriers at drainage structures until final stabilization occurs.
2. Install storm drainage as grading progresses and makes additional storm drainage installation possible. Direct swales to drainage structure locations as shown on drawings.

C. Ground Cover:

1. All exposed and unworked soil shall be protected by application of temporary groundcover.
2. Ground cover may consist of any effective erosion preventative treatment such as straw or other mulches, planting, etc.
3. All grassing or planting operations shall include mulching as stabilization until ground cover by planting is effective.

3.3 STABILIZATION PRACTICES

A. Control soil erosion during all phases of construction to preserve and protect slopes, drainage structures, pavement, and other facilities, and to reduce potential sources of water pollution and damage to adjacent property.

B. Mulching: Apply dry straw or hay and/or wood chip mulch to disturbed areas at a depth of two to three inches unless otherwise shown. Apply by hand or mechanical equipment. Press Straw or hay mulch shall be pressed into the soil with a disk harrow with disk set straight or with special “Packer Disk”. The edge of the disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Anchor immediately after application.

C. Polyacrylamide (PAM): Utilize anionic polyacrylamide as a temporary soil binding agent to reduce soil erosion. PAM is available in emulsions, powders and gel bars or logs. Use PAM in conjunction with other “best management practices”. Use PAM in direct soil surface applications where the timely establishment of vegetation is not feasible (including building pad and parking lot areas). Apply PAM in conjunction with temporary seeding efforts or as a separate hydro spray application. The maximum application of PAM, in pure form, shall not exceed 200 pounds/acre/year. Install a PAM gel bar or log in each storm structure (secured with rope) and replace at the manufactures recommended interval. Apply PAM via hydrospreader to all disturbed areas once per <7> <14> calendar days at the rate of 7.5 pounds per acre. Provide written record of each application.

D. Temporary Stabilization: Stabilize topsoil stockpiles and disturbed areas of the site, where construction activity has ceased for at least 14 calendar days with temporary cover or seeding.

E. Seed Bed Preparation for Temporary Vegetation: Loosen ground surface by discing, raking or harrowing. If the area has been recently loosened or disturbed, no further roughening shall be required. Remove all large clods, boulders and debris that will interfere with the work.

F. Unless otherwise shown, plant temporary grass areas at the rates specified in 32 92 00 Turf and Grasses.

G. Hydroseeding: Protect existing trees and shrubs during hydroseeding. Apply seed, fertilizer, lime, and fiber in one application. Maintain temporary vegetative cover until the permanent turf planting season, at which time the temporary grass or annual ryegrass shall be mowed down to the ground surface, the lawn area disc harrowed, the soil prepared for planting lawns and the permanent lawn planted or sodded as called for on the plans. Refer to 32 92 00 "Turf and Grasses" for permanent turf.

H. Reseeding – Reseed and provide straw cover for bare areas 1 square foot and larger to establish and maintain vegetative cover and to prevent sheet and rill erosion. Repair erosion damage as required and reseed.

I. Matting and Mulching – Cover all seeding with matting or mulch. After seeding, cover all slopes that exceed 3H:1V with erosion control matting and/or blankets. Install mats and/or blankets per manufacturer's recommendations using the recommended fastening hardware.

J. Depending on the season at which slopes that exceed 3H:1V are established, the Contractor shall anticipate multiple applications of erosion matting. If a permanent slope is established and planted with temporary grass due to planting season, contractor shall eradicate temporary grass and install permanent grassing as called shown. Once bare soil is exposed, an additional application of matting will be required. Remaining seeded areas shall be covered with straw or hay spread at the rate of approximately 2 tons/acre or wood cellulose fiber applied at the rate of approximately 1500 lbs/acre.

K. Stabilize areas of the site that are to be paved through proper compaction of the soil and placement of a graded, stone aggregate base.

L. Rolling – Roll all seeded areas with roller weighing 60 to 90 pounds per linear foot of roller before applying mulch. On steep slopes cover seeds by dragging spiked chains or similar methods.

M. Watering – Depending on weather conditions at the time of construction, Contractor shall anticipate watering measures other than natural rainfall. Provide all watering necessary to establish a healthy vegetative cover.

N. Permanent Stabilization – Stabilize disturbed areas of the site where finished grade has been with season dependent permanent seeding within <7> <14> calendar days of achieving grade. Refer to Plans and 32 92 00 "Turf and Grasses" for permanent seed mixes.

1. Hydroseed mixtures shall contain PAM.
2. After seeding provide erosion control mattering or blankets where shown and in accordance with manufacturers recommendations.

O. Complete all permanent erosion control features at the earliest practical time. Use temporary measures until permanent measures are completed.

3.4 STRUCTURAL PRACTICES

A. Submit any additional structural control measures in the form of shop drawings.

B. Temporary Construction Entrance – Construct a stabilized, stone aggregate construction entrance shall be constructed, as per the detail set forth in the Manual for Erosion and Sediment Control in Georgia, Latest Edition. The temporary construction entrance shall reduce vehicle tracking of sediments. Out-going trucks shall have the tires washed prior to exiting the site onto any public street or right-of-way. Any mud, dirt, or rock that is tracked onto public streets shall be swept immediately and material placed within the perimeter controls.

C. Maintain all access to the site to prevent mud from washing or being tracked onto existing pavements. Provide a temporary hose bib system or water truck with a pressure hose for wash down of trucks and equipment entering the public right-of-way as necessary.

D. Sediment Basins – Construct temporary sediment basins to contain and filter at least 67 cubic yards of sediment per disturbed acre and in accordance with the Manual for Erosion and Sediment Control in Georgia, 2016 Edition. Construct the unit complete as shown including:

1. Principal spillways with riprap outfall protection.
2. Anti-seep collars.
3. Risers and Trash racks.
4. Temporary mulching and grassing of external slopes.
5. Skimmers.
6. Emergency overflow areas.

E. Silt Barriers – Unless shown otherwise, install a single row of Type “C” Silt fence along the toe of all downstream slopes and a double row of Type “C” Silt Fence adjacent to all state waters buffers.

F. Temporary Diversion Berms/Dikes – Construct temporary diversion berms/dikes per the approved Erosion, Sedimentation, and Pollution Control Plan. Raise diversions, minimum 4 feet wide, at the end of each day during grading activities. The diversions shall intercept and redirect runoff to the temporary sediment basin(s) and/or temporary storm drainage structure sediment inlet traps prior to the runoff reaching perimeter sediment controls.

3.5 MAINTENANCE

A. Inspect slope protection and erosion control elements after each rainfall. Unless otherwise shown, inspect all barriers and sediment traps after each rain event. Clear all debris and accumulated sediment from behind barriers and sediment traps when one third full. Remove accumulated sediment from traps after each rain event and spread on site.

B. Provide appropriate stabilization (mulch, grass seed) where collected sediment is redistributed onsite.

C. Control dust from disturbed areas by means of mulching, watering, calcium chloride or other method subject to the Design Professionals approval.

3.6 REMOVAL OF TEMPORARY EROSION CONTROL DEVICES

A. As soon as permanent vegetative cover is established, remove temporary devices, including sediment barriers, berms, silt traps and similar devices.

B. Remove any retrofit structure and clean out all accumulated silt and debris in detention ponds to finish grades.

C. Remove all debris resulting from temporary erosion control from project site.

END OF SECTION 312500

SECTION 32 05 00 - COMMON WORKS FOR EXTERIOR IMPROVEMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Furnished Topsoil
2. Water
3. Soil Amendments
4. Mulch.
5. Compost
6. Graded Aggregate Base (GAB)
7. Coarse Sand
8. ASTM Aggregates
9. Drain Rock
10. Geotextiles

1.2 REFERENCE SPECIFICATIONS AND DOCUMENTS

A. Georgia Department of Transportation (GDOT)

1. Department of Transportation, State of Georgia Standard Specifications, Construction of Roads and Bridges, 2013 Edition. Unless otherwise noted, conform with GDOT Standard Specifications for materials.

B. American Society for Testing Materials (ASTM)

1. ASTM D1557- laboratory compaction characteristics of soil using Modified Effort.

1.3 SUBMITTALS

A. Product data for material proposed for the work.

B. Copies of all soil testing results for lawn and landscape planting areas, including but not limited to the following data:

1. Include the recommended ratio and amounts (lbs per 1000 sq-ft) of fertilizing.
2. Amendments of lime, organic matter.

1.4 SITE CONDITIONS

A. Store materials only in areas designated for Contractor's use.

PART 2 - PRODUCTS

2.1 FURNISHED (IMPORT) TOPSOIL

A. Furnished Topsoil is adapted to the sustenance of plant life and harvested from fields or development sites. Manufactured topsoil where components such as sand, organic matter, and chemicals are added to mineral soil are not acceptable. Furnished topsoil shall reasonably achieve the following characteristics:

1. Texture – USDA loam, sandy clay loam, or sandy loam with clay between 15 and 25% and combined clay and silt content no more than 55%.
2. Organic Material – 2.0 to 20% by mass
3. pH - between 5 and 7.
4. Uniform quality and free from foreign material such as hard clods, sod, stiff clay, hard pan, stones larger than 1 inch diameter, lime cement, ashes, slag, concrete, tar residues, tarred paper, boards, chips, sticks, or other undesirable materials. It shall also be reasonably free from weeds and objectionable plant material.

B. All sources of Furnished (Import) Topsoil shall be approved by the Design Professional prior to delivery to site. Test proposed topsoil and submit test results for approval, along with a minimum 1 gallon labeled soil sample.

C. Stockpiled existing topsoil at the site meeting the above criteria may be acceptable.

D. Furnished Topsoil shall be screened.

2.2 WATER

A. Furnish and pay for water used in this work. Furnish watering trucks, hoses and other temporary watering equipment (sprinklers, stands. etc.) required for work.

B. When used for plant irrigation, water shall be suitable and free from ingredients harmful to plant life.

2.3 SOIL APPURTENANCES (AMMENDMENTS)

A. Mulches and Composts: See separate Articles this specification.

B. Ground Limestone: Lime shall be ground limestone (Dolomite) containing not less than 85 percent of total carbonates and ground to such a fineness that 50 percent will pass through a 200-mesh sieve and 90 percent will pass through a 20-mesh sieve. Coarser material will be acceptable, provided the specified rates of application are increased proportionately on the basis of quantities passing through the 100-mesh sieve.

C. Sand: Clean, washed sand, free of toxic materials.

D. Sawdust: Rotted sawdust, free of chips, stones, sticks, soil or toxic substances and with 7.5 lbs nitrogen fertilizer uniformly mixed into each cubic yard of sawdust.

E. Peat Moss: granulated sphagnum free of woody substances, brown in color, free of stones and mineral matter, air dry condition.

F. Peat Humus: When shown, provide a domestic product of peat humus consisting of partially decomposed vegetable matter of natural occurrence. It shall be brown, clean, low in content of mineral and woody material, mildly acid, and granulated or shredded.

G. Commercial Fertilizer: Fertilizer formula complying with State and Federal fertilizer laws. Deliver fertilizer to the site in original, unopened containers bearing the manufacturer's certificate of compliance covering analysis and primary nutrient (N, P, K) concentrations. **To protect public health and waterways, do not over apply any fertilizer.** Unless otherwise shown on the plans or specified in other Sections, fertilizer application is as follows:

1. Lawns: Provide nutrients in ratios and quantities (lbs per 1000 sq-ft, or lbs per acre) as recommended from soil testing. Provide nitrogen in a form that will be available to lawn during initial growth period (approximately 50% fast release) as well as in slow release organic forms (approximately 50%).
2. Trees and shrubs (planting beds): Provide in the ratios and quantities (lbs per 1000 sq-ft, or lbs per cubic yard of soil) in accordance with results of soil tests.

H. Ammonium Nitrate: Use where specified or where a fast release nitrogen fertilizer is required. Commercial product in dry granular form of recent manufacture (within last 6 months) and delivered in the original, unopened containers each bearing the manufacturer's guaranteed statement of analysis, containing not less than 33.0% percent Nitrogen.

I. Pre-emergent Weed Control: shall be Scotts Pro Grow Ornamental Herbicide 2 (granular) and Pro Turf Southern Weed Grass Control #83204 (or approved equal) as manufactured by Scotts Pro Grow, Marysville, Ohio 43041.

2.4 MULCHES FOR GRASSING AND EROSION

A. Provide mulches of the types and depths shown, that are clean and free from debris, and reasonably free of weeds. Mulches may include, but are not limited to:

1. Bermuda grass hay.
2. Threshed wheat rye or oat straw.

2.5 COMPOST

A. Use compost that meets the following:

1. Composed of decomposed organic material.
2. Organic material is disinfected through composting (minimum 9 months) or similar technologies.

3. Stabilized so it is beneficial to plant growth.
4. Mature, dark brown or black in color and have an earthy odor.
5. Contain no human pathogens.
6. pH range of 5 to 8.
7. Contains not more than 25% by volume wood shavings, sawdust or refuse.

B. Submit all ingredient in the compost mix, and their relative proportions.

2.6 NUTRIENT GRADE COMPOST

A. Provide nutrient grade compost manufactured from a composter enrolled in the Untied State Compost Council Seal of Testing Assurance (STA) Program. When shown, provide ERTH Food™ as distributed by: Exceptional Products, Inc, 402 Line Creek Dr., Peachtree City, GA 30269, (or approved Equal) that meets the following parameters as tested by an STA approved lab:

Plant Nutrient	% dry weight basis	TMECC Method
Nitrogen	>1.2	4.02D
Phosphorus	>.50	Calc.
Potassium	>.50	Calc.
Calcium	>.90	4.05
Magnesium	>.20	4.05
Organic Matter Content	>50%	5.07-A
Soluble Salts dS/m (mmhos/cm)	<4.0	4.08-A
Particle Size % under 9.5 mm	95% or greater	2.02-B
Stability Indicator (respirometry) C02 Evolution mg C02-C/g OM/day	<2	5.08-F777
Maturity Indicator (bioassay) Percent Emergence	85% or greater	5.05A
Select Pathogens (pass/fail per US EPA Class A standard, 40 CFR 8503.32 (a)) Method 9221E	Pass	Standard

2.7 GRADED AGGREGATE BASE (GAB)

A. GAB material shall be composed of well graded crushed stone consisting of hard, durable rock fragments free from clay and reasonably free from flat, elongated or soft pieces of organic matter.

B. GAB shall achieve the following gradation:

Sieve Size	Percent Passing by Weight
2 in	100
1-1/2 in	97-100
3/4 in	60-95
No. 10	25-50
No. 60	10-35
No. 200	7-15

2.8 COARSE SAND

A. Clean, washed, sand free of toxic materials free of limestone, shale and slate particles, complying with ASTM C-33 fine aggregate for concrete.

B. Coarse sand shall achieve the following gradation:

Sieve Size	Percent Passing by Weight
3/8 in	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	10-30
No. 100	2-10
No. 200	2-5

2.9 COARSE AGGREGATES

A. Refer to TABLE 800.1 GDOT Standard Specifications for No's 3, 4, 5, 6, and 57 stone, respectively.

2.10 CONTROLLED LOW STRENGTH FLOWABLE FILL

A. Flowable fill where required shall meet the requirements of GDOT Std. Spec Section 600.3.03 for Excavateable mix design. The mix design shall produce a consistency that will result in a flowable self-leveling product at time of placement.

Property or Content	Quantity
Cement Type 1	75-100 lbs / yd^3
Air	15-35%
28-Day Compressive Strength	Maximum 100 psi
Unit Weight	90-100 lbs / ft^3

2.11 GEOSYTHETICS

A. Separation fabric:

Woven polypropylene fabric, high modulus type with good separation capabilities conforming to the following:

Property	Test Method	Requirement
Grab Tensile Strength	ASTM D 4632	200 lbs min.
Grab Tensile Elongation	ASTM D 4632	30% max.
Mullen Burst Strength	ASTM D 3786	400 psi min.
Trapezoid Tear Strength	ASTM D 4533	75 lbs min.
Puncture Strength	ASTM D 3787	75 lbs min.
CBR Puncture	ASTM D 6241	
Apparent Opening Size (AOS)	ASTM D 4751-99a	20 to 50 US Sieve

PART 3 - EXECUTION

3.1 AGGREGATE BASES

A. Placement

1. Maximum single layer compacted course is 8 inches.
2. If total thickness of base exceeds 8 inches, construct in 2 or more courses of equal thickness.

B. Compaction

1. Ensure moisture content is uniformly distributed and sufficient to achieve optimum moisture.
2. Uniformly roll the base to line, grade, and section and to the required percentage of maximum dry density.
3. For multiple courses, add water as necessary to achieve optimum moisture content.
4. In areas inaccessible to roller, obtain the required compaction with mechanical tampers approved by the Testing Agency or Design Professional.

C. Maintenance

1. Maintain the base until it is sufficiently ready for paving courses. Repair defects by additional watering, rolling, and blading as necessary.

END OF SECTION 320500

SECTION 32 13 01 - RIGID PAVING AND SITE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete curb and gutter.
2. Concrete walkway, flumes, and other miscellaneous cast in place elements.
3. ADA ramps.
4. Concrete paving of driveways, roadways, dumpster pads, loading dock pads, and parking lots.

B. Related Sections:

1. 31 22 00 “GRADING” for backfill and compaction of trench excavations prior to paving and for general subgrade preparation.
2. 32 05 00 “COMMON WORKS FOR EXTERIOR IMPROVEMENTS” for graded aggregate base (GAB) if shown on the Plans.

1.2 REFERENCE SPECIFICATIONS AND DOCUMENTS

A. Georgia Department of Transportation (GDOT)

1. Department of Transportation, State of Georgia Standard Specifications, Construction of Roads and Bridges, 2013 Edition. Unless otherwise noted, conform with GDOT Standard Specifications for testing, materials, and methods for bases and concrete pavements.
2. GDOT Test Procedures (GDT), where referenced.

B. American Concrete Institute (ACI)

1. ACI 301: Specifications for Structural Concrete.
2. ACI 308.1: Standard Specification for Curing concrete
3. ACI CP-1: Technical Workbook for ACI Certification of Concrete Field Testing Technician- Grade 1.

C. American Society for Testing Materials (ASTM)

1. ASTM A615: Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Placement
2. ASTM A1064: Standard Specifications for Carbon Steel Wire and Welded Wire Reinforcement.
3. ASTM C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field.

4. ASTM C39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
5. ASTM C42: Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
6. ASTM C260: Standard Specification for Air-Entraining Admixtures for Concrete.
7. ASTM C309: Standard Specification for Liquid Membrane Forming Compounds for Curing Concrete.
8. ASTM D698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort
9. ASTM D994: Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
10. ASTM D1751: Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)
11. ASTM D2628: Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements.
12. ASTM D3406: Standard Specification for Joint Sealant, Hot Applied, Elastomeric Type; for Portland Cement Concrete Pavements.
13. ASTM D5893: Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements.

1.3 SUBMITTALS

A. Product data for materials, including but not limited to: cementitious material, admixtures (air entraining, etc.), joint filler and sealants, reinforcing material, grout, anchors, curing compounds.

B. Concrete mix designs or job mix formulas for each proposed concrete mixture, including the following as applicable:

1. Curbs & sidewalks, minor cast in place structures.
2. Concrete paving areas.

C. Shop drawings for ADA detectible warning strips.

1.4 QUALITY ASSURANCE

A. Testing Services: The Owner will engage a qualified independent testing agency to perform material evaluation tests described in this Section.

1. Testing Agency Qualifications: Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

B. Ready-Mix- Concrete Manufacturer Qualifications: Manufacturer must be certified according to the National Ready Mix Concrete Association (NRMCA) Plant Certification Program.

C. Test sections. Build 10’ sample test sections of walkways, curbs, and paving areas (10’x10’) to demonstrate aesthetic affects and quality standards for materials and execution. Construct mock ups at approved locations only. Incorporate representative control and joints according to project requirements.

1. Notify Testing Agency and Design Professional at least 7 days in advance of mock up construction.
2. Obtain Owner or Design Professional approval of mockup prior to commencement of the work.
3. Mockup may be incorporated into the work with approval.
4. Demolish and remove each mockup from the Site when directed.

D. Comply with ACI 301 – Standard Specifications for Structural Concrete, unless otherwise modified by Contract Documents.

1.5 SITE CONDITIONS

A. Store materials only in areas designated for Contractor's use.

B. Complete all underground work and raise all necessary structures prior to paving operations.

C. Verify all grades and elevations for conformance with the Drawings before proceeding with work. The Design Professional reserves the right to make minor modifications by reasonable field adjustments prior to completion of subgrade work.

1.6 WEATHER LIMITATIONS

A. Cold weather protection - Whenever the air temperature may be expected to reach the freezing point, spread straw or other blanketing material to sufficient depth to keep concrete from freezing, or provide enclosure and a heating device capable of maintaining concrete temperature of at least forty-five (45) degrees five (5) days and maintain above freezing for the entire specified curing period. The Contractor shall be responsible for removing and replacing any concrete injured by freezing or frost.

B. Placing During Hot Weather: The temperature of the concrete as placed shall not exceed 85° F, mixing water or aggregates may be cooled as necessary to maintain a satisfactory placement temperature. Do not place concrete when air temperatures exceed 95° F.

1.7 PAVEMENT DESIGN

A. Pavement sections are shown on the Plans and may include, but are not limited to, the following applications:

1. Concrete Paving within the Right-of-Way.
2. Heavy Duty Concrete Paving.
3. Medium Duty Concrete Paving.

B. All depths shown or specified are measured after compaction or construction.

PART 2 - PRODUCTS

2.1 GENERAL

A. Cementitious materials. Type I or Type II Portland cement. Portland cement may be partially replaced with either fly ash or slag cement at the following maximum proportions:

1. Fly ash, 15%
2. Slag cement, 50%

B. Fine and coarse aggregates for concrete mixes. The ratio of fine to total aggregate shall be such as will produce a dense, homogeneous and workable mixture, which can be placed without segregation of materials and which will attain the design compressive strength. Aggregates shall comply with ASTM C33.

2.2 CONCRETE MIXTURES

A. Concrete for rigid paving (heavy duty and normal). Proportion such that the following are met:

1. Minimum compressive strength at 28 days (f'c) = 4000 p.s.i (heavy duty); 3000 p.s.i. (normal)
2. Air content acceptance 3.5 to 6.0%, design air content 4.0 to 5.5%.
3. Maximum slump = 4 inches.

B. Unless otherwise shown, proportion concrete for curb, paving, walks, planters, seat walls, flumes and all other miscellaneous site work concrete to meet:

1. Minimum compressive strength at 28 days (f'c) = 3000 p.s.i.
2. Air content acceptance = 2.0 to 6.0%, design air content 2.5 to 6.0%.
3. Maximum slump = 4 inches.

2.3 FILLER AND SEALER

A. Expansion joint material: 1/2 inch performed strips of cellular fiber impregnated with suitable bituminous binder. Filler shall conform to section area and extend through section to within 1/2 inch of top surface and conforms to ASTM D1751 or D1752, unless otherwise indicated.

B. Contraction Joint Sealer Material: Only apply joint sealant when otherwise shown in the Plans. Cold applied is the default.

1. Cold applied silicone rubber type; ASTM D5893
2. Hot-poured elastomeric type; ASTM D3406
3. Single-Component Elastomeric Type (preformed); ASTM D2628

2.4 STEEL BAR, WELDED WIRE FABRIC

A. Provide steel bars and welded wire fabric of intermediate grade steel in specified sizes as shown on plans.

B. Plain-steel welded wire fabric: ASTM 1064, fabricated from steel wire formed into flat sheets.

C. Reinforcement bars: ASTM A615, Grade 60, deformed unless otherwise indicated. Cut bars true to length with ends square and free of burs.

D. Dowel bars: ASTM A615, Grade 60, plain steel bars unless otherwise indicated. Dowel bars shall be cut true to length with ends square and free of burs.

2.5 FORMS

A. Steel, wood, or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.

1. Use flexible spring steel forms or laminated boards to form radius bends as required.
2. Coat forms with a non-staining form release agent that will not discolor or deface the surface of the concrete

2.6 EPOXY RESIN GROUT

A. Epoxy adhesive used for anchors and dowel bars in accordance with Type VIII per GDOT Standard Specification 886 unless otherwise noted.

2.7 DOVETAIL ANCHOR SLOTS

A. Galvanized steel, 22 gage (0.8 mm) thick, foam filled, release tape sealed slots, anchors for securing to concrete forms.

2.8 DETECTABLE WARNING

A. Provide tactile warning surface (truncated dome) via pavers or monolithic concrete pour systems at ADA ramps.

1. Provide shop drawings for proposed system.
2. Dome Size: Diameter of 0.9 inch (23 mm), height of 0.2 inch (5 mm) and a center-to-center spacing of 2.35 inches (60 mm).
3. Visual Contrast: Contrast visually with adjoining walking surfaces either light-on-dark or dark-on-light. The material used to provide contrast shall be an integral part of the truncated dome surface.
4. Audible Contrast: Differ from adjoining walking surfaces in resiliency or sound-on-cane contact.

PART 3 - EXECUTION

3.1 PREPARATION OF SUBGRADES

A. Prepare subgrades as specified in Section 31 22 00 “Grading” to bring subgrade to required lines and grade for site improvements.

B. Maintain all subgrade in satisfactory condition, protected against traffic where necessary, and properly drained until site improvements are placed. Immediately in advance of concrete, check subgrade levels with templates riding the forms, correct irregularities, and re-compact any added fill material.

3.2 STRUCTURE LOCATIONS

A. Check for correct elevation and position of all manhole covers, valve boxes, and similar structures located within areas to be poured and make any necessary adjustments in such structures.

3.3 AGGREGATE BASES

A. If shown on the Plans- place, compact, and maintain aggregate bases in accordance with Divison 32 “COMMON WORKS FOR EXTERIOR IMPROVEMENTS”.

3.4 FORM CONSTRUCTION

A. Set forms to required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of the work and so forms can remain in place at least 24 hours after concrete placement.

B. Check completed formwork for grade and alignment to the following tolerances:

1. Top of Forms not more than 1/8" in 10' from indicated elevation.
2. Vertical face on longitudinal axis, not more than 1/4" in 10' from indicated alignment.

C. Clean forms after each use, and coat with form release agent after each use and as often as required to ensure separation from concrete without damage.

3.5 MIXING AND TRANSPORTING CONCRETE

A. Ready-Mixed Concrete - Certificates and laboratory strength test data shall be furnished from the mixing plant that concrete has a twenty-eight (28) day compressive strength when tested in accordance with methods described in ASTM Standard C39. No change shall be made in materials or the established mix without prior approval of the Design Professional.

B. Ready-mixed concrete shall be transported to the site in transit-mix or agitator trucks having watertight drums loaded not in excess of rated capacities. Concrete shall be delivered and discharged within one (1) hour after water is added to the cement. Concrete which, when delivered is not plastic and workable will be rejected.

C. Retempering of concrete that has partially hardened (remixing with or without additional cement, aggregate or water) will not be permitted.

3.6 PLACING CONCRETE

A. Subgrade- Place concrete only on a moist compacted subgrade or base, free from loose material. Place no concrete on a muddy or frozen subgrade.

B. Forms - All forms shall be free from warp, tight enough to prevent leakage of concrete, and substantial enough to maintain their shape and position without springing or settlement when concrete is placed or vibrated. Forms shall be staked, braced, and/or tied together securely. Forms shall be clean and those for surfaces to be exposed shall produce a smooth, even finish without fins or board marks. Set forms for slabs on ground at exact finished grade. Check for line and grade and correct as necessary immediately before concreting. Provide uniform bearing for such forms.

C. Reinforcement shall be accurately placed, and securely supported and fastened to prevent movement during placement of concrete.

D. Concrete shall be deposited to require as little rehandling as practical. Placing shall be continuous between transverse joints or in individual sections of the work. Vibrate concrete thoroughly along forms and expansion joints, and work carefully into corners and around reinforcement. Tamp and screed to a dense mass. If the temperature may be expected to fall below forty (40) degrees F within twenty-four (24) hours after concrete is placed, heat water and aggregates to bring the temperature of concrete mix to at least fifty (50) degrees.

E. Do not remove forms for at least 24 hours after concrete has been placed. After forms are removed, clean ends of joints and point-up any minor honeycombed areas. Remove and replace sections with major defects, as directed by Design Professional.

3.7 JOINTS

A. General: Construct expansion, control (also may be called weakened-plane or contraction, and construction joints true-to-line with face perpendicular to surface of the concrete, unless otherwise indicated. Construct transverse joints at right angles to the centerline, unless otherwise indicated.

B. When joining existing structures, place transverse joints to align with previously placed joints, unless otherwise indicated.

C. Control Joints: Provide control (contraction) joints, sectioning concrete into areas not to exceed 25 feet in length. Construct control joints for a depth equal to at least 1/4 of concrete thickness, as follows:

1. Tooled Joints: Form control joints in fresh concrete by grooving top portion of concrete. Finish edges with a jointer. Joints in walks shall be 1/4" x 1" deep and at a spacing equal to walk width.
2. Sawed Joints: Form control joints using powered saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut joints into hardened concrete as soon as surface will not be torn, abraded, or otherwise damaged by cutting action.

D. Construction Joints: Place construction joints at the end of all pours and at locations where placement operations are stopped for a period of more than 1/2-hour, except where such pours terminate at expansion joints. Construct joints as shown or, if not shown, use standard metal keyway-section forms.

E. Expansion Joints: Provide premolded joint filler for expansion joints abutting concrete curbs, catch basins, manholes, inlets, structures, walks, and other fixed objects, unless otherwise indicated.

3.8 CONCRETE CURB AND GUTTER

A. Furnish and install formed concrete curb and gutter as detailed. Curb and gutter shall be accurately formed to a true, clean, straight, even profile. Unless otherwise shown:

1. Provide expansion joints 40 feet on center. Control (tooled) joints shall be provided at 10 feet on center.
2. Finish of concrete shall be a fine broom finish.

B. All curves shall be accurately formed to detail.

3.9 CONCRETE WALKS AND FLUMES

A. Concrete walks shall be four (4) inches thick and of width as shown on the Site Plan. Unless otherwise shown:

1. Provide expansion joints through walks at a maximum of 40 feet on-center and control (tooled) joints at the same intervals as the width of the walk.
2. Slope walks toward curb.
3. Finish shall be a fine broom finish.
4. Finished surfaces shall be smooth and not vary more than 5/16 inch from the testing edge of a 10-foot straightedge. Permissible deficiencies in section thickness is up to ¼”.

3.10 SAND BLAST FINISH

A. Provide abrasive blast (sand blast) finish where indicated on the Drawings.

B. Perform sand blasting 24 to 72 hours after casting when concrete strength is between 1000 and 1500 psi.

C. Surface Continuity: Perform sand blasting in a continuous manner, utilizing same crew or personnel.

D. Depth of Cut: Use an abrasive grit of proper tyhpe and gradation to expose aggregate and surrounding matrix surfaces to match the design reference sample or mock up as follows:

1. Brush: Remove cement matrix to eliminate surface sheen and expose face of fine aggregate. No reveal.
2. Light: Expose fine aggregate with occasional exposure of coarse aggregate and uniform color. Maximum reveal 1/16 inch.
3. Medium: Generally expose coarse aggregate with slight reveal. Max reveal ¼".
4. Heavy: Expose and reveal coarse aggregate to a maximum projection of one-third of its diameter, reveal ¼ to ½ inch.

E. Sand blasting: Blast corners and edges carefully, using back-up boards, to maintain uniform corner or edge line. Determine type of nozzle, nozzle pressure, and blasting techniques required to match the mockup.

F. Cleaning: After sand blasting is complete, clean surface with commercial concrete cleaner according to manufacturer instructions and recommendations. Thoroughly neutralize and flush cleaning solution from finished surface with water under pressure.

G. Protect adjacent surfaces and materials from washing and run-off.

3.11 HANDICAP RAMP

A. Locate and construct concrete handicap ramps per Plan and details. Provide tactile warning surface (truncates dome) via pavers or monolithic concrete pour systems provide shop drawings for said system. Apply a fine broom finish. Do not exceed eight (8) percent slope at any point.

3.12 HEAVY DUTY CONCRETE PAVING

A. Place steel reinforcing where indicated prior to placing concrete.

B. Pour heavy duty concrete mix in forms so that when consolidated struck off, compacted and finished, paving will be to the thickness shown on the Plans. If not shown on the Plans, paving thickness shall be eight (8) inches.

C. Locate expansion joints at 40' o.c. and control joints at minimum of 10' o.c. for each pavement lane.

D. Test surface for trueness with a 10' straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.

E. Compact in such a manner that aggregate is forced down and not less than three eights (3/8) inch of mortar is left on top. Apply heavy broom finish.

3.13 CURING CONCRETE

A. Protect unhardened concrete from rain and flowing water and protect concrete against loss of moisture and rapid temperature change for at least a 7 day curing period.

B. Impervious membrane - Where applicable, concrete will be cured through the application of a transparent, impervious membrane of a type approved by the Design Professional. The liquid shall contain a fugitive dye and shall be of such composition as not to react with the concrete nor alter its color. Apply the liquid immediately after free water has disappeared from the finished surface of the concrete; apply in the form of a fine mist and in such manner as to cover the surface with a uniform film, ample to seal the surface thoroughly and without marring the concrete finish in accordance with manufacturer recommendations. Keep workmen, equipment and materials off the membrane during the curing period, except as required for joint sawing operations and surface tests.

3.14 TOLERANCES

A. Elevation tolerance for finish grade surfaces are:

1. General areas +- 0.04 ft unless field adjustments are directed or approved by the Design Professional.

B. Cross slope, thickness, and smoothness tolerances are as follows:

Layer	**Cross Slope[2]**	**Thickness**	**Smoothness [1]**
Base (Aggregate or treated)	+- 1.0%	+- 1/4 in	1/2 inch
Finished Concrete Surface (Pedestrian Areas)	+- 0.5%	+- 1/4 in	5/16 inch
Curb Sections	+- 0.5%	+- 1/4 in	1/4 inch
Rigid Pavement Sections	+- 0.3%	+- 1/4 in	1/4 inch

[1] In any direction within a single plane of asphalt, do not exceed the gap below a 10 foot straightedge resting on high spots.
[2] Cross slope tolerance does not alleviate the requirement to provide positive drainage.

3.15 TESTING- QUALITY ACCEPTANCE

A. Inspections: Prior to commencement of portions of the work, the Testing Agency shall be notified 3 days in advance to verify the following items:

1. Subgrade preparation, stiffness (proofrolling).
2. Subgrade profile, cross slope, and elevation.
3. Grades, elevations, compaction, surface smoothness of base aggregate if used.

B. Additional testing (or retesting) after failing tests shall be paid for by the Contractor.

C. Replace concrete in all areas (between joints) that fail to meet cross slope, thickness, and smoothness tolerances. Also, replace concrete in all areas that does not meet material testing acceptance criteria shown below.

D. Appearance: Exposed surfaces of finished work shall not exhibit excessive cracking, discoloration, form marks, or tool marks which are inconsistent from the overall appearance. Such deficient surfaces shall be removed and replaced between joints.

E. Minimal testing requirements Owners Quality Assurance are summarized below. Contractor may elect to collect additional samples and perform additional tests, or prepare additional specimens for testing at its sole discretion in accordance with their own quality control program.

Material or Product	**Characteristic /Test Method**	**Minimum Sample Frequency**	**Acceptance Criteria**	**Sampling Point**
Concrete Mixture	Compressive Strength *ASTM C31, ASTM C39*	Min. 1 composite sample per day (2 sets of 2 standard 6”x12” cylinder), per 250 CY placed, per each class. *ASTM C172*	Average of three consecutive tests exceed specified strength, and no test is deficient by more than 500 psi.	Molded onsite, lab test.
	Air Content *ASTM C173, or C231*	(min) 2 tests per day, per class placed.	+- 0.5% of the design air content	On site
	Slump *ASTM C143*	(min) 2 tests per day, per 250 CY placed, per each class.	Refer to mix composition.	On site
Aggregate base courses	Gradation; max dry density, optimum moisture by modified proctor,	1 per source	Gradation within limits.	Stockpile at source

	ASTM D1557			
	Compaction *GDT 21, 59, ASTM D6938*	1 per 2000 sq yards of finished concrete surface, per lift	100% of max dry density, ±2% optimum moisture *	In-place, prior to next lift

F. Deficient work that test reports and inspections indicated does not comply with this specification, shall be fully replaced. Corrective action not involving full replacement may be approved by the Architect in writing, provided such corrective action equals or betters the original specification

3.16 MAINTENANCE OF CONCRETE SITE IMPROVEMENTS

A. Concrete site improvements damaged during construction shall not be spot patched. If a portion of a panel is damaged between control or expansion joints, the entire panel shall be replaced.

END OF SECTION 321301

SECTION 32 31 13 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Vinyl coated chain link fences, gates and accessories.

1.2 REFERENCE SPECIFICATIONS AND DOCUMENTS

A. American Society for Testing Materials (ASTM)

1. ASTM C1107 – Cement grout.
2. ASTM F567 – Installation of chain link fence.
3. ASTM F626 – Fence fittings.
4. ASTM F900 – Commercial swing gates.
5. ASTM F934 – Standard colors for polymer-coated chain link fence.
6. ASTM F1043 – Protective coatings on steel fence framework.
7. ASTM F1083 – Galvanizing for fence structures
8. ASTM F1664 – PVC coated steel wire.

1.3 SUBMITTALS

A. Manufacturer's literature and data: Cut sheets or specifications indicating material compliance and specified options for chain link fencing, gates and all accessories.

B. Shop drawings: Site plan showing layout of fence location with dimensions, location of gates and opening size, cleared area, elevation of fence and gates, details of attachments and footings.

1.4 QUALITY ASSURANCE

A. Manufacturer: Company having manufacturing facility/facilities specializing in manufacturing chain link fence products with at least 5 years experience.

B. (Sub) Contractor: Demonstrated successful experience installing similar projects and products in accordance with ASTM F567 and have at least 5 years' experience.

1.5 SITE CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures.

PART 2 - PRODUCTS

2.1 CHAIN LINK FABRIC

A. Fabric height: Fabric height shall be as noted on the Drawings.

B. Fabric shall be PVC coated galvanized steel wire fabric provided in one-piece heights complying to ASTM F 668, Class 2a.

C. Mesh size:

1. Fencing mesh size (except tennis): 2 inches.
2. Tennis court fencing mesh size: 1-3/4 inches.

D. Core wire diameter: 0.148 inches (9 gauge).

E. PVC coating: 6 gauge finished diameter with a minimum thickness of 0.015 inches applied in accordance with ASTM F 1043.

F. PVC coating color: Black, per ASTM F 934.

G. Selvages: Knuckled top selvage and knuckled bottom selvage.

2.2 FENCE FRAMING

A. Posts and rails: Comply with ASTM F 1043 for framing, ASTM F 1083 for Group IC round pipe, and the following:

1. Group: IA, round steel pipe, Schedule 40.
2. Fence height shall be as noted on the Drawings.
3. Strength requirement: Light industrial according to ASTM F 1043.
4. Post diameter, thickness and weight:

a. Fence heights 4 to 6 feet

- Line post: 2.375 inches (2-3/8” nominal o.d.), 0.154 inches, 3.65 lb/ft.
- End, corner and pull post: 2.875 inches (2-7/8” nominal o.d.), 0.203 inches, 5.79 lb/ft.

b. Fence height 8 to 10 feet:

- Line post: 2.875 inches (2-7/8” nominal o.d.), 0.203 inches, 5.79 lb/ft.
- End, corner and pull post: 4.000 inches (4” nominal o.d.), 0.237 inches, 10.80 lb/ft.

c. Swing gate post: According to ASTM F 900

5. Top rails, rails and braces diameter and thickness:

a. Top Rails: 1.66 inches (1-5/8" nominal o.d.), 0.140 inches, 2.27 lb/ft.
b. Rails and braces: 1.66 inches (1-5/8" nominal o.d.), 0.140 inches, 2.27 lbs/ft.

6. Coating for steel framing: PVC coated finish in accordance with ASTM F 1043 applied with a minimum thickness of 10-mils in black color to match the fabric.

2.3 TENSION WIRE

A. PVC coated 0.177 inch diameter (7 gauge) metallic coated steel core wire complying with ASTM F 1664 Class 2a.

2.4 SWING GATES

A. General: Comply with ASTM F 900 for swing gate types.

1. Metal pipe and tubing: Galvanized steel gate framing complying with ASTM F 1043 and ASTM F 1083.
2. Coating for steel framing: PVC coated finish in accordance with ASTM F 1043 applied with a minimum thickness of 10-mils in black color to match the fabric.

B. Frames and bracing: Fabricate members from round, tubing with outside dimension and weight according to ASTM F 900 and the following:

1. Gate Fabric Height: 2 inches less than adjacent fence height.
2. Leaf Width: As indicated.
3. Frame Members Diameter: 1.90 inches.

C. Frame corner construction: Welded or assembled with corner fittings.

D. Hardware: Latches permitting operation from both sides of gate, hinges, and keepers for each gate leaf more than 5 feet wide. Fabricate latches with integral eye openings for padlocking; padlock accessible from both sides of gate.

2.5 FITTINGS

A. General:

1. Comply with ASTM F 626.
2. Coating for fittings: PVC coated finish applied with a minimum thickness of 10-mils in black color to match the fabric.

B. Tension and brace bands: PVC coated 12 gauge galvanized pressed steel a minimum width of ¾ inch.

C. Top rail sleeves: PVC coated pressed-steel or round-steel tubing not less than 6 inches long.

D. Tie wires and hog rings: PVC coated nine 9 gauge galvanized steel or aluminum core wire for attachment of fabric to framing and tension wire.

E. Truss rods and tightener:

1. PVC coated steel rods with minimum diameter of 3/8 inch.
2. PVC coated pressed steel tightener.

F. Terminal post caps, line post loop tops, rail and brace ends, and boulevard clamps: PVC coated galvanized pressed steel.

2.6 GROUT AND ANCHORING CEMENT

A. Grout for post footings in concrete, masonry, or bedrock: Non-shrink grout complying with ASTM C 1107.

B. Concrete for post footings in soil: 28 day compressive strength of 3,000 psi (minimum).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions for conditions for compliance with requirements for site clearing, grading, paving, and other conditions affecting performance of the work.

B. Do not begin installation before final grading and clearing is completed.

3.2 PREPARATION

A. Mark locations of fence lines, gates, and terminal posts.

B. Clear, grub, grade, and remove debris for the fence line.

3.3 INSTALLATION

A. General:

1. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements specified.
2. Install fencing on established boundary lines inside property line.

B. Excavation:

1. Drill holes for post footings in firm undisturbed or compacted soil.
2. Bedrock excavation: if bedrock is encountered before reaching required depth, excavate to required depth for setting post in soil or 18 inches, whichever is less, and provide a 2 inch larger diameter than the outside diameter of the post.
3. Clear loose material, fine grade area around finished post footings and uniformly spread and stabilize excavated material on site.

C. Terminal post locations:

1. Install terminal line posts at each fence termination and change in horizontal or vertical direction of 30° or more.

D. Line post spacing:

1. For fence heights of 4 to 8 feet, space line posts uniformly 10 feet on center
2. For fence heights of 10 feet, space line posts 8 feet on center

E. Setting Posts:

1. Set post in soil: Set posts in concrete footing.

   a. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
   b. Footing depths.

      - Fence heights of 4 to 6 feet, footing depth shall be 36".
      - Other fence heights footing depth shall be a minimum of 24" plus an additional 3 inches for each 1 foot increase in the fence height over 4 ft., unless otherwise noted.

   c. Footing diameters based on diameter of fence post.

      - 3 inch fence post- footing diameter is 12 inches.
      - 4 inch fence post- footing diameter is 16 inches.
      - Other fence heights footing diameter is a minimum of 4 times greater than O.D. of post, unless otherwise noted.

   d. Set post 3 inches above bottom of footing excavation.
   e. Thoroughly consolidate concrete into the hole to remove voids.
   f. Finish top of concrete sloping away from post for positive drainage.

2. Set post in bedrock: Set posts in non-shrink grout.

   a. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with non-shrink grout or mechanical devices.
   b. Footing depth shall be per bedrock excavation requirements listed above.
   c. Footing diameter is a minimum of 2 inches greater than O.D. of post, unless otherwise noted.
   d. Set posts 3 inches above bottom of footing excavation.
   e. Thoroughly consolidate non-shrink grout into the hole to remove voids.
   f. Finish top of grout sloping away from post for positive drainage.

3. Set posts in structures:

   a. Set posts in steel sleeves with non-shrink grout.
   b. Install post in concrete retaining walls, curbs, slabs, or similar construction in galvanized pipe sleeves set into the concrete or built into the masonry as shown on the drawings.
   c. Sleeve depth and diameter shall be as noted on drawings.

d. Set sleeves plumb and one-half inch above the finished structure.
e. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
f. Thoroughly compact non-shrinking grout between sleeve and post.
g. Finish top of grout to divert stormwater away from the post.

4. Gate Posts:

a. Gate posts require larger footings than listed above.
b. Gate post footing dimensions to comply with ASTM F 567.

F. Post Bracing and Intermediate Rails:

1. Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Install braces at end and gate posts and at both sides of corner and pull posts.
2. Locate horizontal braces at mid height of fabric 6 feet or higher, on fences with top rail and at 2/3 fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
3. For fence height of 10 feet, install an intermediate rail at a height of 5’-0”.

G. Tension Wire:

1. Install according to ASTM F 567, maintaining plumb position and alignment of fencing.
2. Install tension wire 4 inches up from the bottom of the fabric.
3. Pull wire taut, without sags.
4. Secure tension wire to terminal post using a brace band.
5. Install tension wire in locations indicated before stretching fabric.

H. Top Rail:

1. Install according to ASTM F 567, maintain a plumb position and alignment of fencing.
2. Install twenty one 21 foot lengths of rail continuously through line post caps, bending to radius for curved runs and terminating into terminal post by a brace band and rail end.
3. Splice rail using top rail sleeves.

I. Bottom Rails:

1. Install and secure to posts with fittings, in locations indicated on the drawings.

J. Chain-Link Fabric:

1. Apply fabric to outside of the framework.
2. Leave approximately 1 inch, without exceeding 2 inches, between finish grade or surface and bottom selvage, unless otherwise noted.
3. Pull fabric taut and anchor to framework so fabric remains under tension after pulling force is released.
4. Attach to terminal post by threading the tension bar through the fabric; secure the tension bar to the terminal post with tension bands and 5/16 in. carriage bolts spaced no greater than 12 inches on center
5. Secure fabric to the line post with tie wires spaced no greater than 12 inches on center.

6. Secure fabric to rail with tie wires spaced no greater than 18 inches on center.
7. Secure fabric to the tension wire with hog rings spaced no greater than 24 inches on center.

K. Tension or Stretcher Bars:

1. Thread through fabric and secure to end, corner, pull, and gate posts with tension bands spaced not more than 15 inches on center

L. Tie Wires:

1. Use wire of proper length to firmly secure fabric to line posts and rails.
2. Attach wire at 1 end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric per ASTM F 626.
3. Bend ends of wire to minimize hazard to individuals and clothing.

M. Fasteners:

1. Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side.
2. Peen ends of bolts or score threads to prevent removal of nuts.

N. Swing Gates:

1. Install swing gates and gateposts per ASTM F567.
2. Direction of swing shall be as indicated on the drawing.
3. Install gates shall be plumb in the closed position having a bottom clearance of 3 inches grade permitting.
4. Hinge and latch offset opening space from the gate frame to the post shall be no greater than 3 inches in the closed position.
5. Double gate drop bar receivers shall be set in a concrete footing minimum 6 inches diameter and 24 inches deep.
6. Gate leaf holdbacks shall be installed for all double gates.

3.4 CLEAN UP

A. Clean up the area of the fence line shall be left neat and free of any debris caused by the installation of the fence.

END OF SECTION 323100

SECTION 32 90 00 - PLANTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Preparation of planting beds.
2. Excavation for trees, shrubs, and vines.
3. Planting trees, shrubs, and vines.
4. Mulching.
5. Planting ground cover.
6. Protection, maintenance, repair, and guarantee of plantings.

B. Related Sections:

1. 31 22 00 “GRADING” for basic subgrade preparation and conservation of onsite topsoil.
2. 32 05 00 “COMMON WORKS FOR EXTERIOR IMPROVEMENTS” for furnished / import topsoil, mulches, and soil amendments.

1.2 SUBMITTALS

A. Product information, including but not limited to:

1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.
2. Pesticides and Herbicides: Include product label and manufacturer's application instructions specific to the Project.
3. Plant Photographs: Include color photographs in digital format of each required species and size of plant material as it will be furnished to the Project. Take photographs from an angle depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph. For species where more than 20 plants are required, include a minimum of three photographs showing the average plant, the best quality plant, and the worst quality plant to be furnished. Identify each photograph with the full scientific name of the plant, plant size, and name of the growing nursery.

B. Samples for Verification for each of the following:

1. Trees and Shrubs: Three samples of each variety and size delivered to the site for review. Maintain approved samples on-site as a standard for comparison.
2. Mulch: 1 quart volume of each organic mulch required; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of color, texture, and organic makeup.
3. Edging Materials and Accessories.

C. Certifications:

1. Certificates of inspection as required by governmental authorities.
2. Manufacturer's or vendors certified analysis for soil amendments and fertilizer materials.
3. Nursery certifications for plant material, stating botanical and common name.
4. Any other data substantiating that materials comply with specified requirements.

D. Copies of laboratory results for soil testing.

E. Notice for Design Professional inspection of plants for Acceptance.

F. Written plant maintenance instructions to the Owner, prior to the plant guarantee period.

G. Updated plant maintenance instructions to the Owner, during the Guarantee period.

1.3 QUALITY ASSURANCE

A. The (Sub) Contractor performing landscape work shall be a single firm specializing in landscape work.

B. The (Sub) Contractor performing landscape work shall provide continuous superintendence by an experienced plantsman during the layout, preparation and execution of all landscape work.

C. Pre-Landscape Conference

1. Prior to the commencement of any landscape work, meet at the site with:

   a. Owner
   b. Design Professional/Landscape Design Professional
   c. Contractor's Project Manager
   d. Contractor's Job Superintendent
   e. (Sub) Contractor and performing landscape work and its Foreman who will be on site full time during the preparation and installation of landscape work.

2. Review foreseeable methods and procedures related to the landscape work, including but not necessarily limited to the following:

   a. Review project requirements (drawings, specifications, and other contract documents, and in particular landscape work).
   b. Review availability of materials, tradesmen, equipment, and facilities needed to make progress and avoid delays.
   c. Review required inspection, testing, certifying, and accounting procedures.
   d. Review regulations concerning code compliance, environmental protection, health, safety and similar considerations.
   e. Review required submittals, both completed and yet to be completed.
   f. Review soils conditions, soil preparation, installation methods and drainage conditions for landscape work.
   g. Review protection and maintenance of landscape work.

3. Record (by the Contractor) the discussions of the conference and the decisions and agreements (or disagreements) reached, and furnish a copy of the record to each party attending.

D. Source Quality Control

1. General: Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.
2. Do not make substitutions. If specified landscape material is not obtainable, submit proof of non-availability to Design Professional, together with proposal for use of equivalent material.
3. Analysis and Standards: Package standard products with manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.
4. Trees, Shrubs and Plants: Provide trees, shrubs and plants of quantity, size, genus, species and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock". Provide healthy, vigorous stock, grown in recognized nursery in accordance with good horticultural practice and free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions, or disfigurement.
5. Label at least one tree and one shrub of each variety with a securely attached waterproof tag bearing legible designation of botanical and common name. Where formal arrangements or consecutive order of trees or shrubs are shown, select stock for uniform height and spread, and label with number to assure symmetry in planting.
6. Inspection: The Design Professional may inspect trees and shrubs either at place of growth or at site before planting, for compliance with requirements for genus, species, variety, size and quality. Design Professional retains right to further inspect trees and shrubs for size and conditions of balls and root systems, insects, injuries and latent defects, and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from project site.

E. Mockups: After planting areas have been brought to subgrade, but before subgrade prep and root zone installation, build mockup to comply with the following requirements, using materials indicated for the completed Work:

1. Construct a minimum of 10’-0” by 10’-0” of planting bed as indicated in the contract documents.
2. Sample planting bed shall be complete, including, but not limited to subgrade preparation, installation of topsoil/amended soil/compost.
3. Locate the sample area as directed by the site design professional or Owner’s representative.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.4 DELIVERY, STORAGE AND HANDLING

A. Packaged Materials: Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.

B. Trees and Shrubs: Provide freshly dug trees and shrubs. Do not prune prior to delivery unless otherwise approved by Design Professional. Do not bend or bind-tie trees or shrubs in such manner as to damage bark, break branches or destroy natural shape. Provide protective covering during delivery. Do not drop balled and burlapped stock during delivery.

C. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than six (6) hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist by covering with mulch, burlap or other acceptable means of retaining moisture.

D. Do not remove container grown stock from containers until planting time.

1.5 SITE CONDITIONS

A. Proceed with and complete landscape work as rapidly as portions of site become available, working within seasonal limitations for each kind of landscape work required.

B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Design Professional for instructions before planting.

C. Coordination with Lawns: Plant trees and shrubs after final grades are established and prior to planting of lawns, unless otherwise acceptable to Design Professional. If planting of trees and shrubs occurs after lawn work, protect lawn areas and promptly repair damage to lawns resulting from planting operations.

D. The Design Professional has the right to inspect and approve material or representative samples at the place of growth or any mutually agreed location prior to digging or delivery. Subsequent inspections during installation (with the right of rejection for reasons of disease, damage, or nonconformity) can be anticipated. All plants shall be inspected and approved before they are planted.

1.6 PLANT REPLACEMENT GUARANTEE

A. Guarantee: Replace, at no expense to the Owner, any plant found by the Design Professional or Owner's Representative to be in an unhealthy condition or not to be thriving during the period of 1 full growing season (April 15 – October 15) the year following Substantial Completion.

B. Replacements shall be made (weather and seasonal conditions permitting) within 10 calendar days of notification by the Design Professional or Owner's Representative.

C. Materials and Operations: All replacements shall be plants of the same size and kind and as specified in the Plant List and consistent with the sizes of adjacent, thriving plants.

PART 2 - PRODUCTS

2.1 TOPSOIL AND SEEDBED PREPARATION AMENDMENTS

A. Refer to 31 22 00 “GRADING” for conserved onsite topsoil when available. If necessary amount of topsoil is not present on site, secure topsoil of specified quality from off-site source. Topsoil shall be approved by the Design Professional prior to delivery onsite.

B. Refer to 32 05 00 “COMMON WORKS FOR EXTERIOR IMPROVEMENTS” for furnished (import) topsoil, lime, water, compost, pre-emergent weed control, and fertilizers.

2.2 AMENDED PLANTING SOIL

A. Amended Planting Soil is made by thoroughly mixing the following: 3 parts topsoil or suitable existing soils. Do not use very poor soil, hardpan or soil injurious to plants. Ensure soil is reasonably clean of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful or toxic to plant growth.

1. 1 part composted manure. (32 05 00 “COMMON WORKS FOR EXTERIOR IMPROVEMENTS”)
2. 1 part peat moss.
3. Commercial fertilizer, 5-10-5, at rate of 5 lbs/cu-yd.
4. Lime at rate of 5 lb/cu-yd.

B. Amended Planting Soil is made by thoroughly mixing the following: 3 parts topsoil or suitable existing soils. Do not use very poor soil, hardpan or soil injurious to plants. Ensure soil is reasonably clean of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful or toxic to plant growth.

1. 1 part coarse sand (32 05 00 “COMMON WORKS FOR EXTERIOR IMPROVEMENTS”)
2. 1 part peat moss.
3. Commercial fertilizer, 6-12-12, at rate of 5 lbs/cu-yd.
4. Except for ericaceous plants, add lime to acidic soils having a pH less than 6 to produce a slightly acidic reaction (a pH of 6.0 to 6.5).

C. For tree/shrub planting pit backfill areas, mix Amended Soil prior to backfilling, and stockpile at the site.

D. For planting beds Contractor options to mix Amended Soil:

1. Prior to planting and stockpile at the site.
2. In place. Apply manure, peat, and fertilizer amendments on surface of topsoil/suitable soil and mix thoroughly in-place.

2.3 MULCHES FOR PLANTING BEDS

A. Provide mulches of the types and depths shown, that are clean and free from debris, and reasonably free of weeds, can be distributed uniformly. Mulches may include, but are not limited to:

1. Pine straw (default- mulched planting beds are pine straw unless otherwise shown).
2. Pine bark.
    a. Derived from disease free wood.
    b. Contain no noxious weed seeds, soil, sawdust, or any substance toxic to plant growth.
    c. Be at least 2 years old.
3. Shredded hardwoods.
    a. Contain a maximum of 25% by volume shredded Cypress and shredded shredded pine mulch up to 35% by volume.
    b. Derived from disease free trees.
    c. Particle size less than 1 inch diameter and less than 3 inch length.
    d. Viable weed seeds destroyed by 2 cycles of composting at 140°F and decomposition due to nitrification is complete.
    e. Free from toxic levels of acidity and alkalinity.

2.4 PLANT MATERIALS

A. Quality:

1. Provide trees, shrubs, and other plants of size, genus, species and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock".
2. Plant materials shall be readily adaptable to soil and climatic conditions on the site (from relatively indigenous sources); in natural form of growth, unless otherwise specified; sound, healthy, vigorous and free of insects, insects' eggs, and larvae.

B. Deciduous Trees: Provide trees of height and caliper scheduled or shown and with branching configuration recommended by ANSI Z60.1 for type and species required. Provide single stem trees except where special forms are shown or listed.

1. Provide balled and burlapped (B&B) deciduous trees.
2. Container grown deciduous trees will be acceptable in lieu of balled and burlapped deciduous trees subject to specified limitations of ANSI Z60.1 for container stock.
3. Container grown deciduous shrubs will be acceptable in lieu of balled and burlapped deciduous shrubs subject to specified limitations for container grown stock.

C. Coniferous and Broadleafed Evergreens: Provide evergreens of sizes shown or listed. Dimensions indicate minimum spread for spreading and semi-spreading type evergreens and height for other types, such as globe, dwarf, cone, pyramidal, broad up-right, and columnar.

Provide normal quality evergreens with well-balanced form complying with requirements for other size relationships to the primary dimension shown.

1. Provide balled and burlapped (B&B) evergreens.
2. Container grown evergreens will be acceptable subject to specified limitations for container grown stock.

D. The Contractor is responsible for all certificates of inspection of plant materials that may be required by Federal, State or other authorities to accompany shipment of plants.

E. Substitutions are not permitted without written approval. No collected plants other than those shown in the plant list are permitted without written approval.

2.5 GROUND COVER

A. Provide plants established and well-rooted in removable containers or integral peat pots and with not less than minimum number and length of runners required by ANSI Z60.1 for the pot size shown or listed.

2.6 MISCELLANEOUS LANDSCAPE MATERIALS

A. Anti-Erosion Mulch: Provide clean, seed-free salt hay or threshed straw of wheat, rye, oats or barley.

B. Anti-Desiccant: Emulsion type, film-forming agent designed to permit transpiration but retard excessive loss of moisture from plants. Deliver in manufacturer's fully identified containers and mix in accordance with manufacturer's instructions.

C. Filtration/Separation Fabric: Water permeable filtration fabric of fiberglass or polypropylene fabric.

D. Wrapping: Tree-wrap tape not less than 4" wide, designed to prevent bore damage and winter freezing.

E. Stakes and Guys: Provide stakes as detailed of new hardwood, treated softwood, redwood, free of knots holes and any defects. Paint all stakes with flat black enamel paint prior to installation and touch-up paint after installation. Provide wire ties and guy of 2 strand, twisted, pliable galvanized iron wire not lighter than 12 ga. with zinc coated turnbuckles. Provide not less than 1/2" diameter black rubber hose, cut to required lengths and of uniform size to protect tree trunk from damage by wires.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine grading, substrates and conditions where turf and grasses will be established.

B. Do not proceed with permanent grassing installation unless satisfactory conditions exist. Satisfactory conditions include but are not limited to:

1. Subgrades prepared in accordance with 31 22 00 “GRADING”.
2. Provide allowances when establishing subgrade elevations for settlement and additions of topsoil, compost, and other soil amendments.
3. Slopes are stable and are graded to divert any concentrated flow away from slope faces.

3.2 TIME OF PLANTING

A. Optimum planting of trees and shrubs is from October 15th to March 15th unless otherwise specified on the Drawings.

B. At the option and on the full responsibility of the Contractor, planting operations may be conducted outside of the optimum planting season defined by these Specifications, the Plans, published or nursery values for individual plant species, or under unseasonable conditions.

C. Begin planting operations as soon as possible upon completion of other construction within the planting area. Regular maintenance is essential to protect all new plant material.

3.3 PREPARATION

A. Layout individual tree and shrub locations and areas for multiple plantings. Stake locations and outline areas and secure Design Professional's acceptance before start of planting work. Make minor adjustments as may be required. No planting except ground covers and vines shall be closer than 3 feet to pavements or structures.

B. Preparation of Planting Beds:

1. Establish subgrade elevation and loosen subgrade of planting bed areas to a minimum depth of 6 inches using a cultimulcher or similar equipment. Remove stones over 1 inch in any dimension, and sticks, stones, rubbish and other extraneous matter.
2. Prepare planting beds as shown on the Plans. Prepare according to the following areas:

    a. Topsoil and Compost Amendment: Unless otherwise shown, spread 4 inches of screened topsoil and 2 inches of compost and uniformly mix into the top 8 inches of the soil profile. After light rolling and natural settlement the finish surface shall meet grades and elevations shown.
    b. Amended Planting Soil: Prepare 4 inches total depth of Amended Planting Soil mixture to minimum depth required to meet lines, grades and elevations shown. Place approximately 1/2 of total amount of Amended Planting soil required. Work into top of loosened subgrade to create a transition layer, then place remainder of the Amended Planting soil.

3. Pre-emergent Weed Control: All areas to be planted shall be treated with Scotts Pro Grow Ornamental Herbicide 2 (granular), or approved equal, at the rate of two and a half (2-1/2) pounds per thousand (1000) square feet.

C. Excavation for Trees and Shrubs:

1. Dig planting pits and prepare Amended Planting Soils before plants are delivered to the site.
2. Excavate pits, beds and trenches with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage. Loosen hard subsoil in bottom of excavation. Diameter of pits for trees is at least 2 feet greater than diameter of the ball or spread of roots.
3. Allow for 4" setting layer of planting soil mixture.
4. For balled and burlapped (B&B trees and shrubs), make excavations at least half again as wide as the ball diameter and equal to the ball depth, plus following allowance for setting ball on a layer of compacted backfill.
5. For container grown stock, excavate as specified for balled and burlapped stock, adjusted to size of container width and depth.
6. Dispose of subsoil removed from planting excavations. Do not mix with planting soil or use as backfill.
7. Fill excavations for trees and shrubs with water and allow to percolate out before planting.

3.4 PLANTING TREES AND SHRUBS

A. Set balled and burlapped (B&B) stock on layer of compacted planting soil mixture, plumb and in center of pit or trench with top of ball at same elevation as adjacent finished landscape grades. Face plants to give the best appearance or relationship from existing structures. Remove burlap from sides of balls; retain on bottoms. When set, place additional backfill around base and sides of ball, and work each layer to settle backfill and eliminate voids and air pockets. When excavation is approximately 2/3-full, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again, after placing final layer of backfill.

B. Set bare rootstock on cushion of planting soil mixture. Spread roots and carefully work backfill around roots by hand and puddle with water until backfill layers are completely saturated. Plumb before backfilling and maintain plumb while working backfill around roots and placing layers of soil mixture above roots. Set collar 1" below adjacent finish landscape grades. Spread out roots without tangling or turning up to surface. Cut injured roots clean; do not break.

C. Set container grown stock as specified for balled and burlapped stock, except cut cans on 2 sides with an approved can cutter; remove bottoms of wooden boxes after partial backfilling so as not to damage root balls.

D. Dish top of backfill to allow for mulching.

E. Mulch pits, trenches and planted areas. Provide not less than 3" thickness of mulch, avoiding contact with the tree or shrub, and work into top of backfill and finish level with adjacent finish grades.

F. Apply anti-desiccant using power spray to provide an adequate film over trunks, branches, stems, twigs and foliage.

G. If deciduous trees or shrubs are moved in full-leaf, spray with anti-desiccant at nursery before moving and again 2 weeks after planting.

H. Prune, thin out and shape trees and shrubs in accordance with standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed by Design Professional, do not cut tree leaders, and remove only injured or dead branches from flowering trees, if any. Prune shrubs to retain natural character.

I. Remove and replace excessively pruned or misformed stock resulting from improper pruning.

J. Wrap tree trunks of 2" caliper and larger. Start at ground and cover trunk to height of first branches and securely attach. Inspect tree trunks for injury, improper pruning and insect infestation and take corrective measures before wrapping.

K. Guy and stake trees immediately after planting, as detailed.

3.5 PLANTING GROUND COVER AND COLOR BEDS

A. Space plants as shown or scheduled.

B. Dig holes large enough to allow for spreading of roots and backfill with planting soil. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water. Water thoroughly after planting, taking care not to cover crowns of plants with wet soils.

C. Pre-emergent Weed Control: Treat all shrub and color beds with Ornamental Herbicide (granular) at the rate of 2 ½ pounds per 1,000 square feet, or as recommended by the manufacturer. Provide Design Professional with manufacturers certificate from each bag used. Failure to provide certificates or proof of purchase will be considered "not installed".

D. Mulch areas between ground cover plants, avoiding contact with the plant itself: place not less than 3" thick, unless otherwise shown.

3.6 MULCHES – MULCHED BEDS

A. Unless otherwise shown, apply pine straw at 4” settled depth.

B. Apply compost prior to placing mulch when shown. Apply compost as shown in the plans. If compost application is not detailed:

1. Apply over planting beds at 2 inches depth and uniformly incorporate into the top 6 to 8 inches of soil.
2. Apply over mulched planting areas at 2 inche> depth as top dressing.

C. Mulched beds: Soak mulch with water immediately prior to or after installation.

3.7 PROTECTION AND MAINTENANCE

A. Provide all plant maintenance immediately after each plant is planted and continue for a period of 1 **full** growing season (April 15th to October 15th) and terminating at Acceptance of the Work by the Design Professional or Owner’s representative.

B. Maintain all planting and incidentals in good condition and perform all necessary operations for promotion of root growth and plant life. Maintenance of new planting includes, but is not limited to: pruning, watering, cultivation, weeding, mulching, tightening, repairing of guys, resetting plants to proper grades or upright position, restoration of planting saucer, and furnishing and applying such sprays as are necessary to keep the plantings free of insects and diseases.

C. Protect all adjacent site improvements including grass areas during maintenance work and promptly repair any damage.

D. Protect all planting work at all times against trespassing and damages of any kind for the duration of the maintenance period. If any plants become damaged or injured, repair or replaced as directed by the Design Professional at no additional cost to the Owner. Do not perform any work within, adjacent to, or over any plant or planting area without proper safeguards and protection to the plant material.

E. Water the root system of all plants at sufficient intervals to provide the best conditions for promotion of root growth and plant life.

F. All planting and plant materials required by this contract shall be in satisfactory and acceptable condition when Contractor applies for payment.

G. Sidewalks, streets, and other paved areas shall be kept clean when planting and maintenance operations are in progress.

H. Remove all guys, and stakes from trees at the end of the maintenance period.

I. Prescribed Maintenance Procedures: Provide the Owner with written instructions on the proper and subsequent care for the new plant material at the end of contractor's maintenance period.

3.8 INSPECTION, ACCEPTANCE, GUARANTEE AND REPLACEMENT

A. The Design Professional shall inspect all work for acceptance upon written request of the Contractor. Submit request a minimum of 10 days before the anticipated date of inspection.

B. At the sole discretion of the Design Professional and Owner's representative, Acceptance may be granted for sections or lots of the Work.

C. Upon completion of all repairs or replacements which may appear at that time to be necessary in the judgment of the Design Professional, the Design Professional will certify in writing the acceptance of the work.

D. The guarantee period shall begin at Acceptance.

E. All plant materials shall be guaranteed by the Contractor, except relocated materials, for a period of 90 days for evergreen plants and 30 days after breaking growth in the spring for deciduous plants.

F. Perform periodic inspections, no less than bi-weekly, at no extra cost to the Owner, during the guarantee period to determine what changes, if any, should be made in the Owner's maintenance program. Submit such recommended changes in writing to the Owner and the Design Professional.

G. Replace as soon as weather conditions permit, all dead plants and all plants not in a vigorous thriving condition, as determined by the Design Professional during and at the end of the guarantee period. Thriving plants are free of dead branches and dead branch tips, and bears foliage of a normal density, size, and color. Replacements shall match adjacent specimens of the same species and are subject to all requirements of these Specifications and Plans.

H. Provide all necessary repairs to grades, and lawn areas required due to maintenance or plant replacements.

I. The guarantee of all replacement plants shall extend for an additional period of 90 days for evergreen and 30 days from time of breaking growth in spring for deciduous material after replacement. In the event that a replacement plant is not acceptable during or at the end of the said extended guarantee period, the Owner may elect subsequent replacement or credit for each item.

3.9 CLEANUP

A. Remove any soil, peat or similar material which has been brought onto adjacent areas by planting operations, maintenance, or guarantee work. All excess soil, stones, and debris which has not previously been cleaned up shall be removed from the site and disposed of in a lawful manner.

B. Upon completion of any maintenance or guarantee work, remove all equipment from the premises to the satisfaction of the Owner.

END OF SECTION 329000

SECTION 32 92 00 - TURF & GRASSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Preparation of turf/grass planting areas.
2. Grass seed mixes.
3. Sod application.
4. Hydroseed application.
5. Protection, maintenance, guarantee.

B. Related Sections:

1. 31 22 00 “GRADING” for basic subgrade preparation and conservation of onsite topsoil.
2. 31 25 00 “EROSION AND SEDIMENT CONTROL” for mulches or bonded fiber matrix mulch components to hydroseed mixes.
3. 32 05 00 “COMMON WORKS FOR EXTERIOR IMPROVEMENTS” for furnished / import topsoil, mulches, and soil amendments.

1.2 REFERENCE SPECIFICATIONS AND DOCUMENTS

A. Manual for Erosion and Sediment Control in Georgia, 2016 Edition, by the Georgia Soil and Water Conservation Commission, “Best Management Practices”. Apply for permanent and temporary vegetation establishment where noted.

1.3 SUBMITTALS

A. Submit product data for all grassing materials, including, but not limited to:

1. General disturbed areas hydroseed/mulch mix (state whether cool season or warm season mix)
2. Lime, fertilizer and other soil amendments

B. (Sub) Contractor Qualifications: Submit evidence of qualifications prior to work.

C. Manufacturer’s certificates: for each Sod application (include species).

D. Testing:

1. Copies of soil lab test results showing recommended amendments and application rates based on specific grass or grass land planting species.

1.4 QUALITY ASSURANCE

A. (Sub) Contractor Qualifications:

1. Bonded fiber matrix mulch application Contractor shall be certified by the producer / manufacturer of the bonded fiber matrix material. Provide evidence of Certification to the Design Professional prior to work.
2. Grassing and lawn maintenance shall be performed by a reputable lawn maintenance contractor. Secure pre-approval of lawn maintenance Contractor by the Design Professional and Owner, prior to any lawn installation commencement

B. Mockups: After grass areas have been brought to subgrade, but before subgrade prep, build mockup to comply with the following requirements, using materials indicated for the completed Work:

1. Construct a minimum of 20’-0” by 20’-0” of grass area as indicated in the contract documents.

2. Sample grass areas shall be complete, including, but not limited to subgrade preparation, installation of topsoil/compost, rock/stone/debris removal, fine grading and sod installation.

3. Locate the sample area as directed by the site design professional or owner’s representative.

4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 SITE CONDITIONS

A. Take all necessary precautions in bringing equipment on to and off of the site and protecting curbs, walks, paving, steps, trees & shrubs, and any other existing construction site during hydroseeding and grassing work.

B. Establish grass in all areas disturbed by construction not required to be developed otherwise.

PART 2 - PRODUCTS

2.1 SOD

A. Unless otherwise shown on the Plans, sod is at least 95 percent Bermuda Tifway 419 grass strongly rooted and free of pernicious weeds.

B. Acceptance criteria (sod rolls):

1. Height of grass in sod rolls is uniform and does not to exceed 3 inches.
2. Soil is between 1 and 1-1/2 inches thick.
3. Harvest netting shall be removed prior to installation.

2.2 GRASS SEED

A. Provide fresh, clean, new-crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America.

Germination and hard seed minimum	70%
Purity minimum	90%
Weed seed maximum	2%
Noxious seeds maximum	1% of mix, but not to exceed the specified seeds per lb for each listed noxious weed species in GDOT Standard Spec 890.

2.3 TEMPORARY SEED MIXES

A. Conform to Table 6-4.1 Georgia Erosion and Sediment Control Manual for broadcast rate, for the Piedmont resource area within Georgia, and for the optimal planting dates for temporary grass seed. Plant the following species in accordance with the Georgia Erosion and Sediment Control Manual:

1. Sudan grass, Sorghum Sudanese.

   a. Planting rate 60 lbs per acre.
   b. Planting dates April 15-July 31.

2. Annual Ryegrass, Lolium temulentum.

   a. Planting rate 40 lbs per acre.
   b. Planting dates: Year long except summer season (April 15- July 31), optimal from September 1 – December 31.

3. Annual Lespedeza, Lespedeza striata.

   a. Planting rate 40 lbs per acre.
   b. Planting dates January 1 – April 15.

2.4 PERMANENT SEED MIXES

A. Conform to Table 6-5.2 Georgia Erosion and Sediment Control Manual for broadcast rate, for the "P" resource area within Georgia, and for the published optimal planting dates for permanent grass seed. Do not plant shrub species or vine species published in Table 6-5.2 unless otherwise shown on the Plans. Unless otherwise specified, plant the following species:

1. Common Bermuda, Cynodon dactylon

    a. Planting rate 10 lbs per acre.
    b. Planting dates Jan., Feb., Oct., Nov., Dec. for unhulled seeds and when planted with 30 lbs of winter annuals or Tall Fescue.
    c. Planting dates March – June for hulled seeds.
    d. Mowing maintenance height 3 inches.

B. Steep Slope Mix:

1. Warm season mix applied at a rate of 50 lbs / acre or cool season mix applied at rate of 100 lbs / acre as applicable.
2. Apply on slopes 2H:1V or steeper.
3. Mowing maintenance height 6 inches.
4. Submitted mixes to conform with the following characteristics:

    a. Permanent and temporary seed varieties, season dependent that may include: turf type tall fescue, unhulled Serecia Lespedeza, White Clover, and Bermuda grass.
    b. Min. 5% Durana white clover.
    c. Weed seed, other crop seed < 1.5%.
    d. Coating: Inoculated with Germax Seed Treatment and Myco Advantage, or similar.

5. Acceptable Products and Manufacturers:

    a. Slopemaster mixes from Pennington Seed Inc. Seed Production, Madison GA (seed mix).

C. Wetland / Detention Pond Mix:

1. Apply where shown at a rate of 12 lbs /acre.
2. Planting dates March 15-June 1, August 15-October 15.
3. Submitted mixes to conform with the following:

    a. 25% Redtop.
    b. 25% Virginia Wild Rye.
    c. 15% Fox Sedge.
    d. 10% Woolgrass.
    e. 10% Lurid Sedge.
    f. 5% Joe Pyeweed.

2.5 HYDROSEED EQUIPMENT

A. Hydroseeding equipment shall have a built in mechanical agitating system to maintain a homogenous mixture of mulch, seed, lime, and fertilizer for each 150 gallons of water.

2.6 GENERAL HYDROSEED / MULCH MIX

A. Hydroseed / mulch mix components:

1. General seed mixtures as specified or shown on the Plans.
2. Wood cellulose mulch or wood pulp applied at a rate of 2000 lbs/acre. Substitute bonded fiber matrix mulch applied at a rate of 3,500 lbs per acre when specifically shown on the Plans.
3. Fertilizer: Apply nutrients at the ratios and rates as recommended by soil test(s), however in no case exceed 1500 lbs/ac/yr of a 6-12-12 commercial grade.
4. Finely ground fast acting lime (95% passing No. 100 sieve) applied at a rate of 80 lbs/acre if soil pH is less than 5.5, or if no soil analysis is performed.

2.7 STEEP SLOPE HYDROSEED/ MULCH MIX

A. Hydroseed / mulch mix component for steep slope mixes:

1. Steep slope seed mixes as specified or shown.
2. 3500 lbs per acre of hydraulic mulch with Cover Factor (ASTM D7101) ≤ 0.01 (soil loss treated surface / soil loss untreated surface).
3. Fertilizer: 19-19-19 commercial grade applied at a rate of 250 lbs / acre.
4. Lime- fast release at 80 lbs / acre if soil pH is less than 5.5 or if no soil analysis is performed.

B. Acceptable Products and Manufacturers:

1. Slopemaster mixes from Pennington Seed Inc. Seed Production, Madison GA (seed mix).
2. Flexterra Flexible Growth Medium Fiber Mulch and Neutra Lime Dry, by Profile Products, Profile Products LLC, Buffalo Grove IL (hydraulic mulch and lime products).

2.8 SEEDBED PREPARATION AMENDMENTS

A. Refer to 31 22 00 “GRADING” for conserved onsite topsoil if available. Refer to 32 05 00 “COMMON WORKS FOR EXTERIOR IMPROVEMENTS” for furnished (import) topsoil, lime, water, compost, fertilizers, mulches for grassing and erosion control.

2.9 WATER

A. Water used in this work shall be paid for and furnished by the Contractor and will be suitable for irrigation and free from ingredients harmful to plant life. Hose and other watering equipment required for the work shall be paid for and furnished by the Contractor.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine grading, substrates and conditions where turf and grasses will be established.

B. Do not proceed with permanent grassing installation unless satisfactory conditions exist. Satisfactory conditions include but are not limited to:

1. Subgrades prepared in accordance with 31 22 00 “GRADING”.
2. Provide allowances when establishing subgrade elevations for topsoil and soil amendment installation and settlement.
3. Slopes are stable, do not exceed 2H:1V for Steep Slope areas, and do not exceed 3H:1V for all other areas,
4. Slopes have been graded to divert any concentrated flow away from slope faces.

3.2 TEMPORARY TURF

A. Season: Plant temporary seed mixes at the rates and species, in accordance with the time of year, as shown in Part 2 and on the Plans.

B. Maintain temporary turf until the permanent planting season, at which time the temporary grass shall be mowed down to the ground surface, the area disk harrowed (for conversion to permanent grassing), the soil prepared for the permanent surface as shown on the Plans.

3.3 SEED BED PREPARATION & SOIL TESTING

A. For general areas with removed topsoil or insufficient topsoil and slopes 3H:1V, and flatter:

1. Loosen subgrade as necessary to a depth no less than 4 to 6 inches achieving compaction levels no greater than 80% of standard proctor mixing any topsoil and soil additives into the loosened subgrade.
2. Spread 2 inches of topsoil evenly over disturbed areas and mix along with other initial soil amendments into the loosened subgrade.
3. Do not apply topsoil or compost in a frozen or muddy condition. Provide positive drainage in all cases.

B. For areas where the topsoil **has not been** removed:

1. Scarified, smooth, and remove large sticks, stones (>2”) and all rubbish.

C. For general areas, steeper than 3H:1V

1. Loosen soil to a practical depth by scarifying, plowing as practical, dragging a spiked chain, walk the surface with cleated equipment or if shown by making serrated cuts. Spread 2” of topsoil starting at the top of slope only if the surface is prepared with serrated cuts.

D. Perform soil test of the upper 4 to 6 inches of mixed subgrade and topsoil to determine application rates of lime, fertilizer, and other amendments. Soil tests may be performed by County extension offices, University laboratories or other laboratories mutually agreed by the Design Professional and Contractor.

E. Apply 1 ton of lime per acre to seedbed, or as otherwise needed to increase pH to between 6.0 and 6.5.

F. Apply any additional fertilizer than shown or proposed in the hydroseed mix at the recommended rates for grassing areas as determined by a soil analysis not to exceed 1500 lbs per acre per year of 6-12-12 fertilizer.

G. Scarify or till soil to a depth of 6 inches, mixing any lime, fertilizer, and other amendments.

H. Remove sticks, stones and rubbish from surface.

I. Perform finish grading to achieve smooth contours and meet finish grades shown on the Plans, with allowances made for settlement and sod thickness where applicable. Finish surface textures as follows:

1. Smooth the final surface on areas 4H:1V or flatter.
2. Provide surface grooves with a tracked vehicle on slopes exceeding 4H:1V. Surface grooves are perpendicular to the fall line of the slope.

J. ADDITIONAL PREPARATION FOR TURF AREAS INCLUDING: SOD AREAS, IRRIGATED GRASSING AREAS, Spread 1 inch of nutrient grade compost on loosened subgrade and prior to performing soil tests.

K. Contractor option to blend topsoil, compost, and other soil amendments prior to spreading on loosened subgrade at onsite or offsite location if approved by the Design Professional and if blending is observed by Design Professional or Testing Agency.

L. Remove all stones, sticks and rubbish over 1.0” by hand raking or by a rockhound attachment.

3.4 SODDING

A. Lay sod by butting the ends and sides up evenly and staggering the rolls of sod. Do not overlap sod.

B. As soon as the sod is laid or as it is being laid, roll over it with a light roller, ensure all sod is in contact with the soil. The completed sodded areas shall be true to finish grade, even and firm at all points.

C. Commence watering within 4 hours of placement.

3.5 SEEDING AND MULCHING

A. Apply seed and mulch to smoothed finish grade surface at the rates specified in Part 2. Permanent planting dates shall be approved by the Design Professional and conform to Part 2 for individual mixes.

B. Comply with manufacturer recommendations for hydroseed/ mulch mixtures, generally install in a 2 step process.

1. Step 1- apply seed, amendments, and small amount of mulch for visual metering of areas to be vegetated. Apply seed and amendments at the specified rates.
2. Step 2- Immediately mix and apply the remaining mulch and growing media and applying in opposing directions to achieve total specified mulch rate per are and with complete coverage. Remove any mulch slurry sprayed onto any hardscape surface or non-grass planting bed.

C. Any areas not specifically called out as sod shall be hydroseeded unless otherwise specified.

3.6 GENERAL MAINTENANCE, PROTECTION, GUARANTEE

A. Protect and maintain all grass areas by watering, mowing as necessary, replanting, and overseeding to establish a uniform stand. Reseed if satisfactory initial growth does not occur within 18 days of planting.

B. Maintain through substantial completion and a minimum of 60 days after material completion of the project.

C. Provide frequent light irrigation if no natural rain events during the first 2 weeks of seeding to prevent the top of the soil from drying out.

D. After seed germination and when grass is about 1 inch tall, reduce irrigation frequency and increase volume as necessary to maintain growth and establish root zone.

E. Repair all seed washing and erosion.

F. Apply maintenance fertilization each subsequent growing season as required based on recommended rate from soil analysis and based on plant species needs.

G. Maintain grass height as recommended in Part 2 seed mixtures or as indicated in other Part 3 articles.

3.7 MAINTENANCE FOR TURF AREAS (SOD AND/OR GRASS AREAS)

A. Repair bare spots and re-fertilize and lime the soil based on soil analysis of failed areas. Replant if satisfactory initial growth does not occur within 18 days of planting. Scattered bare spots less than 1 square foot are acceptable when accounting for no more than 3% of the total area.

B. For sod, irrigated turf areas, play turf areas apply 300 lbs per acre of ammonium nitrate 30 calendar days from seeding operation/sod installation Do not apply nitrogen between October 15 and March 15.

C. For sod areas, apply 2 topdressing applications of coarse sand and peat moss (75% sand and 25% peat) at 6 mo. intervals.

3.9 CLEAN UP

A. Remove any soil, mulch or similar material which has been brought onto paved areas. Upon completion of the planting, remove all excess soil, stones, and debris which has not previously been cleaned up as directed by the Design Professional.

END OF SECTION 329200

SECTION 33 40 00 - STORM DRAINAGE UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Storm sewers, storm structures, appurtenances.

B. Related Sections:

1. 31 00 01 “SITE PREPARATION AND GENERAL SITE WORK” for layout and construction staking.
2. 31 22 00 “SITE GRADING” for trench excavation; trench safety; pipe bedding, backfill and compaction.

1.2 REFERENCE SPECIFICATIONS AND DOCUMENTS

A. Georgia Department of Transportation (GDOT)

1. Department of Transportation, State of Georgia Standard Specifications, Construction of Roads and Bridges, 2013 Edition. Unless otherwise noted, conform with GDOT Standard Specifications for work and materials for storm drain utilities. In the event of conflict apply the more stringent requirement.

B. American Association of State Highway and Transportation Officials (ASHTO)

1. AASHTO M36 – Standard specification for Corrugated Steel Pipe, Metallic-Coated, for Sewer and Drains.
2. AASHTO M190 – Standard Specification for Bituminous-Coated Corrugated Metal Culvert Pipe and Pipe Arches.
3. AASHTO M170 – Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.

C. American Society of Testing Materials (ASTM)

1. ASTM D2321 – Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and other Gravity – Flow Applications.

1.3 SUBMITTALS

A. Product information including manufacturer instructions: pipe, fittings. Submit for approval prior to delivery of any material.

B. Shop Drawings: Structures. Submit for approval prior to delivery of any material.

C. As-built drawings:

1. Furnish a set of record "as-built" prints of all portions of the built storm sewer systems. The "as-built" record drawing shall include, but not be limited to:

a. Horizontal location of all manholes, pipes, laterals, clean outs, etc. as built.
b. All vertical information regarding the storm sewer as-built such as tops of all structures, invert elevations, location and differential vertical location at crossings with storm sewer, water, gas and all other utility lines. Information shall be shown in plan and profile view.
c. Information required by the Authority Having Jurisdiction.

2. The record as-built drawings shall be an accurate representation of the built storm sewer system.

1.4 SITE CONDITIONS

A. Keep a hard copy of GDOT Standard Specifications for reference at the job site at all times during construction.

B. Comply with all applicable codes and ordinances of local Authority Having Jurisdiction.

C. Clean all existing drainage systems which are tied into the work.

D. Maintain in operating condition all existing surface or subsurface utilities storm drainage systems in accordance with 32 40 00 DEMOLITION AND STRUCTURE MOVING. Repair any damage done to existing utilities during the course of work, due to construction.

PART 2 - PRODUCTS

2.1 PIPE MATERIALS

A. Concrete Pipe: Unless otherwise shown, concrete pipe shall be reinforced Class IV (ASTM C76, AASHTO M170) tongue and groove with rubber gasket. All concrete pipe 12 inches and less in diameter shall be O-Ring Concrete pipe.

B. Corrugated Metal Pipe (CMP): Unless otherwise shown, CMP shall be galvanized and meets requirements of AASHTO M36, Type 1, spiral rib pipe with ½" deep corrugations UltraFlow (or approved equal). Additionally, unless otherwise shown CMP pipes shall have a protective bituminous coated & paved invert (1/2 of diameter) meeting the requirements of AASHTO M190 Type B. Bituminous coatings shall be a minimum 0.05 inches thick. Contractor option to utilize Aluminized Type II corrugated metal pipe in lieu of galvanized pipe with bituminous coating. Unless otherwise specified on the Drawings, pipe gauges are as follows:

16 Gauge Pipe Diameters	14 Gauge Pipe Diameters	12 Gauge Pipe Diameters	10 Gauge Pipe Diameters
18” 24”	30” 36” 42” 48”	54” 60” 72” 84” 96”	> 96”

C. Unless otherwise shown, downspout and roof rain leader pipe shall be schedule 40 polyvinylchloride pipe with matching fittings.

D. High Density Polyethylene (HDPE) corrugated pipe and fittings: Unless otherwise shown, conform with the following:

1. For 4 to 10 inch diameters, smooth interior and annular exterior corrugated HDPE Pipe per AASHTO M252, Type S.
2. For 12 to 48 inch diameters, smooth interior and annular exterior corrugated HDPE Pipe per AASHTO M294, Type S.
3. For 54 to 60 inch diameters, smooth interior and annular exterior corrugated HDPE Pipe per AASHTO MP7-97, Type S.

E. Pipe and fittings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions or other injurious defects. Joints shall meet or exceed the “soil tight” joint performance criteria of AASHTO Standard Specifications for Highway Bridges, Division II.

2.2 APPURTENANCES MATERIAL

A. Concrete shall have a minimum compressive strength of 3,000 psi.

B. Mortar for masonry work in storm sewer structures shall be 1:2 cement sand mix. Cement shall be High Early Strength American Portland cement. Sand shall be clean and sharp, free from all deleterious substances and shall contain no more than 5% by volume of material passing No. 100 sieve.

C. Brick shall be clay or shale Hard No. 1 building brick.

D. Castings: All castings shall be gray iron per Georgia DOT Specifications. Casting, grates, frames and other storm drainage appurtenances shall be on site prior to storm drainage installation. Maintain a snug fit between grates, lids, etc., and frame. All castings shall be heavy-duty, bicycle safe type.

E. Other materials required to completely install storm sewers in accordance with these specifications shall conform to all applicable articles and paragraphs of Georgia DOT Specifications.

PART 3 - EXECUTION

3.1 PREPARATION

A. Verify lines, grades, and construction stakes before commencing any excavation for storm drainage pipes or structures.

3.2 EXCAVATION

A. Perform trench and structure excavation in accordance with 31 25 00 “Grading” and in accordance with all OSHA Excavation Standards.

3.3 PIPE BEDDING

A. Unless otherwise shown on the Drawings, construct all bedding in accordance with 31 25 00 “Grading”. Where incompressible soils or rock are encountered, excavate in accordance with 31 25 00 “GRADING”.

3.4 CONCRETE PIPE INSTALL

A. Concrete pipe: lay section in a prepared trench with socket ends pointing upstream. Join sections, including rubber gaskets in accordance with manufacturer recommendations.

1. Install concrete anti-seep collars at all pipe joints for reinforced concrete pipe **within the limits of the stormwater management facility dike**. Concrete anti-seep collars shall meet the following:

a. Extend 12 inches, minimum, beyond the outer dimension of the pipe in each direction.
b. Minimum 12 inches in thickness measured parallel to the concrete pipe.
c. Reinforced with No. 3 bars at perimeter of concrete anti-seep collar. Maintain 2 inches clearance from outer dimension of anti-seep collar.

3.5 CORRUGATED METAL PIPE AND PIPE ARCH INSTALLATION.

A. CMP and pipe arches: lay sections in prepared trench, with outside laps of circumferential joints pointing upstream and longitudinal joints at the sides. Join the sections with coupling bands, fastened by 2 or more bolts. Before backfilling repair any damaged coating or exposed base metal.

3.6 HDPE AND PVC PIPE INSTALLATION

A. Install in accordance with ASTM D 2321.

3.7 APPURTENANCES

A. Headwalls and aprons shall conform with the Plans.

B. Curb Inlets, Weir Inlet, Drop Inlets, and Manholes: Refer to plans for location and type.

C. Connect all downspout and rain leader lines to storm drainage system as shown.

D. Line Tracers: Wrap all non-metallic pipes with metallic tracer tape prior to backfill.

E. Line Markers: During back filling of site drainage systems, install continuous underground-type plastic line marker, located directly over buried line at 6” to 8” below finished grade.

F. All joints between pre-cast base, risers, and round-2-square adapters shall be keyed. All joints shall be grouted inside and out.

G. Stormwater Quality Control Devices (when applicable) shall be installed as recommended by the manufacturer.

H. Leave 2” diameter PVC temporary opening at subgrade in drainage structures for surface drainage. Opening shall be grouted up after finish grading and paving is completed. Contractor shall provide for temporary surface drainage removal to allow timely construction.

3.8 BACKFILLING

A. Check vertical and horizontal alignment of the pipe, culvert, or storm drain by sighting along the crown, invert, and sides of pipe. Check for sagging, faulting, and invert heaving. Repair any issues before backfilling pipe.

B. Backfill in accordance with 31 22 00 “GRADING”.

3.9 VIDEO INSPECTION

A. Video surveillance may be conducted by the Owner on storm drain installations after completion of all activities that may damage the pipe but prior to the placement of the base and paving when applicable. If video surveillance indicates problems such as pipe deformation, cracking, or joint separation, the Contractor shall be responsible for repairing or replacing these pipes at no cost to the Owner.

3.10 TESTING- QUALITY ACCEPTANCE

A. Perform compaction testing in accordance with 31 22 00 “GRADING”.

B. A minimum of 25% of the installed length of smooth lined corrugated polyethylene (PE), High Density Polyethylene (HDPE) or PVC pipe, selected by the Design Professional, shall be tested for deformation by the Contractor using a nine point mandrel.

1. The mandrel shall have an effective diameter equal to 95% of the base inside diameter.
2. Provide the Design Professional with a proving-ring to verify mandrel size.

3. Smooth lined corrugated polyethylene or PVC profile wall drain pipe installations shall have a maximum of 5% deflection when checked after completion of all construction activities that may damage the pipe but prior to placement of the base and paving when applicable.
4. If mandrel testing indicates that problems exist, the Design Professional may determine that up to 100% of the storm drain installation be checked for deformation.
5. Pipe with over 5% deflection shall be removed and replaced at no cost to the Owner.

3.11 MAINTENANCE AND PROTECTION

A. Before any traffic over a culvert is allowed, provide an adequate depth and width of compacted backfill to protect the structure from damage or displacement. Any damage or displacement that may occur after installing and backfilling shall be repaired or corrected at the Contractor's expense.

B. Remove any debris or silt that constricts the flow through a pipe as often as necessary to maintain drainage throughout the life of the Contract.

3.12 CLEANUP

A. Upon completion of work, all forms, equipment, protective covering, and rubbish resulting therefrom shall be removed from the premises.

B. Carefully clean all pipes, culverts, structures, and appurtenances of dirt, rubbish, and surplus mortar before the work is accepted.

END OF SECTION 334000

APPENDICES

1. AFFIDAVITS

   Affidavit Verifying Status for City Public Benefit Application

   Contractor Affidavit Under O.C.G.A. §13-10-91(b(1)

2. CORPORATE CERTIFICATE

3. BONDS

4. LIST OF SUBCONTRACTORS

5. Drawings

Affidavit Verifying Status
for City Public Benefit Application
(Bidder to sign and return)

By executing this affidavit under oath, as an applicant for a City of Sandy Springs, Georgia Business License or Occupation Tax Certificate, Alcohol License, Taxi Permit, execution of contract or other public benefit as referenced in O.C.G.A. Section 50-36-1, I am stating the following with respect to my application for a City of Sandy Springs license/permit and/or contract for

[Name of natural person applying on behalf of individual, business, corporation, partnership, or other private entity]

1) _____ I am a United States citizen

OR

2) _____ I am a legal permanent resident 18 years of age or older or I am an otherwise qualified alien or non-immigrant under the Federal Immigration and Nationality Act 18 years of age or older and lawfully present in the United States.*

In making the above representation under oath, I understand that any person who knowingly and willfully makes a false, fictitious, or fraudulent statement or representation in an affidavit shall be guilty of a violation of Code Section 16-10-20 of the Official Code of Georgia.

Signature of Applicant: _____ Date: _____

Printed Name: _____

*Alien Registration number for non-citizens _____

****PLEASE INCLUDE A COPY OF YOUR PERMANENT RESIDENT CARD, EMPLOYMENT AUTHORIZATION, GREEN CARD, OR PASSPORT WITH A COPY OF YOUR DRIVER'S LICENSE IF YOU ARE A LEGAL PERMANENT RESIDENT (#2).**

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

Notary Public: _____

My Commission Expires: _____

*Note: O.C.G.A. § 50-36-1(e)(2) requires that aliens under the federal Immigration and Nationality Act, Title 8 U.S.C., as amended, provide their alien registration number. Because legal permanent residents are included in the federal definition of "alien", legal permanent residents must also provide their alien registration number. Qualified aliens that do not have an alien registration number may supply another identifying number below:

_____

Contractor Affidavit under O.C.G.A. § 13-10-91(b)(1)
(Bidder to sign and return)

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 the City of Sandy Springs 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 _____ 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 _____

_____

NOTARY PUBLIC

My Commission Expires: _____

CORPORATE CERTIFICATE

I, _____ , certify that I am the Secretary of the Corporation named as Contractor in th foregoing bid; that _____ who signed said bid in behalf of the Contractor, was

then (title)_____ of said Corporation; that said bid was duly signed for and in behalf of said Corporation by authority of its Board of Directors, and is within the scope of its corporate powers; that said Corporation is organized under the laws of the State of ___Georgia_____.
This _____ day of _____, 2019.

(Seal)

_____
(Signature)

BID BOND
(BID BOND TO BE RETURNED WITH BID)

KNOW ALL MEN BY THESE PRESENTS, THAT _____

_____

(Name of Contractor)_____
(Address of Contractor) at

_____

(Corporation, Partnership and or Individual) hereinafter called Principal, and _____

_____
(Name of Surety)

_____
(Address of Surety

A corporation of the State of _____, and a surety authorized by law to do business in the State of Georgia, hereinafter called Surety, are held and firmly bound unto

City of Sandy Springs Georgia
1 Galambos Way, Sandy Springs, GA 30328

herein after referred to as Obligee, in the penal sum
of_____ Dollars ($ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

WHEREAS, the Principal is about to submit, or has submitted, to the City of Sandy Springs, Georgia, a proposal for furnishing materials, labor and equipment for:

ITB #19-050 Lake Forest Elementary Recreational Improvement Project

WHEREAS, the Principal desires to file this Bond in accordance with law in lieu of a certified Bidder's check otherwise required to accompany this Proposal.

NOW, THEREFORE, the conditions of this obligation are such that if the bid is accepted, the Principal shall within ten days after receipt of notification of the acceptance execute a Contract in accordance with the Bid and upon the terms, conditions, and prices set forth in the form and manner required by the City of Sandy Springs, Georgia, and execute a sufficient and satisfactory Performance Bond and Payment Bond payable to the City of Sandy Springs, Georgia, each in an amount of 100% of the total Contract Price, in form and with security satisfactory to said the City of Sandy Springs, Georgia, and otherwise, to be and remain in full force and virtue in law; and

the Surety shall, upon failure of the Principal to comply with any or all of the foregoing requirements within the time specified above, immediately pay to the City of Sandy Springs, Georgia, upon demand, the amount hereof in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

PROVIDED, FURTHER, that Principal and Surety agree and represent that this bond is executed pursuant, to and in accordance with the applicable provisions of the Official Code of Georgia Annotated, as Amended, including, but not limited to, O.C.G.A. § 36-91-1, et. seq., and is intended to be and shall be constructed as a bond in compliance with the requirements thereof.
Signed, sealed, and dated this _____ day of _____A.D., 20____

ATTEST:

_____ _____
(Principal Secretary) (Principal)

(SEAL) BY: _____

_____ _____
(Witness to Principal) (Address)

_____
(Address)

_____
(Surety)

ATTEST

BY: _____
(Attorney-in-Fact) and Resident Agent

_____
(Attorney-in-Fact)

(Seal)

_____
(Address)

_____
(Witness as to Surety)

_____
(Address)

_____

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: THAT

_____
(Name of Contractor)

_____
(Address of Contractor)

a _____
(Corporation, Partnership or Individual)

_____

Hereinafter called Principal, and

_____
(Name of Surety)

_____
(Address of Surety)

A Corporation of the State of _____ and a surety authorized by law to do business in the State of Georgia, hereinafter called Surety, are held and firmly bound unto

The City of Sandy Springs. Georgia
1 Galambos Way, Sandy Springs, GA 30328

hereinafter referred to as Obligee; are held firmly bound unto said Obligee and all persons doing work or furnishing skill, tools, machinery, supplies, or material under or for the purpose of the Contract hereinafter referred to, in the penal sum of:
_____Dollars ($ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

The condition of this obligation is such, as whereas the Principal entered into a certain contract, hereto attached, with the Obligee, dated for:

ITB #19-050 Lake Forest Elementary Recreational Improvement Project

NOW THEREFORE, the conditions of this obligation are such that if the above bound Principal shall well, truly, fully and faithfully perform said contract according to its terms, covenants, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the oblige, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreement of any and all duly authorized modifications of said contract that may hereafter be made, then his obligation shall be void, otherwise to remain in full force and effect.

PROVIDED FURTHER, that said Surety to this Bond, for value received, hereby stipulates and agrees that no change, extension of time, alterations, or additions to the terms of the Contract or to the Work to be performed thereunder shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alterations, or additions to the terms of the Contract or to the work to be performed hereunder.

PROVIDED, FURTHER, that Principal and Surety agree and represent that this bond is executed pursuant to and in accordance with the applicable provisions of the Official Code of Georgia Annotated, as Amended, including but not limited to, O.C.G.A. § 36-91-1 et. seq., and is intended to be and shall be construed as a bond in compliance with the requirements thereof.

Signed, sealed, and dated this _____ day of _____A.D., 20____

ATTEST:

_____ _____

(Principal Secretary) (Principal)

(SEAL)

BY: _____

_____

(Witness to Principal)

_____

(Address)

_____

(Surety)

ATTEST BY:

_____

Attorney-in-Fact) and Resident Agent

_____

(Attorney-in-Fact)

(Seal) _____

(Address)

_____

(Witness as to Surety)

_____

(Address)

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: THAT _____
(Name of Contractor)

_____
(Address of Contractor)

a _____
(Corporation, Partnership or Individual)

_____
Hereinafter called Principal, and

_____
(Name of Surety)

_____
(Address of Surety)

a Corporation of the State of _____ and a surety authorized by law to do business in the State of Georgia, hereinafter called Surety, are held and firmly bound unto

The City of Sandy Springs Georgia
1 Galambos Way, Sandy Springs GA 30328

hereinafter referred to as Obligee; for the use and protection of all subcontractors and all persons supplying labor, services, skill, tools, machinery, materials and/or equipment in the prosecution of the work provided for in the contract herein after referred to in the full and just sum of _____Dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, the Principal and Surety bind themselves, their, and each of their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such, as whereas the Principal entered into a certain contract hereto attached, with the Obligee, dated _____ for:

ITB #19-050 Lake Forest Elementary Recreational Improvement Project

NOW, THEREFORE, the conditions of this obligation are such that if the Principal shall well, truly, and faithfully perform said Contract in accordance to its terms, covenants, and conditions, and shall promptly pay all persons furnishing labor, materials, services, skill, tools, machinery and/or equipment for use in the performance of said Contract, then this obligation shall be void; otherwise, it shall remain in full force and effect.

All persons who have furnished labor, materials, services, skill, tools, machinery and/or equipment for use in the performance of said Contract shall have a direct right of action on this Bond, provided payment has not been made in full within ninety (90) days after the last day on which labor was performed, materials, services, skill, tools, machinery, and equipment furnished

or the subcontract completed.

PROVIDED FURTHER, that said Surety to this Bond, for value received, hereby stipulates and agrees that no change, extension of time, alterations, or additions to the terms of the Contract or to the Work to be performed there under shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alterations, or additions to the terms of the Contract or to the work to be performed there under.

PROVIDED, HOWEVER, that no suit or action shall be commenced hereunder by any person furnishing labor, materials, services, skill, tools, machinery, and/or equipment having a direct contractual relationship with a subcontractor, but no contractual relationship express or implied with the Principal:

Unless such person shall have given notice to the Principal within sixty (60) days after such person did, or performed the last of the work or labor, or furnished the last of the materials, services, skill, tools, machinery and/or equipment for which claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials, services, skill, tools, machinery and/or equipment were furnished, or for whom the work or labor was done or performed. Such a notice shall be served by mailing the same by registered mail, postage prepaid, in an envelope addressed to the Principal, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State in which the aforesaid project is located, save that such service need not be made by a public officer, and a copy of such notice shall be delivered to the Obligee, to the person and at the address provided for in the Contract, within five (5) days of the mailing of the notice to the Principal.

PROVIDED, FURTHER, that any suit under this bond must be instituted before the expiration of one (1) year after the acceptance of the public works covered by the Contract by the proper authorities.

PROVIDED, FURTHER, that Principal and Surety agree and represent that this bond is executed pursuant to and in accordance with the applicable provisions of the Official Code of Georgia Annotated, as Amended, including, but not limited to, O.C.G.A. § 36-91-1, et. seq., and is intended to be and shall be construed as a bond in compliance with the requirements thereof.

Signed, sealed, and dated this _____ day of _____A.D., 20____

ATTEST:

_____ _____

(Principal Secretary) (Principal)

(SEAL) BY: _____

_____ _____

(Witness to Principal)

(Address)

(Address)

(Surety)

ATTEST

BY: _____

(Attorney-in-Fact) and Resident Agent

(Attorney-in-Fact)

(Seal)

(Address)

(Witness as to Surety)

(Address)

MAINTENANCE BOND

CITY OF SANDY SPRINGS, GEORGIA
FULTON COUNTY, GEORGIA
PROJECT NO:
BOND NO: _____

KNOW ALL MEN BY THESE PRESENTS
That we,_____ as Principal, and
_____ as Surety, are held and firmly bound unto the CITY OF SANDY SPRINGS, GEORGIA, as Obligee in the sum of 1/3 of the contract bid for the payment of which said Principal and Surety bind themselves, their heirs, administrators, executors, successors and assigns jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into an agreement with the City of Sandy Springs for

ITB #19-050 Lake Forest Elementary Recreational Improvement Project

and said work has now been completed and the Obligee desires a maintenance bond guarantee said streets and improvements for a period of one (1) year beginning _____ and ending _____.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal shall fully indemnify and save harmless the City of Sandy Springs from any and all loss, costs, expenses or damages, for any repairs or replacements required because of defective workmanship or materials in said construction, then this obligation shall be null and void; otherwise to be and remain in full force and effect as to any such claim arising within one (1) year from the completion of said construction as set forth in said agreement.

Signed, sealed and dated this_____ day of _____, 20 _____

Witness:

_____
(Principal)

_____
(Name of Surety. Company)

_____
(Attorney-in-fact)

LIST OF SUBCONTRACTORS (Bidder to complete and return)

I do _____, do not _____, propose to subcontract some of the work on this project. I propose to
Subcontract work to the following subcontractors:

Company Name:_____