

**PROJECT MANUAL  
FOR THE  
BID NO. 19-076  
LEACHATE MANAGEMENT UPGRADES**



**GEORGETOWN COUNTY,  
SOUTH CAROLINA  
VOLUME 1**

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DIVISION 1- GENERAL REQUIREMENTS  
DIVISION 2- SITE WORK  
DIVISION 3- CONCRETE  
DIVISION 5- METALS  
    0550 MISCELLANEOUS METALS  
DIVISION 11 EQUIPMENT  
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    11311- LEACHATE TRANSFER PUMPS  
    11323- SUBMERSIBLE LEACHATE PUMPS  
DIVISION 13 PROCESS INSTRUMENTATION  
DIVISION 16 ELECTRICAL**

**PREPARED BY:  
GEORGETOWN COUNTY PUBLIC SERVICES, LANDFILL DIVISION &**



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**Georgetown County  
Leachate Management Upgrades  
Bid # 19-076**

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END OF SECTION

**SECTION 00010  
INVITATION FOR BIDS**

**Time Line: Invitation for Bid #19-076**

<b>Item</b>	<b>Date</b>	<b>Time</b>	<b>Location*</b>
Advertised Date of Issue:	Wed. October 30, 2019	n/a	n/a
Mandatory Pre-Bid Conference	Thur. November 14, 2019	11:00AM ET	*Landfill
Material Substitution Cut-Off Time:	Wed. November 20, 2019	3:30PM ET	
Inquiry Cut-Off Time:	Wed. November 20, 2019	3:30PM ET	Suite 239
Bids Must be Received on/or Before:	Tues. November 26, 2019	3:30PM ET	Suite 239
Public Bid Opening & Tabulation:	Tues. November 26, 2019	3:30PM ET	Suite 239
County Council Consideration (Tentative)	Tuesday, Dec 10, 2019	5:30PM ET	Chambers
Earliest Date for Notice to Proceed (NTP)	Monday, Dec 16, 2019	n/a	n/a

\* All locations in the Old County Courthouse, 129 Screven Street, Georgetown, SC unless otherwise stated. \*Site\* Mandatory Pre Bid Conference: Georgetown County Landfill Environmental Education Center Classroom located at 201 Landfill Drive, Georgetown, SC 29440

**Leachate Management Upgrade**

**GEORGETOWN COUNTY, SOUTH CAROLINA  
Bid #19-076**

Written, sealed proposals for the for Georgetown County, SC will be received by the Purchasing Office, 2<sup>nd</sup> floor, Suite 239, 129 Screven St., Georgetown, SC 29440 until cut-off time shown in the Bid Time Line above. Bids will then be publicly and promptly opened and read aloud at the designated time by the Purchasing Officer. Bids that are not in the Purchasing Officer's possession prior to the stated opening date and time will be considered NON-RESPONSIVE and returned unopened. An official authorized to bind the Bid must sign all bid documents submitted.

**MAILING ADDRESS:**

County of Georgetown  
Post Office Drawer 421270  
Georgetown SC 29442-4200  
Attn: Purchasing

**STREET ADDRESS:**

Georgetown County Courthouse  
129 Screven Street, Suite 239  
Georgetown SC 29440-3641  
Attn: Purchasing

One (1) unbound, reproducible ORIGINAL of proposal and all required attachments must be submitted in a sealed envelope and clearly marked on the outermost container as follows:

**OFFEROR'S NAME**  
**BID ITEM NAME**  
**BID NUMBER**

Project Description: Georgetown County is seeking a contractor for the completion of upgrades to the leachate management infrastructure at the Georgetown County Solid Waste Facility. This project includes the furnishing and installation of five submersible leachate pumps and electrical service for newly constructed landfill cells. This project also includes replacement of infrastructure at the existing functional leachate tank, which consists of replacing an existing tank mixer, installing a new blower, demolition of existing effluent pumps, valves, and meters, and reinstalling new effluent pumps, valves, meters, and other incidental work.

General Conditions and Requirements:

The work performed under this Contract shall include, but may not be limited to: the furnishing of all labor, materials, equipment and services, whether specifically mentioned or not, that is required to complete the Construction of the Work of the project. All requirements of the State of South Carolina and all pertinent administrative regulations shall apply to this project as if herein written out in full.

Each proposer shall respond as provided more specifically herein, Section 00100, Instructions to Bidders, Paragraph IV Preparation and Submission of Bids. Proposals or amendments to proposals received after the proposal deadline will be considered as "Late Proposals" and will not be considered for any cause whatsoever. The Respondent shall sign his / her proposal correctly. All offers shall be entered in ink or typewritten. Proposals may be rejected if any omissions, alteration of form, additions not called for, or any irregularities of any kind are shown. Proposal envelopes or containers with amendments or changes written on the exterior will not be considered or opened. Respondents and their authorized representatives are invited to be present at the proposal opening.

Written requests for changes in products, materials, equipment and methods of construction required by the Contract Documents shall be submitted to the Owner before the deadline for questions dated Wednesday, November 20, 2019 @ 3:30pm. The written request must be submitted on the Material Substitution Request form provided as Exhibit K. Substitutions details are provided in Section 01630

The Construction Contract will be awarded to the firm or team of firms submitting the lowest and most responsive and responsible proposal as determined by the County. Georgetown County reserves the right to reject any and all proposals for any reason at any time prior to execution of the Contract. It further reserves the right to waive any and all technicalities and formalities in the proposal process as well as accept in whole or in part such proposal or proposals where it deems it advisable in protection of the best interests of the County and to hold all proposals for examination for a period not to exceed ninety (90) calendar days. The selected Contractor is encouraged to utilize, to the extent possible, local firms and trades from within Georgetown County.

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**Bid Security/Bid Bonding:**

- a) Each bid must be accompanied by a Bid Bond, or by a certified check payable to Georgetown County, SC, for an amount equal to five per-cent (5%) of the total base bid as a guarantee that if the bid is accepted, the required Contract will be executed within fifteen (15) days after receipt of written notice of formal award of Contract. Bids not including such a bid bond will not be considered. Bid Bonds will be returned to unsuccessful vendors after award of Bid.
  
- b) The successful proposer must provide a Performance Bond from a surety company qualified to do business under the laws of the State of South Carolina in the amount of 100 percent (100%) of the contract amount, within fifteen (15) days the after receipt of written notice of formal award of the Contract.
  
- c) The successful offeror must provide a Payment and Material Bond from a surety company qualified to do business under the laws of the State of South Carolina in the amount of 100 percent (100%) of the contract amount, within fifteen (15) days after receipt of written notice of formal award of Contract.
  
- d) Should any Surety on the Construction Contract be determined unsatisfactory at any time by the Owner, notice will be given the Contractor who shall immediately provide a new Surety, satisfactory to the Owner and at no additional cost to the Owner. The Contract shall not be operative nor will any payments be due or paid until approval of the bonds has been made by the Owner.
  
- e) The Bidder shall require the Attorney-in-Fact who executes the required bonds, on behalf of the Surety, to affix thereto a certified and current copy of his Power of Attorney, indicating the monetary limit of such power.
  
- f) The cost of the bonds shall be included in the construction portion of the base bid.

Throughout this Project Manual all references to the “Owner” shall mean the County of Georgetown, SC or its Designated Representative. Construction Contract Documents, including Bidding and Contract Documents, General Requirements, Plans and Technical Specifications may be viewed and downloaded in Adobe™ PDF format on line at the County Website [www.gtcountry.org](http://www.gtcountry.org), select “Bid Opportunities” from the Quick Links box on the home page. Construction Contract Documents will also be made available to various plan room locations.

**NOTE:** Contractors must complete and return **Exhibit K** “CADD Release Form” with their bid submittal. CADD information is provided on the website as a convenience, but it is the responsibility of the contractor to verify the accuracy of information provided.

**END OF SECTION 00010**

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**SECTION 00100**  
**INSTRUCTIONS TO BIDDERS**  
**Bid #19-076**

**These are general instructions and conditions that accompany each bid package. If more specific instructions are given in the individual bid package, those instructions should prevail.**

**1. Submission of Questions**

Questions must be submitted in writing via electronic mail, facsimile or postal mail to the Issuing Officer no later than the “Deadline for Questions” cutoff identified in the Bid Timeline on page four (4) in order to generate an official answer. All written questions will receive an official written response from the Georgetown County Purchasing Office (GCPO) and will become addenda to the solicitation.

GCPO reserves the right to reject or deny any requests made by the provider.

Impromptu, unwritten questions are permitted and verbal answers may be provided, but are only intended as general direction and will not represent the official GCPO position. The only official position of GCPO is that which is stated in writing and issued in the solicitation as addenda thereto.

No other means of communication, whether oral or written, shall be construed as a formal or official response/statement and may not be relied upon. **SEND QUESTIONS TO:**

Pamela Bassetti, Senior Buyer  
Post Office Box 421270, Georgetown, SC 29442-4200  
Fax: (843) 545-3082  
[Email: pbassetti@gtcounty.org](mailto:pbassetti@gtcounty.org)

2. Written sealed public bids for a Contract to provide Andrews Regional Recreation Center – General Contractor services shall be received in the Purchasing Office, Second Floor, Suite 239, 129 Screven Street, Georgetown, SC until the cut-off time shown in the bid timeline on page four (4) of this document. Bids will then be publicly and promptly opened at the designated time by the Purchasing Officer. Bids that are not in the Purchasing Officer’s possession prior to the stated opening date and time will be considered **NON RESPONSIVE** and returned unopened. An official authorized to bind the offer must sign all proposals submitted.

**IMPORTANT OFFEROR NOTES:**

- a) Bid Number & Title must be shown on the OUTSIDE of the delivery package.
- b) Federal Express does NOT guarantee delivery to Georgetown, SC before 4:30 PM Eastern Time on Next Day Service.
- c) UPS WILL guarantee delivery to Georgetown, SC before 10:30 AM Eastern Time on Next Day “Early AM” Service.
- d) Offeror is responsible for timely delivery – no exceptions.

3. Inclement Weather/Closure of County Courthouse

If the County Courthouse is closed for business at the time scheduled for bid opening, for whatever reason, sealed bids will be accepted and opened on the next scheduled business day, at the originally scheduled time.

4. This solicitation does not commit Georgetown County to award a contract, to pay any cost incurred in the preparation of the bid, or to procure or contract for goods or services. It is the responsibility of each bidder to see that the Georgetown County Purchasing Office receives bids on, or before, the date and time specified for the bid opening. No bid will be accepted thereafter. The County assumes no responsibility for delivery of bids that are mailed. Georgetown County reserves the right to reject any or all bids and to waive any informalities and technicalities in the bid process.

5. **NON EXCLUSIVITY**

Nothing herein is intended nor shall be construed as creating any exclusive arrangement with Contractor. Any resulting contract shall not restrict the County from acquiring similar, equal or like goods and/or services from other entities or sources, when Staff determines internally that this resulting action is in the best interest of Georgetown County.

6. One (1) unbound, reproducible ORIGINAL bid proposal must be submitted in a sealed envelope and clearly marked on the outermost container as follows:

**OFFEROR'S NAME**  
**BID ITEM NAME**  
**BID NUMBER**

7. Bidders must be licensed as a General Contractor in the State of South Carolina and will hold all Trade Contracts and the Building Permit on the Project.
8. Trade Contractors (Prime and sub-contractors) shall be qualified to perform the work contracted for and shall be licensed as such in the State of South Carolina.
9. Design services shall be performed by qualified architects and engineers licensed to perform the contracted work in the State of South Carolina.
10. No Bidder may submit more than one bid. Multiple bids for different manufacturers but represented by the same firm will not be accepted. Bids offered directly from manufacturers shall indicate if a local dealer/representative will be involved.

11. Definitions:

- a) The terms "Proposer", "Offeror", or "Bidder" refer to those parties who are submitting sealed responses for the work set forth in this document to the OWNER, as distinct from a sub-bidder who provides a bid to the Bidder. The term "Contractor" refers to the successful Bidder.
- b) The term "**Landfill Leachate Management Upgrade**" or "Project" refers to the **complete set of services** as specified in this document, in every aspect.
- c) The terms "Owner" and "County" refer to the County of Georgetown, South Carolina.

- d) Where the words “shall” or “must” are used, it signifies an absolute minimum function or capacity that, if not satisfied, may result in disqualification.
- e) Where the words “should”, “may”, or “is desirable” are used, it signifies desirable, but not mandatory functions or capacities. Bidders who are able to provide these functions or capacities may be evaluated more favorably than those who cannot.

#### 11. SITE INSPECTION:

- a) The bidder is expected to have become familiar with and take into consideration, site conditions which may affect the work and to check all conditions and dimensions at the site.
- b) Each bidder shall acquaint themselves thoroughly as to the character and nature of the work to be done. Each bidder furthermore shall make a careful examination of the site of the work and inform themselves fully as to the difficulties to be encountered in performance of the work, the facilities for delivering, storing and placing materials and equipment and other conditions relating to construction and labor.
- c) The bidder shall examine the premises and the site and compare them with any applicable drawings and specifications. (S)he shall familiarize themselves with the existing conditions such as obstructive area levels and any problems related to erecting the required systems.
- d) No plea of ignorance of conditions that exist or may hereafter exist on the site of the work, or difficulties that may be encountered in the execution of the work, as a result of failure to make necessary investigations and examinations, will be accepted as an excuse for any failure or omission on the part of the Contractor to fulfill in every detail all the requirements of the contract documents and to complete the work for the consideration set forth therein, or as a basis for any claim whatsoever.
- e) Insofar as possible, the Contractor, in carrying out his/her work, must employ such methods or means as will not cause interruption of or interference with the work of any other Contractor, or County personnel at the site.
- f) When boring data is provided by the Owner, the Bidder shall assume responsibility for any conclusions he/she may draw from such data. (S)he may employ his/her own consultants to analyze available information and shall be responsible for any conclusions drawn from that information. The cost of such employment shall be borne solely by the Bidder.

#### 12. Correction or Withdrawal of Bids; Cancellation of Awards

An offeror must submit in writing a request to either correct or withdraw a bid to the Procurement Officer. Each written request must document the fact that the offeror's mistake is clearly an error that will cause him substantial loss.

- a) Correction of awards : An offeror shall not be permitted to correct a bid mistake after bid opening that would cause such offeror to have the low bid unless the mistake in the

judgment of the Procurement Officer is clearly evident from examining the bid document; for example, extension of unit prices or errors in addition.

- b) Cancellation of awards prior to performance: When it is determined after an award has been issued but before performance has begun that Georgetown County's requirements for the goods or services have changed or have not been met, the award or contract may be canceled and either re-awarded or a new solicitation issued.

13. Faxed or E-mailed bids will not be accepted by Georgetown County.

14. If you need any reasonable accommodation for any type of disability in order to participate in this procurement, please contact the purchasing office as soon as possible.

15. Title VI of the Civil Rights Act of 1964: Georgetown County hereby gives public notice that it is the policy of the agency to assure full compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 on Environmental Justice, and related statutes and regulations in all programs and activities. Title VI requires that no person in the United States of America shall, on the grounds of race, color, or national origin, be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which Georgetown County receives federal financial assistance. Any person who believes they have been aggrieved by an unlawful discriminatory practice under Title VI has a right to file a formal complaint with Georgetown County. Any such complaint must be in writing and filed with Georgetown County's Title VI Coordinator within one hundred and eighty (180) days following the date of the alleged discriminatory occurrence. For more information, or to obtain a Title VI Discriminatory Complaint Form, please see our website at <http://www.gtcounty.org/about/faqs.html>.

16. Any deviations from the specifications or modification of this bid and any extra or incidental work or reductions in work shall be set forth in writing and signed by both parties prior to making such change. Any increase or decrease in the bid price resulting from such change shall be included in writing.

17. Exceptions: The bidder shall list on a separate sheet of paper any variations from, or exceptions to, the conditions and specifications of this bid. This sheet shall be labeled "Exception(s) to Bid Conditions and Specifications," and shall be attached to the bid. When Proposers find instances where they must take exception with certain requirements or specifications of the bid, all exceptions shall be clearly identified. Written explanations shall include the scope of the exceptions, the ramifications of the exceptions for the County of Georgetown, and a description of the advantage to be gained or disadvantages to be incurred by the County as a result of these exceptions.

18. Georgetown County reserves the right to reject any or all bids, and to waive as an informality any irregularities contained in any bid as may be deemed in the best interest of the County. Georgetown County further reserves the right to reject any bid submitted, at its sole option, that the vendor may not be able to meet the service requirements of the bid.

18. Publicity releases: contractor agrees not to refer to award of any resulting contract in commercial advertising in such a manner as to state or imply that the products or services provided are endorsed or preferred by the user.

19. Material Safety Data Sheets: The County of Georgetown will not receive any materials, products, or chemicals which may be hazardous to an employee's health unless accompanied by a Material Data Sheet when received.
20. Ownership of Copyright: All right, title and interest in all copyrightable materials which vendor shall create in the performance of its obligations hereunder shall be the property of the procurer. Vendor agrees to assign and hereby does assign any and all interest it has in and to such material to procurer. Vendor agrees, upon the request of procurer to execute all papers and perform all other such acts necessary to assist procurer to obtain and register copyrights on such materials. Where applicable, works of authorship created by the vendor in the performance of its obligations hereunder, shall be considered "works for hire" as defined in the U.S. Copyright Act.
21. Ownership of Documents: Any reports, studies, photographs, negatives or other documents prepared by vendor in the performance of its obligations shall be the exclusive property of the procurer and all such material shall be remitted to the procurer by the vendor upon completion, termination or cancellation of this order. Vendor shall not use, willingly allow or cause to have such material used for any purpose other than performance of its obligations under this order without the prior written consent of the procurer.
22. Affirmative Action: The contractor will take affirmative action in complying with all Federal and State requirements concerning fair employment and employment of the handicapped, and concerning the treatment of all employees, without regard or discrimination by reason of age, race, color, religion, sex, national origin or physical handicap. The following are incorporated herein by reference: 41 C.F.R. 60-1.4, 60-250.4 and 60-741.4.
23. Inclusion and participation of disadvantaged, small, and local business entities is strongly encouraged, but minimum participation standards are not in effect for this project.
24. All Construction Contracts Over \$2,000:
  - a) Contract Work Hours and Safety Standard Act Requirements. The contracts must include a provision for compliance with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 USC 327-330) as supplemented by the Department of Labor regulations (29 CFR Part 5). Under Section 103 of the Act, each Contractor shall be required to compute the wages of every mechanic and laborer on the basis of a standard workweek of 40 hours. Work in excess of the standard workweek is permissible provided that the worker is compensated at a rate not less than one times the basic rate of pay for all hours worked in excess of 40 hours in the workweek. Section 107 of the Act is applicable to construction work and provides that no laborer of mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to health and safety as determined under construction, safety and health standards promulgated by the Secretary of Labor. These requirements do not apply to the purchases of supplies, materials, or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.
  - b) Copeland "Anti-Kickback" Act Requirements. All construction contracts over \$2,000.00 must include a provision for compliance with the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3). This act provides that each Contractor shall be prohibited from inducing, by any means, persons

employed in the construction, completion, or repaid of public work to give up any part of their compensation.

25. Bidders must clearly mark as "confidential" each part of their bid which they consider to be proprietary information that could be exempt from disclosure under section 30-4-40, Code of Laws of South Carolina 1976, as amended (Freedom of Information Act). If any part is designated as confidential, there must be attached to that part an explanation of how this information fits within one or more categories listed in section 30-4-40. The County reserves the right to determine whether this information should be exempt from disclosure and no legal action may be brought against the County or its agents for its determination in this regard.

26. CERTIFICATION REGARDING DRUG-FREE WORKPLACE:

The contractor certifies that the vendor(s) will provide a "drug-free workplace" as that term is defined in Section 44-107-30 of the Code of Laws of South Carolina, 1976, as amended, by the complying with the requirements set forth in title 44, Chapter 107.

27. Certification of Non-Segregated Facilities

The federally-assisted construction contractor certifies that he does not maintain or provide, for his employees, any segregated facilities at any of his establishments and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally-assisted construction contractor certifies that he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The federally-assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this Contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The federally assisted construction contractor agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical

Certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that he will retain such certifications in his files.

28. ILLEGAL IMMIGRATION: Construction

By signing its bid or proposal, Contractor certifies that it will comply with the applicable requirements of Title 8, Chapter 14 of the South Carolina Code of Laws and agrees to provide to the State upon request any documentation required to establish either: (a) that Title 8, Chapter 14 is inapplicable both to Contractor and its subcontractors or sub-subcontractors; or (b) that Contractor and its subcontractors or sub-subcontractors are in compliance with Title 8, Chapter 14. Pursuant to Section 8-14-60, "A person who knowingly makes or files any false, fictitious, or fraudulent document, statement, or report pursuant to

this chapter is guilty of a felony, and, upon conviction, must be fined within the discretion of the court or imprisoned for not more than five years, or both." Contractor agrees to include in any contracts with its subcontractors language requiring its subcontractors to (a) comply with the applicable requirements of Title 8, Chapter 14, and (b) include in their contracts with the sub-subcontractors language requiring the sub-subcontractors to comply with the applicable requirements of Title 8, Chapter 14. (An overview is available at [www.procurement.sc.gov](http://www.procurement.sc.gov))

29. Bidders must clearly mark as "confidential" each part of their bid which they consider to be proprietary information that could be exempt from disclosure under section 30-4-40, Code of Laws of South Carolina 1976, as amended (Freedom of Information Act). If any part is designated as confidential, there must be attached to that part an explanation of how this information fits within one or more categories listed in section 30-4-40. The County reserves the right to determine whether this information should be exempt from disclosure and no legal action may be brought against the County or its agents for its determination in this regard.

30. Nothing herein is intended to exclude any responsible vendor, his product or service or in any way restrain or restrict competition. On the contrary, all responsible vendors are encouraged to bid and their bids are solicited.

31. Acknowledgement of Addenda

Each contractor is responsible to verify the number of total addenda issued prior to bid. **Failure to acknowledge all addenda shall disqualify the bidder.** All addenda are posted by the County at the website located at [www.gtcountry.org](http://www.gtcountry.org), select "Bid Opportunities from the *Quick Links* box on the home page. It is each proposer's responsibility to verify that all addenda have been received and acknowledged.

30. Form and Style of Bids

- a) Bids in the form of sealed proposals for the Construction of the Project will be received until the time and the date stated in Section 00010, Invitation for Bids.
- b) The Bid shall be submitted on the Bid Form provided; no other form is acceptable.
- c) The successful Bidder will be required to provide verified breakdown of costs of all services and work in a manner acceptable to the Owner.
- d) All blanks on the Bid Form shall be filled in, either typed or printed in ink. The person signing the bid shall initial all corrections or erasures.
- e) Where so indicated on the Bid Form, the Bid Sum shall be expressed in both words and figures; in case of a discrepancy between the two, the Sums expressed in words shall govern.
- f) Bid unit price on quantity specified -- extend and show total. In case of errors in extension, unit prices shall govern.
- g) Bidder shall quote all Alternates in the Bidding Documents. If Bidder fails to bid on all Alternates, then his/her Bid may be considered irregular, non-responsive and may be disqualified.

- h) Bids containing qualifications will be considered irregular, non-responsive and may be disqualified.
- i) A Bid Form submitted by a partnership shall list the names of all partners and shall be signed in the partnership name by one of the members of the partnership who is authorized to sign for the partnership.
- j) A Bid Form submitted by a corporation shall be executed in the legal name of the corporation, followed by the state of incorporation and signed by the President or Vice President or other authorized officer. The name of each person signing the Bid Form shall be typed or printed below the signature.
- k) When the person signing for a corporation is other than the President or Vice President and when requested by the Owner, a resolution or other satisfactory evidence of the authority of the officer signing in behalf of the corporation shall be furnished for the Owner's records. The name of each person signing the Bid Form shall be typed or printed below the signature.

31. **Insurance**

The successful bidder shall procure, maintain, and provide proof of, insurance coverage for injuries to persons and/or property damage as may arise from or in conjunction with, the work performed on behalf of the County by the bidder, his agents, representatives, employees or subcontractors. Proof of coverage as contained herein shall be submitted fifteen (15) days prior to the commencement of work and such coverage shall be maintained by the bidder for the duration of the contract period; for occurrence policies.

a. General Liability

Coverage shall be as broad as: Comprehensive General Liability endorsed to include Broad Form, Commercial General Liability form including Products/Completed Operations.

1. Minimum Limits

General Liability:  
 \$1,000,000 General Aggregate Limit  
 \$1,000,000 Products & Completed  
 Operations \$1,000,000 Personal and  
 Advertising Injury \$1,000,000 Each  
 Occurrence Limit  
 \$50,000 Fire Damage Limit  
 \$5,000 Medical Expense Limit

b. Automobile Liability

Coverage sufficient to cover all vehicles owned, used, or hired by the bidder, his agents, representatives, employees or subcontractors.

1. Minimum Limits

Automobile Liability:  
 \$1,000,000 Combined Single Limit  
 \$1,000,000 Each Occurrence  
 Limit \$5,000 Medical Expense  
 Limit

c. Workers' Compensation

Limits as required by the Workers' Compensation Act of SC. Employers Liability, \$1,000,000.

d. Owners' & Contractors' Protective Liability

Policy will be in name of County. Minimum limits required are \$1,000,000.

e. Professional Liability

Minimum limits are \$1,000,000 per occurrence.

f. Coverage Provisions

1. All deductibles or self-insured retention shall appear on the certificate(s).
2. The County of Georgetown, its officers/ officials, employees, agents and volunteers shall be added as "additional insured" as their interests may appear. This provision does not apply to Professional Liability or Workers' Compensation/Employers' Liability.
3. The offeror's insurance shall be primary over any applicable insurance or self-insurance maintained by the County.
4. Shall provide 30 days written notice to the County before any cancellation, suspension, or void of coverage in whole or part, where such provision is reasonable.
5. All coverage for subcontractors of the bidder shall be subject to all of the requirements stated herein.
6. All deductibles or self-insured retention shall appear on the certificate(s) and shall be subject to approval by the County. At the option of the County, either; the insurer shall reduce or eliminate such deductible or self-insured retention; or the bidder shall be required to procure a bond guaranteeing payment of losses and related claims expenses.
7. Failure to comply with any reporting provisions of the policy(s) shall not affect coverage provided the County, its officers/officials, agents, employees and volunteers.
8. The insurer shall agree to waive all rights of subrogation against the County, its' officers/officials, agents, employees or volunteers for any act, omission or condition of premises which the parties may be held liable by reason of negligence.
9. The bidder shall furnish the County certificates of insurance including endorsements affecting coverage. The certificates are to be signed by a person authorized by the insurance company(s) to bind coverage on its' behalf, if executed by a broker, notarized copy of authorization to bind, or certify coverage must be attached.
10. All insurance shall be placed with insurers maintaining an A.M. Best rating of no less than an A: VII. If A.M. Best rating is less than A: VII, approval must be received from County's Risk Officer.

### 32. **Workman's Compensation Coverage**

Georgetown County, SC will require each contractor and service provider to maintain on file with the purchasing officer, a current Certificate of Insurance showing limits as required by the Workers' Compensation Act of SC: Employers Liability, \$1,000,000.

The law also recognizes "statutory employees." These are employees who work for a subcontractor who may be working for a business or another contractor. Employers should inquire whether or not a subcontractor working for them has workers' compensation insurance, regardless of the number of employees employed by the subcontractor. If the subcontractor does not, the subcontractor's injured employees would be covered under the employer's workers' compensation insurance. If the subcontractor does not carry workers' compensation insurance, then the owner or the principal contractor would be liable just as if the subcontractor's employee was one of their employees.

For answers to additional questions, visit the SC Worker's Compensation Commission website:  
<http://www.wcc.state.sc.us/Frequently%20Asked%20Questions/FAQ.htm>

33. **Builders' Risk Insurance.** Contractor shall provide and maintain, during the progress of the work and until execution of the Certificate of Contract Completion, a Builder's Risk Insurance policy to cover all work in the course of construction including false work, temporary buildings, scaffolding, and materials used in the construction process (including materials designated for the project but stored off site or in transit). The coverage shall equal the total completed value of the work and shall provide recovery at replacement cost.

- a) Such insurance shall be on a special cause of loss form, providing coverage on an open perils basis insuring against the direct physical loss of or damage to covered property, including but not limited to theft, vandalism, malicious mischief, earthquake, tornado, lightning, and explosion, breakage of glass, collapse, water damage, and testing /startup.
- b) Coverage shall include coverage for "soft costs" (costs other than replacement of building materials) including, but not limited to, the reasonable extra costs of the architect/engineer and reasonable Contractor extension or acceleration costs. This coverage shall also include the reasonable extra costs of expediting temporary and permanent repairs to, or permanent replacement of, damaged property. This shall include overtime wages and the extra cost of express or other means for rapidly transporting materials and supplies necessary to the repair or replacement.
- c) The policy shall specifically permit and allow for partial occupancy by the owner prior to execution of the final Certification of Contract Completion, and coverage shall remain in effect until all punch list items are completed.
- d) The Builder's Risk deductible may not exceed \$5,000. The Contractor or subcontractor experiencing any loss claimed under the Builder's Risk policy shall be responsible for that loss up to the amount of the deductible.
- e) If Contractor is involved solely in the installation of material and equipment and not in new building construction, the Contractor shall provide an Installation Floater policy in lieu of a Builder's Risk policy. The policy must comply with the provisions of this paragraph.

34. Hold Harmless Clause

The Contractor shall, during the term of the contract including any warranty period, indemnify, defend, and hold harmless the County, its officials, employees, agents, Architect/Engineers and representatives thereof from all suits, actions, or claims of any kind, including attorney's fees, brought on account of any personal injuries, damages, or violations of rights, sustained by any person or property in consequence of any neglect in safeguarding contract work or on account of any act or omission by the contractor or his employees, or from any claims or amounts arising from violation of any law, bylaw, ordinance, regulation or decree. The vendor agrees that this clause shall include claims involving infringement of patent or copyright.

35. Condition of Items

All items shall be new, in first class condition, including containers suitable for shipment and storage, unless otherwise indicated herein. Verbal agreements to the contrary will not be recognized.

36. Workmanship and Inspection

All work under this contract shall be performed in a skillful and workmanlike manner. The County may, in writing, require the Contractor to remove any employee from work that the County deems incompetent or careless. Further, the County may, from time to time, make inspections of the work performed under this contract. Any inspection by the County does not relieve the Contractor from any responsibility regarding defects or other failures to meet the contract requirements.

37. Waiver or Forbearance

Any delay or failure of County to insist upon strict performance of any obligation under this Agreement or to exercise any right or remedy provided under this Agreement shall not be a waiver of County's right to demand strict compliance, irrespective of the number or duration of any delay(s) or failure(s). No term or condition imposed on Contractor under this Agreement shall be waived and no breach by Contractor shall be excused unless that waiver or excuse of a breach has been put in writing and signed by both parties. No waiver in any instance of any right or remedy shall constitute waiver of any other right or remedy under this Agreement. No consent to or forbearance of any breach or substandard performance of any obligation under this Agreement shall constitute consent to modification or reduction of the other obligations or forbearance of any other breach.

38. Progress Payments

Contractor's Application for Payment shall be submitted to the Owner on AIA Document G702 and G703--1992 Edition, or such other form as may be mutually agreed upon. The period covered by each Application for Payment shall be not less than one calendar month. The Owner shall make progress payments to the Contractor on undisputed amounts certified by the Architect within twenty-one (21) days from receipt of the Application for Payment by the Owner in accordance with Title 29, Chapter 6 of the Code of Laws of South Carolina, 1976, as amended. Retainage in the amount of ten percent (10 %) shall be withheld by the owner until final acceptance.

39. South Carolina Sales Tax

The County of Georgetown, SC is not exempt and pays the appropriate SC sales tax on all applicable purchases.

40. Assignment of Contract

This contract may not be assigned in whole or part without the written consent of the Purchasing Officer.

41. Termination

Subject to the provisions below, the contract may be terminated by the County upon thirty (30) days advance written notice to the other party; but if any work or service hereunder is in progress, but not completed as of the date of termination, then this contract may be extended upon written approval of the County until said work or services are completed and accepted.

a. Termination for Convenience

In the event that this contract is terminated or canceled upon request and for the convenience of the County, without the required thirty (30) days advance written notice, then the County shall negotiate reasonable termination costs, if applicable.

b. Termination for Cause

Termination by the County for cause, default or negligence on the part of the contractor shall be excluded from the foregoing provision; termination costs, if any, shall not apply. The thirty (30) days advance notice requirement is waived in the event of Termination for Cause.

c. Non-Appropriation:

It is understood and agreed by the parties that in the event funds are not appropriated in the current fiscal year or any subsequent fiscal years, this contract will become null and void and the County will only be required to pay for services completed to the satisfaction of the County.

42. Default

In case of default by the contractor, for any reason whatsoever, the County may procure the goods or services from another source and hold the contractor responsible for any resulting excess cost and may seek other remedies under law.

43. Severability

In the event that any provision shall be adjudged or decreed to be invalid, such ruling shall not invalidate the entire Agreement but shall pertain only to the provision in question and the remaining provisions shall continue to be valid, binding and in full force and effect.

44. Applicable Laws

This Agreement shall be governed by and construed in accordance with the laws of the State of South Carolina, U.S.A.

45. Claims and Disputes:

All claims, disputes and other matters in question between parties arising out of, or relating to, this Agreement, or the breach thereof, shall be decided in the Circuit Court of the Fifteenth Judicial circuit in Georgetown County, South Carolina. By executing this Agreement, all

parties specifically consent to venue and jurisdiction in Georgetown County, South Carolina and waive any right to contest jurisdiction and venue in said Court.

46. Rights of County

The County reserves the right to reject all or any part of any bid, waive informalities and award the contract to the lowest responsive and responsible bidder to best serve the interest of the County.

47. Notice of Award

A *Notice of Intent to Award* will be mailed to all respondents.

48. Protest

Bidders may refer to Sections 2-67, 2-73, and 2-74 of Ordinance #2008-09, also known as the Georgetown County, South Carolina Purchasing Policy to determine their remedies concerning this competitive process. The failure to be awarded a bid shall not be valid grounds for protest.

49. Debarment

By submitting a bid, the offeror certifies to the best of its knowledge and belief, that it and its principals, sub-contractors and assigns are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State or local department or agency. A copy of the County's debarment procedure in accordance with Section 2-68 of Ordinance #2008-09, also known as the Georgetown County, South Carolina Purchasing Policy is available upon request.

50. Firm Pricing for County Acceptance

Bid price must be firm for County acceptance for 90 days from bid opening date.

51. **BRAND NAME OR EQUAL:**

(a) The use of a “**Brand Name Only**” specification is for the purpose of describing the sole item that will satisfy the county’s requirements. Bids offering alternate products will be declared non-responsive.

(b) The use of a “**Brand Name Or Equal**” specification is for the purpose of describing the standard of quality, performance and characteristics desired and is not intended to limit or restrict competition. An item shall be considered to be substantially equivalent, or “equal” to the specified brand in the opinion of the Chief Procurement Officer, the County can reasonably anticipate sufficiently similar quality, capacity, durability, performance, utility and productivity as provided by the specified brand.

(c) The use of a “**Brand Name or Pre-Approved Equal**” specification with a reference to a brand name or model number does not preclude an offer of a comparable or better product, if full specifications and descriptive literature are provided for the product. Bidder shall submit a Substitution Request form for a proposed equal to Owner before the deadline for questions. If the Owner approves the proposed equal, an amendment to the bid will be issued specifically identifying the item as a pre-approved equivalent. Failure to provide such specifications and descriptive literature may be cause for rejection of the offer.

52. Substitutions and Product Options

Written requests for changes in products, materials, equipment and methods of construction required by the Contract Documents shall be submitted to the Owner prior to the deadline for questions as stated in the timeline, and by using the Material Substitution Request form provided As Exhibit K. Substitutions details are provided in Section 01630.

53. Permits

The successful Offeror must be responsible for obtaining all necessary town, city, county, and state permits/licenses and must comply with all local codes and ordinances. Copies of such permits/licenses shall be made available to the County upon request. Building contractors working within Georgetown County must also secure a Contractor's License from the Building Department. Work within the Georgetown City Limits may require a City Business License. For additional information, please review the "Forms and Fees" section of the Building and Planning web page at the link below:

<http://www.georgetowncountysc.org/building/default.html>

Please note, the Town of Andrews issues their own business licenses so work within the town limits of Andrews would need to be obtained from Andrews instead of contractor registration from the County's Building Department. All permits for work done in the Town of Andrews or the City of Georgetown would be permitted by those jurisdictions instead of the County.

54. Environmental Management:

Vendor/Supplier/Contractor will be responsible for complying with all federal, state and local environmental regulations relating to transportation, handling, storage, spillage and any other aspect of providing the services specified herein, as applicable.

55. Bid Tabulation Results

Vendors wishing to view the bid tabulation results may visit the Georgetown County, SC web-site at: <http://www.georgetowncountysc.org>. Select "Bid Opportunities" from the Quick Links box, then "Bids Under Review" and double click the link under the individual bid listing.

57. The Bidder hereby certifies that he or she has carefully examined all of the Documents for the project,

has carefully and thoroughly reviewed this Request for Bid/Quotation, has inspected the location of the project (if applicable), and understands the nature and scope of the work to be done; and that this Bid is based upon the terms, specifications, requirements, and conditions of the Request for Bid/ Documents. The Bidder further agrees that the performance time specified is a reasonable time, having carefully considered the nature and scope of the project as aforesaid.

58. Any attempt by the vendor to influence the opinion of County Staff or County Council by discussion, promotion, and advertising, misrepresentation of the submittal or purchasing process or any procedure to promote their offer will constitute a violation of the vendor submittal conditions and will cause the vendor's submittal to be declared null and void.

59. Apparent omission of a detailed description concerning any point, shall be regarded as meaning the best commercial practice is to prevail and that only material and workmanship of the finest quality are to be used.

60. Response Clarification

Georgetown County reserves the right to request additional written or oral information from Bidders in order to obtain clarification of their Responses.

61. Georgetown County, SC has a Local Vendor Preference Option by

ordinance: **Sec 2-50. Local Preference Option**

1. A vendor shall be deemed a Local Georgetown County vendor for the purposes of this Section if such vendor is an individual, partnership, association or corporation that is authorized to transact business within the State, maintains an office in Georgetown County, and maintains a representative inventory or commodities within the County on which the bid is submitted, and has paid all taxes duly assessed.
2. This option allows the lowest local Bidder whose bid is within five-percent (5%) of the lowest non-local Bidder to match the bid submitted by the non-local Bidder and thereby be awarded the contract. This preference shall apply only when (a) the total dollar purchase is \$10,000 or more; (b) the vendor has a physical business address located and operating within the limits of Georgetown County and has been doing business in the County for a period of twelve (12) months or more; and (c) the vendor provides proof of payment of all applicable Georgetown County taxes and fees if so requested.
3. Should the lowest responsible and responsive Georgetown County bidder not exercise its right to match the bid as granted herein, the next lowest qualified Georgetown County bidder shall have that right and so on. The right to exercise the right to match the bid shall be exercised within 24 hours of notification of the right to match the non-Georgetown County bidder's bid.
4. In order to qualify for the local preference authorized by this Section, the vendor seeking same shall be required to submit with its bid a statement containing relevant information which demonstrates compliance with the provisions of this Section. This statement shall be on a form provided by the County purchasing department and shall be signed under penalty of perjury. Failure to provide such affidavit at the time the bidder submits its bid shall constitute a waiver of any claim for preference.
5. For all contracts for architecture, professional engineering, or other professional services governed by § 2-5 6, Architect-Engineer and Land Surveying Services – Public Announcement and Selection Process, the county shall include the local business status of a firm among the factors considered when selecting which firms are “most highly qualified.” In determining which firm is the “most qualified” for purposes of negotiating a satisfactory contract, preference shall be given to a local business where all other relevant factors are equal.
6. Local preference shall not apply to the following categories of contracts: (a) Goods or services provided under a cooperative purchasing agreement or similar “piggyback” contract; (b) Contracts for professional services except as provided for in section five (§5) above; (c) Purchases or contracts which are funded, in whole or in part, by a governmental or other funding entity, where the terms and conditions of receipt of the funds prohibit the preference; (d) Purchases or contracts made pursuant to a noncompetitive award process, unless otherwise provided by this section; or (e) Any bid

announcement which specifically provides that the general local preference policies set forth in this section are suspended due to the unique nature of the goods or services sought, the existence of an emergency as found by either the county council or county administrator, or where such suspension is, in the opinion of the county attorney, required by law.

See the RESIDENCE CERTIFICATION FOR LOCAL PREFERENCE form attached for details.

62. Bidding Documents

- a) Each Bidder shall carefully examine the Bidding and Contract Documents, General Requirements, Drawings and Technical Specifications and all addenda or other revisions and thoroughly familiarize themselves with the detailed requirements prior to submitting a Bid. Bidders shall promptly notify the Owner in writing of any ambiguity, inconsistency, error or omission, which they may discover upon examination of the Bidding and Contract Documents, Project Site and / or local conditions. The Owner shall make such interpretations, corrections or changes to the Bidding Documents and will reply to all questions submitted by the Bidders. The Owner will log all responses and issue an addendum as may be appropriate. The Owner will not be responsible for any oral instructions and / or responses. Interpretations, corrections or changes made in any other manner will not be binding. All addenda sent to Bidders will become a part of the Bidding and Contract Documents. All inquiries shall be directed in writing or transmitted by facsimile to the office of the Owner. No allowance will be made after Bids are received due to oversight and / or error by bidder.
- b) Each Bidder shall carefully review the Table of Contents and the List of Drawings in the Project Manual to determine if any instrument is missing from the Bidding Documents. Bidders shall promptly notify the Owner, in writing, of any discrepancy.
- c) Addenda will not be mailed or faxed to all Bidders. Copies of Addenda will be made available for inspection at the office of the County Purchasing Officer and through the County website. Prior to submitting a Bid each Bidder shall ascertain that he/she has received all Addenda issued.
- d) Owner does not assume any responsibility for errors, omissions or misinterpretations resulting from the Bidder's use of incomplete Bidding Documents.

63. Liquidated Damages

Refer to *The Project Manual, Vol. 1, Division 1, Section 01100, Summary of Work.*

64. Testing Laboratory Services will be provided by owner and at owner's expense as specified in Section 01410. These services are not intended to relieve the contractor of his/her responsibility for testing and / or laboratory services required in the construction contract documents as part of his/her Quality Control (QC) activities.

**END OF SECTION 00100**

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**SECTION 00300  
BID FORM  
MANDATORY BID SUBMITTAL FORM**

**FIRM NAME:** \_\_\_\_\_

For: **Bid #19-076, Landfill Leachate Management Upgrade**

To: **MAILING ADDRESS:**

County of Georgetown  
Post Office Drawer 421270  
Georgetown SC 29442-4200  
Attn: Purchasing

**STREET ADDRESS:**

Georgetown County Courthouse  
129 Screven Street, Suite 239  
Georgetown SC 29440-3641  
Attn: Purchasing

The undersigned, having visited the site of the Work and having familiarized themselves with local conditions affecting the design and cost of the work and with all requirements of the proposed Contract Documents, and duly issued Addenda to said documents, as acknowledged herein, propose to furnish and perform all labor, materials, necessary tools, expendable equipment, and all utility and transportation services necessary to perform and complete in a workmanlike manner all work required by said documents and Addenda.

BID ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
	<b>Administrative</b>				
1	Bonds, Insurance, Mobilization and Demobilization	1	LS	\$	\$
	<b>Tank Influent Piping Modifications</b>				
2	Provide Tanker Truck	1	LS	\$	\$
3	Concrete Pad	1	LS	\$	\$
4	SS Class 150 Socket Weld Flange	1	EA	\$	\$
5	4-inch Dia SS Piping	20	LF	\$	\$
6	4-inch Dia SS Tee	7	EA	\$	\$
7	4-inch Dia Ball Valves	2	EA	\$	\$
8	4-inch HDPE Pipe Tank Bypass	50	LF	\$	\$
9	Pipe Supports	3	EA	\$	\$
	<b>Tank Effluent Pump Station</b>				
10	4-inch Dia Ball Valves	3	EA	\$	\$
11	4-inch Dia Check Valves	2	DA	\$	\$
12	4-inch Magnetic Flow Meter	1	EA	\$	\$

13	4-inch Dia SS Piping	50	LF	\$	\$
14	Leachate Transfer Pumps	2	EA	\$	\$
15	Leachate Transfer Pump Control Panels	2	EA	\$	\$
16	Leachate Transfer Pump Installation	1	LS	\$	\$
17	Pipe Supports	3	EA	\$	\$
	<b>Tank Equipment</b>				
18	Blower System Piping	1	LS	\$	\$
19	Blower Equipment	1	LS	\$	\$
20	Blower Installation	1	LS	\$	\$
21	Side-Entry Mixer System	1	LS	\$	\$
22	Level Gage	1	LS	\$	\$
	<b>Landfill Equipment</b>				
23	Leachate Sump Pumps	5	EA	\$	\$
24	Leachate Sump Pump Control Panels	5	EA	\$	\$
25	Leachate Sump Pumps and Control Panel Installation	1	LS	\$	\$
	<b>Electrical</b>				
26	Leachate Tank Electrical	1	LS	\$	\$
27	Leachate Sump Pump Electrical	1	LS	\$	\$
<b>Total Base Bid (Items 1-27)</b>					\$

- 1) For additional work authorized after signing the Contract, the amount of overhead and the amount of profit to be added to base costs of labor and materials shall be (10%) total for overhead and profit on work performed by the Contractor's own forces and (15%) total on work by Subcontractors.
- 2) COMPLETION DATE: Contractor must conform to Division 0, Section 00750, Summary Schedule and Key Milestones.
- 3) LIQUIDATED DAMAGES: Liquidated damages for this project shall be \$500.00 per calendar day for Contractor's failure to complete any key milestone by its intermediate completion date or the Substantial Completion date. Refer to Division 1, Section 01100, Summary of Work.

- 4) The undersigned affirms that in making such Bid, neither he /she nor any company that they may represent, nor anyone in behalf of him / her or their company, directly or indirectly, has entered into any combination, collusion, undertaking or agreement with any other Bidder or Bidders to maintain the prices of said work, or any compact to prevent any other Bidder or Bidders from Bidding on said Contract or work and further affirms that such bid is made without regard or reference to any other Bidder or Proposer and without any agreement or understanding or combination either directly or indirectly with any other person or persons with reference to such Bidding in any way or manner whatsoever.
- 5) The undersigned, when notified of the acceptance of this Bid proposal, does hereby agree to enter into a Contract with the Owner within five (5) calendar days from the date of the Notice of Award, for the execution of the work described within the period of time allocated, and he / she shall give a Performance Bond and Payment Bond, with good and sufficient surety.
- 6) The undersigned further agrees that if awarded the Contract he /she will commence the work within ten (10) calendar days after the date of the Notice of Award and that he / she will complete the work in accordance with the Summary Schedule and Key Milestones and Substantial Completion date set forth in the Bidding and Contract Documents or such amended date as may be granted. If the undersigned fails to complete the work as provided in the aforementioned schedule, then and in that event, he / she further expressly agrees that, for each day that any phase of work under this Contract remains uncompleted thereafter the Owner may deduct from the Contract price herein specified the stipulated sum of liquidated damages as provided for herein and retain that sum for failure of the undersigned to complete this Contract on or before the expiration of the period shown in the completion schedule.
- 7) The undersigned agrees that the Owner's damages caused by delay are not capable of being established and would be difficult to measure accurately and that the sums herein specified as liquidated damages are not a penalty, but represent the parties' estimate of the actual damages which the Owner would suffer per day if the work is not completed as scheduled.
- 8) In submitting this Bid, it is understood that the right is reserved by the Owner to waive any informality or irregularity in any Bid or Bid guaranty, to reject any and all Bids, to re-Bid, to award or refrain from awarding a contract for the work and to negotiate with the apparent qualified low responsive Bidder to such extent as may be beneficial to the Owner.
- 9) The undersigned attaches hereto a cashier's check, certified check or Bid Bond in the sum five percent (5%) of the total base bid payable to Georgetown County, as required in the Request for Proposals, and the undersigned agrees that in case he / she fails within five (5) calendar days after Notice of Award of the Contract to him /her to enter into the Contract in writing and furnish the required Payment and Performance Bonds, with surety or sureties to be approved by Owner, and insurance policies or endorsements, the Owner may, as its option, determine that the undersigned has abandoned his / her rights and interest in such Bid and that the cashier's check, certified check, or Bid Bond accompanying his or her bid has been forfeited. Otherwise, the cashier's check, certified check, or Bid Bond shall be returned to the undersigned upon the execution of the Contract and acceptance of the bonds and insurance, or upon rejection of his / her Bid.

- 10) A Bid shall be considered unresponsive and shall be rejected if it fails to include fully executed statements or if the Bidder fails to furnish required data. When a determination has been made to award the Contract to a specific Contractor, such Contractor shall, prior to award, furnish such other pertinent information regarding his / her own employment policies and practices as well as those of his / her proposed prime contractor, subcontractors and consultants as the Owner may require.
- 11) The Bidder shall furnish similar statements executed by each of his / her prime contractor, first-tier and second-tier subcontractors and consultants whose contracts equal Ten Thousand Dollars (\$10,000.00) or more and shall obtain similar compliance by such prime contractor, subcontractors and consultants before awarding such contracts. No prime contractor or subcontract shall be awarded to any non-complying prime contractor and/or subcontractor.
- 12) It is understood and agreed that all workmanship and materials under all items of work are guaranteed for one (1) year from the date of Final Acceptance, unless otherwise specified.
- 13) The undersigned affirms that he / she has completed all of the blank spaces in the Bid Form, with an amount in words and numbers and agrees that where a discrepancy occurs between the prices quoted in words and/or in numbers the lowest figure quoted in words shall take precedence and govern when determining final costs or award of the Contract.
- 14) The undersigned affirms that wages not less than the minimum rates or wages, as predetermined for this project by the State of South Carolina were used in the preparation of this "Bid Form".
- 15) **REQUIRED FORMS:** There are specific forms required to be completed and submitted as part of the response to this Request for Proposals (RFP). The omission, whether inadvertent or not, of any one or more of these forms will cause the Bidder's / Proposer's response to be disqualified. The following forms identified as Exhibits to this RFP, must be included in the response:

- Exhibit A: Acknowledgement of Addenda
- Exhibit B: Intent to Respond
- Exhibit C: Non-Collusion Affidavit
- Exhibit D: IRS Form W-9
- Exhibit E: Indemnification
- Exhibit F: List of Prime and Sub-Contractors
- Exhibit G: AIA Form A305 – Contractor's Qualification Statement
- Exhibit H: Unit Price Schedule
- Exhibit I: Resident Certification for Local Preference Option
- Exhibit J: Exceptions Page Form
- Exhibit K: CADD Release Form
- Exhibit K: Material Substitution Request Form (Write "NONE" if not applicable)

16) Project Mgr./NTP Contact Address: \_\_\_\_\_  
 \_\_\_\_\_

17) Project Mgr./NTP Contact Person: \_\_\_\_\_

- 18) Telephone Number: \_\_\_\_\_ Fax Number : \_\_\_\_\_
- 19) E-Mail address \_\_\_\_\_
- 20) SC General Contractor's License # \_\_\_\_\_
- 21) Remittance Address: \_\_\_\_\_  
\_\_\_\_\_
- 22) A/P Accounting Contact: \_\_\_\_\_
- 23) Telephone Number \_\_\_\_\_ Fax Number: \_\_\_\_\_
- 24) E-Mail address: \_\_\_\_\_
- 25) FEIN or Social Security Number: \_\_\_\_\_
- 26) Suspension and Debarment  
Federal guidelines require grant recipients to obtain sufficient assurance that vendors are not suspended or debarred from participating in federal programs when contracts exceed \$25,000. By signing below you verify that no party to this agreement is excluded from receiving Federal contracts, certain subcontracts, and certain Federal financial and nonfinancial assistance and benefits, pursuant to the provisions of 31 U.S.C. 6101, note, E.O. 12549, E.O. 12689, 48 CFR 9.404, and each agency's codification of the Common Rule for Non-procurement suspension and debarment. [See <https://www.epls.gov/> for additional information.]
- 28) Acceptance of Invitation for Bid Content: The contents of the successful IFB/RPS are included as if fully reproduced herein. Therefore, the selected contractor must be prepared to be bound by his/her proposal as submitted.
- 29) CERTIFICATION REGARDING DRUG-FREE WORKPLACE:  
The undersigned certifies that the vendor listed below will provide a "drug-free workplace" as that term is defined in Section 44-107-30 of the Code of Laws of South Carolina, 1976, as amended, by the complying with the requirements set forth in title 44, Chapter 107.  
**Yes  No**
- 30) Any attempt by the vendor to influence the opinion of County Staff or County Council by discussion, promotion, advertising, misrepresentation of the submittal or purchasing process or any procedure to promote their offer will constitute a violation of the vendor submittal conditions and will cause the vendor's submittal to be declared null and void.
- 31) The lowest or any proposal will not necessarily be accepted and the County reserves the right to award any portion thereof. I/We, the undersigned, hereby confirm that all the above noted documents for Bid No. 17-092 were received.

**INFORMATION ONLY:**

- Our company accepts VISA government procurement cards.
- Our company does not accept VISA government procurement cards.

32)

Printed Name of person binding bid \_\_\_\_\_

33) Signature (X) \_\_\_\_\_

34) Date \_\_\_\_\_

**IMPORTANT:** Execute acknowledgment of officer or agent who signs this document (use proper form on following pages).

**ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION:**

State of: ( \_\_\_\_\_ )

Country of: ( \_\_\_\_\_ ) SS

On this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_, before me personally came and appeared \_\_\_\_\_ to me Known, who, being by me duly sworn, Did depose and say to me that he resides at \_\_\_\_\_, that he/she is the \_\_\_\_\_ of \_\_\_\_\_ the corporation described in and which executed the foregoing instrument is an impression of such seal; that it was so affixed by the order of the directors of said corporation, and that he signed his name thereto by like order.

(Seal)

Notary Public

**ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP:**

State of ( \_\_\_\_\_ )

Country of ( \_\_\_\_\_ )

On this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_, before me personally came and appeared \_\_\_\_\_ to me known and known to me to described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm.

(Seal)

Notary Public

**ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL:**

State of ( \_\_\_\_\_ )

Country of ( \_\_\_\_\_ )

On this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_, before me personally came and appeared \_\_\_\_\_ to me known and known to me to be the person described in and who executed the forgoing instrument and acknowledged that he executed the same.

(Seal)

Notary Public

**(Exhibits Continue on Following Pages)**



**EXHIBIT A**

**Bid #19-076  
Landfill Leachate Management Upgrade**

**ADDENDUM ACKNOWLEDGEMENT**

**Mandatory Submittal Form**

COMPANY NAME: \_\_\_\_\_

- |                          |                                  |                     |
|--------------------------|----------------------------------|---------------------|
| <input type="checkbox"/> | Addendum #1 Received Date: _____ | Initialed By: _____ |
| <input type="checkbox"/> | Addendum #2 Received Date: _____ | Initialed By: _____ |
| <input type="checkbox"/> | Addendum #3 Received Date: _____ | Initialed By: _____ |
| <input type="checkbox"/> | Addendum #4 Received Date: _____ | Initialed By: _____ |
| <input type="checkbox"/> | Addendum #5 Received Date: _____ | Initialed By: _____ |
| <input type="checkbox"/> | Addendum #6 Received Date: _____ | Initialed By: _____ |

[THE REMAINDER OF THIS PAGE IS BLANK]

**(Exhibits Continue on Following Pages)**



**EXHIBIT B**  
**Intent to Respond**

**REF: Bid #19-076, Landfill Leachate Management Upgrade**

If your company intends to respond to this solicitation, please complete and promptly return this form to assure that you can be included on the mailing list to receive all addenda regarding this project.

It is not necessary to return any other portion of the bid documents if you are not bidding.

Failure to return the Intent to Respond shall not be sufficient cause to rule a submittal as non-responsive; nor does the return of the form obligate an interested party to submit a response. Georgetown County's efforts to directly provide interested parties with addenda or additional information are provided as a courtesy only, and do not alleviate the respondent from their obligation to verify they have received and considered all addenda. All addenda are published and available on the county website at [www.gtcountysc.org](http://www.gtcountysc.org) select "purchasing" and "current bids".

- Our firm **does** intend on responding to this solicitation.
- Our firm **does not** intend on responding to this solicitation.

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Contact Person: \_\_\_\_\_

Telephone: \_\_\_\_\_

FAX: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Reason if **not** responding: \_\_\_\_\_

**Please return this completed form to Pamela Bassetti, Senior Buyer:**

- by e-mail to [purch@gtcounty.org](mailto:purch@gtcounty.org)
- or by FAX to (843)545-3500.

**(Exhibits Continue on Following Pages)**

**EXHIBIT C**

**Bid #19-076, Landfill Leachate Management Upgrade**

**FORM OF NON-COLLUSION AFFIDAVIT OF PRIME PROPOSER / BIDDER**

**(Mandatory Bid Submittal Form) State of South Carolina County of Georgetown**

Being first duly sworn deposes and says that:

- (1) He / She is \_\_\_\_\_ of \_\_\_\_\_  
The Bidder / Proposer that has submitted the attached Bid / Proposal;
- (2) He / She is fully informed respecting the preparation and contents of the attached Bid / Proposal and of all pertinent circumstances respecting such Bid / Proposal;
- (3) Such Bid / Proposal is genuine and is not a collusive or sham Bid / Proposal;
- (4) Neither the said Bidder / Proposer nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder / Proposer, firm or person to submit a collusive or sham Bid / Proposal in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder / Proposer, firm or person to fix the price or prices in the attached Bid / Proposal or of any other Bidder / Proposer, or to fix any overhead, profit or cost element of the Bid / Proposal price or the Bid / Proposal price of any other Bidder / Proposer, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Owner or any person interested in the proposed Contract; and
- (5) The price or prices quoted in the attached Bid / Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder / Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) \_\_\_\_\_

\_\_\_\_\_

(Title)

Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 2019

Notary Public in and for Georgetown County, South Carolina

My commission expires on: \_\_\_\_\_



By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, later, for further information.

**Note:** If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

**Definition of a U.S. person.** For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

**Special rules for partnerships.** Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

**Foreign person.** If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, *Withholding of Tax on Nonresident Aliens and Foreign Entities*).

**Nonresident alien who becomes a resident alien.** Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

**Example.** Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

## Backup Withholding

**What is backup withholding?** Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

**Payments you receive will be subject to backup withholding if:**

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the instructions for Part II for details),
3. The IRS tells the requester that you furnished an incorrect TIN,
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code*, later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships*, earlier.

## What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code*, later, and the Instructions for the Requester of Form W-9 for more information.

## Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

## Penalties

**Failure to furnish TIN.** If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

**Civil penalty for false information with respect to withholding.** If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

**Criminal penalty for falsifying information.** Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

**Misuse of TINs.** If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

## Specific Instructions

### Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

**Note: ITIN applicant:** Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or “doing business as” (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity’s name as shown on the entity’s tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a “disregarded entity.” See Regulations section 301.7701-2(c)(2)(iii). Enter the owner’s name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner’s name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity’s name on line 2, “Business name/disregarded entity name.” If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

### Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

### Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation
• Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.	Individual/sole proprietor or single-member LLC
• LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes.	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
• Partnership	Partnership
• Trust/estate	Trust/estate

### Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

#### Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys’ fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 <sup>1</sup>	Generally, exempt payees 1 through 5 <sup>2</sup>
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

<sup>1</sup> See Form 1099-MISC, Miscellaneous Income, and its instructions.

<sup>2</sup> However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

**Exemption from FATCA reporting code.** The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

**Note:** You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

**Line 5**

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

**Line 6**

Enter your city, state, and ZIP code.

**Part I. Taxpayer Identification Number (TIN)**

**Enter your TIN in the appropriate box.** If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

**Note:** See *What Name and Number To Give the Requester*, later, for further clarification of name and TIN combinations.

**How to get a TIN.** If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at [www.SSA.gov](http://www.SSA.gov). You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at [www.irs.gov/Businesses](http://www.irs.gov/Businesses) and clicking on Employer Identification Number (EIN) under Starting a Business. Go to [www.irs.gov/Forms](http://www.irs.gov/Forms) to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to [www.irs.gov/OrderForms](http://www.irs.gov/OrderForms) to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

**Note:** Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

**Caution:** A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

**Part II. Certification**

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code*, earlier.

**Signature requirements.** Complete the certification as indicated in items 1 through 5 below.

**1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983.**

You must give your correct TIN, but you do not have to sign the certification.

**2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983.**

You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

**3. Real estate transactions.** You must sign the certification. You may cross out item 2 of the certification.

**4. Other payments.** You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

**5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions.** You must give your correct TIN, but you do not have to sign the certification.

**What Name and Number To Give the Requester**

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account <sup>1</sup>
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor <sup>2</sup>
5. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee <sup>1</sup>
b. So-called trust account that is not a legal or valid trust under state law	The actual owner <sup>1</sup>
6. Sole proprietorship or disregarded entity owned by an individual	The owner <sup>3</sup>
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*
For this type of account:	Give name and EIN of:
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity <sup>4</sup>
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee

For this type of account:	Give name and EIN of:
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

<sup>1</sup> List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

<sup>2</sup> Circle the minor's name and furnish the minor's SSN.

<sup>3</sup> You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

<sup>4</sup> List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

\*Note: The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

**Secure Your Tax Records From Identity Theft**

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

**Protect yourself from suspicious emails or phishing schemes.**

Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to [phishing@irs.gov](mailto:phishing@irs.gov). You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at [spam@uce.gov](mailto:spam@uce.gov) or report them at [www.ftc.gov/complaint](http://www.ftc.gov/complaint). You can contact the FTC at [www.ftc.gov/idtheft](http://www.ftc.gov/idtheft) or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see [www.IdentityTheft.gov](http://www.IdentityTheft.gov) and Pub. 5027.

Visit [www.irs.gov/IdentityTheft](http://www.irs.gov/IdentityTheft) to learn more about identity theft and how to reduce your risk.

## Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

required to sign the certification, but you must provide your correct TIN. *The Internal Revenue Service does not require your consent to any provision of this document other than the certifications required to avoid back-up withholding.*

Signature: \_\_\_\_\_

Date \_\_\_\_\_

**EXHIBIT E**

**Bid #19-076, Landfill Leachate Management Upgrade  
INDEMNIFICATION  
(Mandatory Bid Submittal Form)**

The Bidder / Proposer will indemnify and hold harmless the Owner, Georgetown County, South Carolina and their agents and employees from and against all claims, damages, losses and expenses, including attorney's fees, arising out of or resulting from the performance of the Work provided that any such claims, damages, loss, or expense is attributable to bodily injury, sickness, disease or death, injury to or destruction of tangible property, including the loss of use resulting there from, and is caused by any negligent or willful act or omission of the Bidder / Proposer, and anyone directly or indirectly employed by him/her or anyone for whose acts any of them may be liable.

In any and all claims against the Owner, Georgetown County, South Carolina or any of their agents and / or employees by an employee of the Bidder / Proposer, and anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way to the amount or type of damages, compensation or benefits payable by or for the Bidder / Proposer under the Worker's Compensation Acts, Disability Benefit Acts, or other employee benefit acts.

The obligation of the Bidder / Proposer under this paragraph shall not extend to the liability of Georgetown County, South Carolina or its agents and / or employees arising out of the reports, surveys, Change Orders, designs or Technical Specifications.

BIDDER / PROPOSER: \_\_\_\_\_

BY: \_\_\_\_\_

DATE: \_\_\_\_\_

TELEPHONE NO.: \_\_\_\_\_

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**EXHIBIT F**

**Bid #19-076, Landfill Leachate Management Upgrade  
LIST OF PRIME AND SUBCONTRACTORS  
(Mandatory Bid Submittal Form)**

**The undersigned states that the following is a primary sub-contractors on this Project by class of work to be performed. Such list will not be added to nor altered without the written consent of the Owner.**

**Prime Contractor, Subcontractor  
Consultants and Address  
LLR Classification, SC License :**

\_\_\_\_\_

Mechanical (HVAC) Contractor: \_\_\_\_\_

\_\_\_\_\_

Electrical Contractor: \_\_\_\_\_

\_\_\_\_\_

Plumbing Contractor: \_\_\_\_\_

\_\_\_\_\_

Fire Protection Contractor: \_\_\_\_\_

\_\_\_\_\_

Glass and Glazing Contractor: \_\_\_\_\_

\_\_\_\_\_

Water and Sewer Lines: \_\_\_\_\_

**Date:** \_\_\_\_\_

**Firm Name:** \_\_\_\_\_

**Signed:** \_\_\_\_\_

**Title:** \_\_\_\_\_



2. The Contractor hereby agrees to indemnify, defend and hold the Owner and, the Engineer, and each of their agents, representatives, directors, officers, and employees harmless from any and all liabilities, losses, damages, penalties, judgments, awards, claims, demands, costs, expenses, (including reasonable attorney's fees and court costs), actions, lawsuits or other proceedings arising directly or indirectly, in whole or in part, out of the negligence or willful acts or omissions of the Contractor, Trade Subcontractors, or their respective agents, directors, officers or employees in connection with this Agreement or in any way with the services or Work described herein, any occurrence at the Project site, or any occurrence arising in connection with or at the Project site or in connection with the Work, whether within or beyond the scope of its duties hereunder.
3. The Project has been designed by \_\_\_\_\_ whose office is located at \_\_\_\_\_, and who will act as ENGINEER in connection with completion of the Work in accordance with the Contract Documents.
4. The project will be considered substantially complete upon completion of all items listed in the Bid Form and appurtenances in accordance with the Contract Documents, including successful performance of all testing requirements.
5. **The Contractor's indemnity and defense obligations under this Contract shall be absolute notwithstanding any provision contained herein or elsewhere to the contrary, and shall survive Final Completion and Final Payment for a period equal to the statute of limitations for any action which could be brought against the Owner or its agents, officers, directors and employees and shall continue through the duration of any action brought during the applicable time periods.**
6. The Contractor agrees to indemnify, defend and hold the Owner, and the Engineer, and each of their agents, representatives, officers, directors and employees, harmless from all costs, damages and expenses, including reasonable attorney's fees, incurred by the Owner and its consultants by virtue of any claim or claims filed by any Trade Subcontractor, mechanic, laborer, or materialman making claims arising from the performance of the Work by, through, or under the Contractor, provided the Contractor has received from the Owner all amounts properly due under this Contract concerning the claim. The Contractor shall execute and deliver to the Owner's title insurer similar indemnifications or such other document as such title insurer shall reasonably request in order to protect it against lien claims from Trade Subcontractors. The Contractor also hereby agrees to indemnify and hold harmless, protect and defend the Owner and its consultants from and against any liability, claim, judgment, loss or damage, including, but not limited, to direct damages, attorney's fees, court costs and expenses of collection, occasioned in whole or in part by the sole failure of the Contractor, and its Trade Subcontractors to comply with any of the terms or provisions of this Contract.
7. In any and all claims against the Owner, by any employee of the Contractor or Trade Subcontractor, anyone directly or indirectly employed by any of them, their agent or anyone for whose acts any of the Contractor or Trade Subcontractors may be liable, the indemnification obligation under this Paragraph 2 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Trade Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.
8. The Owner hereby agrees to pay to the Contractor for the said work, when fully completed, the total sum of \_\_\_\_\_ (the said sum being the total of the Contractor's bid, a copy of which is attached hereto and, pro tanto, made a part hereof for all purposes), subject to such additions and deductions as may be provided for in the Contract Documents. In the event the bid contains multiple pay items, it is understood that the amount to be paid shall be the total based on the unit prices, together

with lump sum prices, contained in said bid, for the work actually completed. Payments on accounts will be made as customarily provided by the County and consistent with applicable County procedures. The Contractor shall submit bills for fees or other compensation for services or expenses in detail sufficient for a proper pre-audit and post audit thereof. Any unit of provision of goods and services must be approved in writing by the Owner prior to payment.

9. The Owner may unilaterally cancel this Contract and the goods and services there under in the event that the Contractor fails and refuses to allow public access to all documents, papers, letters, or other material subject to the provisions of the applicable South Carolina Code of Laws, made or received by the Contractor in conjunction with this Contract.
10. This Contract has been executed by the parties prior to the rendering of any goods or services by the Contractor.
11. The Contractor shall provide a payment and performance bond (the "Bond") to the Owner meeting the requirements of applicable South Carolina Code of Laws, The Georgetown County Procurement Ordinance, as amended, and associated bid documents referenced herein, which by virtue of executing this contract the Contractor has accepted in the sum of \$\_\_\_\_\_ and shall cause the Bond to be recorded with the Notice of Commencement in the Public Records of Georgetown County, South Carolina.
12. This Contract shall be subordinate to any rule, regulation, order or law of the United States of America, or the State of South Carolina, respectively.
13. Contractor and its employees shall promptly observe and comply with all applicable provisions of any Federal, State and local laws, ordinances, rules or regulations which govern or apply to the goods or services rendered by Contractor hereunder including the wages paid by Contractor to its employees. Contractors shall require all of its Subcontractors to comply with the provisions of this paragraph.
14. Contractor shall procure and keep in force during the term of this contract all necessary insurance (including but not limited to general liability, casualty, workers compensation, and automobile), licenses, registrations, certificates, permits and other authorizations as are required by law in order for Contractor to render its services hereunder. Contractor shall require all of its Subcontractors to comply with the provisions of this paragraph.
15. All remedies provided in this Contract shall be deemed cumulative and additional and not in lieu of or exclusive of each other or of any other remedy available to any party at law or in equity. In the event one party shall prevail in any action (including appellate proceedings), at law or in equity arising hereunder, the losing party will pay all costs, expense, reasonable attorneys' fees and all other actual and reasonable expenses incurred in the defense and/or prosecution of any legal or arbitration proceedings, including, but not limited to, those for paralegal, investigative, legal support services and actual fees charged by expert witnesses for testimony and analysis, incurred by the prevailing party referable thereto.
16. Contractor represents and warrants unto Owner that no officer, employee or agent of Owner has any interest, either directly or indirectly, in the business or property for/on which the Contractor to conduct

activities hereunder. Contractor further represents and warrants to Owner that it has not employed or retained any third party person, other than a bona fide employee working solely for Contractor, to bid, solicit or secure this Contract, that it has not paid or agreed to any person, company, corporation, individual or firm, other than a bona fide employee working solely for Contractor, any fee, commission, percentage, gift, or any other consideration contingent upon or resulting from the award or making of this Contract, and that it has not agreed, as an express or implied condition for obtaining this Contract, to employ or retain the services of any firm or person in connection with carrying out this Contract. Contractor assures that it will insert the above provision in each of its Subcontractor agreements relating to the services to be performed hereunder.

17. The headings of the sections of this Contract are for the purpose of convenience only and shall not be deemed to expand or limit the provisions contained in such sections.
18. This Contract, including all Contract documents such as, but not limited to, bid documents and procurement packages, constitutes the entire agreement between the parties and shall supersede and replace all prior agreements or understandings, written or oral, relating to the matters set forth herein.
19. This Contract shall not be amended or modified other than in writing signed by the parties hereto. Notwithstanding the foregoing, any Amendments that are not being paid for, in whole or in part, with funds granted by the United States or State of South Carolina need not be approved by them.
20. The validity, interpretation, construction and effect of this Contract shall be in accordance with and be governed by the laws of the State of South Carolina. In the event any provision hereof shall be finally determined to be unenforceable, or invalid, such unenforceability or invalidity shall not affect the remaining provisions of this Contract which shall remain in full force and effect.
21. All Construction Contracts Over \$2,000:

(b.) Davis-Bacon and Related Acts Requirements. These contracts need to include a provision for compliance with the Davis-Bacon Act (40 USC 276a to a—7) and the Department of Labor implementing regulations (29 CFR Part 5). Under this Act, Contractors are required to include the contract provisions in Section 5.5 (a) of 29 CFR Part 5, and to pay wages to laborers and mechanics at a rate not less than the minimum wages specified in the wage determination made by the Secretary of Labor. In addition, Contractors shall be required to pay wages not less than the minimum wages specified in the wage determination made by the Secretary of Labor. In addition, Contractors shall be required to pay wages not less often than once a week.

(c.) Contract Work Hours and Safety Standard Act Requirements. The contracts must include a provision for compliance with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 USC 327-330) as supplemented by the Department of Labor regulations (29 CFR Part 5). Under Section 103 of the Act, each Contractor shall be required to compute the wages of every mechanic and laborer on the basis of a standard workweek of 40 hours. Work in excess of the standard workweek is permissible provided that the worker is compensated at a rate not less than one times the basic rate of pay for all hours worked in excess of 40 hours in the workweek. Section 107 of the Act is applicable to construction work and provides that no laborer or mechanic shall be required to work in

surroundings or under working conditions which are unsanitary, hazardous, or dangerous to health and safety as determined under construction, safety and health standards promulgated by the Secretary of Labor. These requirements do not apply to the purchases of supplies, materials, or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

(d.) Copeland “Anti-Kickback” Act Requirements. All construction contracts over \$2,000.00 must include a provision for compliance with the Copeland “Anti-Kickback” Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3). This act provides that each Contractor shall be prohibited from inducing, by any means, persons employed in the construction, completion, or repaid of public work to give up any part of their compensation.

## 21. Termination of Contract

- a) The Owner may, by written notice, terminate this Contract in whole or in part at any time, either for the Owner’s convenience or because of failure to fulfill the Contract obligations. Upon receipt of such notice, services shall be immediately discontinued (unless the notice directs otherwise) and all materials that may have been accumulated in performance of this Contract, whether completed, in transit, or in process, shall be delivered to the Owner. In such a case of termination, the contract price shall be made and remitted too include work already completed and materials already ordered however to amount shall be allowed for anticipated profit on unperformed services.
- b) If the termination is due to failure to fulfill the Contractor’s obligations, the Owner may take over the work and prosecute the same to completion by contract or otherwise. In such case, the Contractor shall be liable to the Owner for any additional cost occasioned to the Owner thereby.
- c) If, after notice of termination for failure to fulfill its Contract obligations, it is determined that the Contractor had not failed, the termination shall be deemed to have been effected for the convenience of the Owner. In such event, adjustment in the Contract price shall be made as provided in paragraph 21.a of this clause.
- d) The rights and remedies of the Owner provided in this clause are in addition to any other rights and remedies provided by law or under this Contract.
- e) **Non-Appropriation:**  
It is understood and agreed by the parties that in the event funds are not appropriated in the current fiscal year or any subsequent fiscal years, this contract will become null and void and the County will only be required to pay for services completed to the satisfaction of the County.

## 22. Waiver or Forbearance

Any delay or failure of County to insist upon strict performance of any obligation under this Agreement or to exercise any right or remedy provided under this Agreement shall not be a waiver of County’s right to demand strict compliance, irrespective of the number or duration of any delay(s) or failure(s). No term or condition imposed on Contractor under this Agreement shall be

waived and no breach by Contractor shall be excused unless that waiver or excuse of a breach has been put in writing and signed by both parties. No waiver in any instance of any right or remedy shall constitute waiver of any other right or remedy under this Agreement. No consent to or forbearance of any breach or substandard performance of any obligation under this Agreement shall constitute consent to modification or reduction of the other obligations or forbearance of any other breach.

23. Title VI Compliance:

Georgetown County hereby gives public notice that it is the policy of the agency to assure full compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, Executive Order 12898 on Environmental Justice, and related statutes and regulations in all programs and activities. Title VI requires that no person in the United States of America shall, on the grounds of race, color, or national origin, be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which Georgetown County receives federal financial assistance. Any person who believes they have been aggrieved by an unlawful discriminatory practice under Title VI has a right to file a formal complaint with Georgetown County. Any such complaint must be in writing and filed with Georgetown County's Title VI Coordinator within one hundred and eighty (180) days following the date of the alleged discriminatory occurrence. For more information, or to obtain a Title VI Discriminatory Complaint Form, please see our website at <http://www.gtcounty.org>.

IN WITNESS WHEREOF, the Owner and Contractor hereto have signed and sealed this Contract on the day and date first above written. To facilitate execution, this Agreement may be executed, including electronically, in as many counterparts as may be required. It shall not be necessary that the signature on behalf of both parties hereto appear on each counterpart hereof. All counterparts hereof shall collectively constitute a single agreement.

Georgetown County, South Carolina

\_\_\_\_\_

Witness:

By: \_\_\_\_\_

John Thomas  
Georgetown County Council Chair

[Company Name]

By: \_\_\_\_\_

\_\_\_\_\_

(Title)

---

Attest:

SAMPLE

---

END OF SECTION 00500

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## EXHIBIT H

### RESIDENCE CERTIFICATION FOR LOCAL PREFERENCE

#### **Bid #19-076, Landfill Leachate Management Upgrade (Mandatory Bid Submittal Form)**

WHEREAS, Georgetown County Council desires to further its support of local businesses when awarding contracts for the provision of supplies and construction services to the County through its established procurement procedures.

THEREFOR pursuant to Georgetown County, SC Ordinance #2014-02 as adopted, §2-50 Local Preference Option, the Georgetown County Purchasing Officer requests each offeror provide Residence Certification. The Local Preference Option provides some restrictions on the awarding of governmental contracts; provisions of which are stated below:

#### **Sec 2-50. Local Preference Option**

1. A vendor shall be deemed a Local Georgetown County vendor for the purposes of this Section if such vendor is an individual, partnership, association or corporation that is authorized to transact business within the State, maintains an office in Georgetown County, and maintains a representative inventory or commodities within the County on which the bid is submitted, and has paid all taxes duly assessed.
2. This option allows the lowest local Bidder whose bid is within five-percent (5%) of the lowest non-local Bidder to match the bid submitted by the non-local Bidder and thereby be awarded the contract. This preference shall apply only when (a) the total dollar purchase is \$10,000 or more; (b) the vendor has a physical business address located and operating within the limits of Georgetown County and has been doing business in the County for a period of twelve (12) months or more; and (c) the vendor provides proof of payment of all applicable Georgetown County taxes and fees if so requested.
3. Should the lowest responsible and responsive Georgetown County bidder not exercise its right to match the bid as granted herein, the next lowest qualified Georgetown County bidder shall have that right and so on. The right to exercise the right to match the bid shall be exercised within 24 hours of notification of the right to match the non-Georgetown County bidder's bid.
4. In order to qualify for the local preference authorized by this Section, the vendor seeking same shall be required to submit with its bid a statement containing relevant information which demonstrates compliance with the provisions of this Section. This statement shall be on a form provided by the County purchasing department and shall be signed under penalty of perjury. Failure to provide such affidavit at the time the bidder submits its bid shall constitute a waiver of any claim for preference.
5. For all contracts for architecture, professional engineering, or other professional services governed by § 2-56, Architect-Engineer and Land Surveying Services – Public Announcement and Selection Process, the county shall include the local business status of a firm among the factors considered when selecting which firms are “most highly qualified.” In determining

which firm is the “most qualified” for purposes of negotiating a satisfactory contract, preference shall be given to a local business where all other relevant factors are equal.

6. Local preference shall not apply to the following categories of contracts:

- (a) Goods or services provided under a cooperative purchasing agreement or similar “piggyback” contract;
- (b) Contracts for professional services except as provided for in section five (§5) above;
- (c) Purchases or contracts which are funded, in whole or in part, by a governmental or other funding entity, where the terms and conditions of receipt of the funds prohibit the preference;
- (d) Purchases or contracts made pursuant to a noncompetitive award process, unless otherwise provided by this section; or
- (e) Any bid announcement which specifically provides that the general local preference policies set forth in this section are suspended due to the unique nature of the goods or services sought, the existence of an emergency as found by either the county council or county administrator, or where such suspension is, in the opinion of the county attorney, required by law.

I certify that [Company Name] \_\_\_\_\_ is a **Resident Bidder** of Georgetown County as defined in Ordinance #2014-02, (see §1. above) and our local place of business within Georgetown County is: \_\_\_\_\_

I certify that [Company Name] \_\_\_\_\_ is a **Non-Resident Bidder** of Georgetown County as defined in Ordinance #2014-02, and our principal place of business is \_\_\_\_\_ [City and State].

(X) \_\_\_\_\_

Signature of Company Officer

**EXHIBIT I**

**Bid #19-076, Landfill Leachate Management Upgrade**

**EXCEPTIONS PAGE**

**MANDATORY BID SUBMISSION FORM**

List any areas where you cannot or will not comply with the specifications or terms contained within the bid documentation. If none, write "NONE".

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**EXHIBIT J**

**Bid #19-076, Landfill Leachate Management Upgrade CADD Files Release Form**

**MANDATORY BID SUBMISSION FORM**

Dear Contractor:

The owner has agreed to provide access to digital base files for the construction plans for the referenced project in AutoCAD Release 2007 for the convenience of those interested in the project.

The electronic files will be provided for your use on the referenced project at [www.gtcountysc.org](http://www.gtcountysc.org), select "Bid Opportunities" from the *Quick Links* box on the home page. Data stored on electronic media can deteriorate or be modified without Owner's or Architect's knowledge. Your Firm agrees that it will accept responsibility for the completeness, correctness, or readability of the electronic media. This digital information will be provided for your convenience and preparation of other documents. Due to the nature of electronic files, graphic displays of structures, etc. may not be to scale for readability. It is the responsibility of the recipient to confirm that the digital file represents the contract documents. Consultant assumes no responsibility for damages or errors resulting from the misinterpretation of digital information.

**By accepting or utilizing these files the contractor hereby acknowledges and holds harmless from all liability Consultant for the accuracy of the digital information and that the recipient is responsible for construction of the project in accordance with the contract documents.**

Company: \_\_\_\_\_

Name of Contractor: \_\_\_\_\_  
(printed)

Email Address: \_\_\_\_\_

Office Phone: \_\_\_\_\_

Office Fax: \_\_\_\_\_

Mobile Phone: \_\_\_\_\_

Signature: \_\_\_\_\_ Title: \_\_\_\_\_

Date: \_\_\_\_\_

[The remainder of this page intentionally left blank.]



**EXHIBIT K**

**MATERIAL SUBSTITUTION REQUEST  
Bid #19-076, Landfill Leachate Management Upgrade**

Date: \_\_\_\_\_

We hereby submit for your review the following PRODUCT SUBSTITUTION of the specified material for the above listed project.

Section: \_\_\_\_\_

Paragraph: \_\_\_\_\_

Specified Material: \_\_\_\_\_

Attached is complete technical data of the PRODUCT SUBSTITUTION, highlighted or underlined for easy reading, including laboratory test, as necessary, in duplicate. Included is complete information on changes to the Project Manual Documents required by the proposed PRODUCT SUBSTITUTION for its proper installation.

A) The Trade Contractor, under whose transmittal this information is sent, has reviewed the PRODUCT SUBSTITUTION and agrees it is applicable to this project in the location described and agrees to warrant/guarantee the use of the PRODUCT SUBSTITUTION in the same manner he would the Specified Product.

Yes                       No

If not, explain: \_\_\_\_\_

B) Does the PRODUCT SUBSTITUTION affect the dimensions shown on the Drawings in ANY WAY?

Yes                       No

If so, how? \_\_\_\_\_

C) Does the undersigned have the approval of the Manufacturer/Supplier to pay for any changes to the building design, including engineering and detailing costs, caused by the requested PRODUCT SUBSTITUTION?

Yes                       No

If so, to what extent? \_\_\_\_\_

D) What effect does the PRODUCT SUBSTITUTION acceptance have on other trades?

None                       Don't Know                       As follows:

\_\_\_\_\_

E) Difference between proposed PRODUCT SUBSTITUTION and the Specified Product? BE SPECIFIC IN DESCRIPTION. (ASTM No., Size, Gauge, Material, Color Availability, Construction)

\_\_\_\_\_  
\_\_\_\_\_

(Attach additional pages as required)

F) Manufacturer's guarantees and warranties of the PRODUCT SUBSTITUTION and the Specified Product?

Same  Different (Explain)

\_\_\_\_\_

G) What is the cost differential of the PRODUCT SUBSTITUTION in comparison to the Specified Product?

Same  Less Expensive by \$ \_\_\_\_\_  More Expensive by \$ \_\_\_\_\_

I) The PRODUCT SUBSTITUTION has been verified by the undersigned with the Manufacturer/Supplier as meeting or exceeding the specifications of the Specified item.

Yes  No  Waiting for answer.

THE UNDERSIGNED Trade Contractor states that the function, appearance, and quality of the PRODUCT SUBSTITUTION are equivalent or superior to the specified item. In addition, I, as the Trade Contractor will assume all responsibility for any impact or delay the review and evaluation of the alternate product may cause. Your approval of the Substitute Product in no way will relieve me as the Trade Contractor of my responsibilities to conform with all requirements of the Contract Documents.

Submitted By: \_\_\_\_\_  
Signature Printed

**FOR USE BY ARCHITECT/ENGINEER:**

RECEIVED TOO LATE  NOT ACCEPTED  APPROVED AS NOTED

FOR BIDDING ONLY, FINAL APPROVAL SUBJECT TO SUBMITTAL DATA IN ACCORDANCE WITH REQUIREMENTS OF CONTRACT DOCUMENTS.

DATE \_\_\_\_\_

BY \_\_\_\_\_

PHONE # \_\_\_\_\_

FAX # \_\_\_\_\_

**END OF SECTION 00300**

**SECTION 00400**  
**BID BOND**

(Submit in triplicate – two (2) originals and one (1) copy. Attach triplicate copies of Power of Attorney and Agent’s Current South Carolina license

STATE OF \_\_\_\_\_)

COUNTY OF \_\_\_\_\_ )

KNOW ALL MEN BY THESE PRESENTS that we,

as Principal, and \_\_\_\_\_ as Surety, are held and firmly bound unto Georgetown County, hereinafter called the Owner, in the sum of \_\_\_\_\_ Dollars

(\$ \_\_\_\_\_) for the payment of which sum well and

to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally firmly by these presents.

WHEREAS, the Principal, on the \_\_\_\_\_ day of \_\_\_\_\_, 2018 entered into a certain Contract with the Owner, hereto attached, for Contract entitled **Bid #19-**

**076, Landfill Leachate Management Upgrade**

NOW THEREFORE, If the Principal shall not withdraw said Bid within One Hundred Twenty (120) calendar days after date of opening of the same, and shall within five (5) calendar days after the prescribed forms are presented to him/her for signature, enter into a written Contract with the Owner in accordance with the Bid as accepted, and give a Performance Bond and a Payment Bond with good and sufficient surety or sureties, as required by the Contract Documents, for the faithful performance and proper fulfillment of such Contract and for the proper payment of all persons furnishing labor or materials in connection therewith, or in the event or withdrawal of said Bid within the period specified, or in the event of failure to enter into such Contract and give such Bonds within the time specified, if the Principal shall pay the Owner the difference between the amount specified in said Bid and the amount of which the Owner may procure the required work and/or supplies, provided the latter amount be in excess of the former then the above obligations shall be void and of no effect; otherwise, to remain in full force and effect.

IN WITNESS WHEREOF, the Principal and Surety have hereunto caused this Bond to be duly executed and acknowledged by their appropriate officials as set forth below this \_\_\_\_\_ day of \_\_\_\_\_, 2019

PRINCIPAL (If Sole Proprietor or Partnership)

(Firm Name)

ATTEST

By: \_\_\_\_\_  
(SEAL)

\_\_\_\_\_

\_\_\_\_\_ Title (Sole Proprietor or Partner)

PRINCIPAL (If Corporation)

\_\_\_\_\_ (Corporate Name)

By: \_\_\_\_\_ (President)

Attest: \_\_\_\_\_ (Secretary)

(Impress Corporate Seal)

COUNTERSIGNED BY  
RESIDENT SOUTH CAROLINA  
AGENT OF SURETY:

SURETY:

\_\_\_\_\_ (Copy of Agent's current license)

**As issued by State of South Carolina  
Insurance Commissioner**

**By:**

\_\_\_\_\_

**Attorney-In-Fact**

**(Power of Attorney**

**Must Be Attached)  
(Impress Corporate Seal)**

**END OF SECTION 00400**

**SECTION 00500**

**CONTRACT**

**It is the intent of the OWNER to utilize Georgetown County contract documents as prepared by the Capital Projects Department.**

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END OF SECTION 00500

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**SECTION 00600**

**PERFORMANCE BOND**

BOND NO. \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS that we, \_\_\_\_\_  
as Principal, and \_\_\_\_\_ as Surety, are held  
and firmly bound unto Georgetown County, South Carolina hereinafter called the Obligee, in the  
Penal sum of \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_) for the payment of which sum well and truly to be  
made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and  
severally firmly by these presents.

WHEREAS, the Principal, on the \_\_\_\_\_ day of \_\_\_\_\_, 2019 entered into a certain  
Contract with the Owner, included herein, for the Contract entitled **Bid #19-076, Landfill Leachate  
Management Upgrade**

**NOW THEREFORE, the condition of this obligation is such that if the Principal shall well  
and truly perform and fulfill all the undertakings, covenants, terms, conditions, and  
agreements of said Contract, and all duly authorized modifications of said Contract that  
may hereafter be made, notice of which modifications to the Surety being hereby waived,  
then this obligation shall be void; otherwise, to remain in full force and effect.**

Whenever the Principal shall be and is declared by the Owner to be in default under the Contract,  
or wherever the contract has been terminated by default of the Contractor, the Owner having  
performed the Owner's obligations hereunder, the Surety shall:

1. Complete the Contract in accordance with its terms and conditions, or at the Owner's sole  
option.
2. Obtain a Bid or Bids for submission to the Owner for completing the Contract in accordance  
with its terms and conditions, and upon determination by the Owner and Surety of the lowest  
responsible Bidder, arrange for a Contract between such Bidder and the Owner, and made  
available as work progresses (even though there should be a default or a succession of defaults  
under the Contract or Contracts of completion arranged under this paragraph) sufficient funds  
to pay the cost completion less the balance of the Contract price but not exceeding, including  
other costs and damages for which the Surety may be liable hereunder, the amount set forth in  
the first paragraph hereof. The term balance of the Contract price: as used in this paragraph,  
shall mean the total amount payable by the Owner to the Contractor under the Contract and any  
amendments thereto, less the amount properly paid by the Owner to the Contractor.

No right of action shall accrue on this Bond to or for the use of any person or corporation other  
than the Owner named herein or the successors or assignees thereof.

In the case of termination of the Contract, as provided in the Contract Documents, there shall be assessed against the Principal and Surety herein, all expenses, including design/engineering, geo-technical, surveying, and legal services incidental to collecting losses to the Owner under this Bond.

**This Bond shall remain in full force and effect for such period or periods of time after the date of acceptance of the project by the Owner as are provided for in the Contract Documents, and the Principal hereby guarantees to repair or replace for the said periods all work performed and materials and equipment furnished, which were not performed or furnished according to the terms of the Contract Documents. If no specific periods of warranty are stated in the Contract Documents for any particular item of work, material, or equipment, the Principal hereby guarantees the same for a minimum period of one (1) year from the date of final acceptance by the Owner.**

The Surety shall permit arbitration and be ultimately responsible for the payment of any award.

IN WITNESS WHEREOF, the above bounden parties have caused this Bond to be signed and sealed by their appropriate officials as of the \_\_\_\_\_ day of \_\_\_\_\_, 2019.

PRINCIPAL

\_\_\_\_\_  
(Firm Name)

By: \_\_\_\_\_  
(Title)

\_\_\_\_\_  
WITNESS

SURETY

\_\_\_\_\_  
(Firm Name)

By: \_\_\_\_\_  
(Title)

\_\_\_\_\_  
WITNESS

**END OF SECTION 00600**

**SECTION 00601**

**LABOR AND MATERIAL PAYMENT BOND**

BOND NO. \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS that we, \_\_\_\_\_ as Principal, and \_\_\_\_\_ as Surety, are held and firmly bound unto Georgetown County, South Carolina hereinafter called the Obligee, in the Penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_ ) for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally firmly by these presents.

WHEREAS, the Principal, on the \_\_\_\_\_ day of \_\_\_\_\_, 2019 entered into a certain Contract with the Owner, included herein, for Contract entitled **Bid #19-076, Landfill Leachate Management Upgrade**

NOW THEREFORE, the condition of this obligation is such that if the Principal shall promptly make payments to all persons supplying labor, materials and supplies used directly or indirectly by said Principal or his Subcontractors in the prosecution of the work provided for in said Contract, then this obligations shall be void; otherwise to remain in full force and effect, subject, however, to the following conditions:

1. This bond is executed for the purpose of complying with the applicable State of South Carolina Statutes and all acts amendatory thereof, and this Bond shall inure to the benefit of any and all persons supplying labor, material and supplies used directly or indirectly by the Principal or his Subcontractors in the prosecution of the work provided for in said Contract so as to give such persons a right of action to recover upon this Bond in a separate suit brought on this Bond. No right of action shall accrue hereunder to or for the use of any person except as such right of action may be given and limited by the applicable State of South Carolina Statutes.
2. In each and every suit brought against the Principal and Surety upon this Bond in which the plaintiff shall be successful, there shall be assessed therein against the Principal and Surety herein, in favor of the Plaintiff therein, reasonable counsel fees, which the Principal and Surety hereby expressly agree to pay as a part of the cost and expense of said suit.
3. A claimant, except a laborer, who is not in privity with the Principal and who has not received payment for his labor, materials, or supplies, shall, within forty-five (45) calendar days after beginning to furnish labor, materials, or supplies for the prosecution of the work, furnish the Principal with a notice that he intends to look to the bond for protection.
4. A claimant who is not in privity with the Principal and who has not received payment for his labor, materials or supplies shall, within ninety (90) calendar days after performance of the labor or after complete delivery of the materials or supplies, deliver to the Principal and to the Surety written notice of the performance of the labor or delivery of the materials or supplies and of the non-payment.

5. No action for the labor, materials, or supplies may be instituted against the Principal or the Surety unless both notices have been given. No action shall be instituted against the Principal or the Surety on the bond after one (1) year from the performance of the labor or completion of delivery of the materials or supplies.

The Surety shall permit arbitration and be ultimately responsible for the payment of any award.

IN WITNESS WHEREOF, the above bounden parties have caused this Bond to be signed and sealed by their appropriate officials as of the \_\_\_\_\_ day of \_\_\_\_\_, 2019.

PRINCIPAL

\_\_\_\_\_

(Firm Name)

\_\_\_\_\_

(Witness)

By: \_\_\_\_\_

(Title)

SURETY

\_\_\_\_\_

(Firm Name)

\_\_\_\_\_

(Witness)

By: \_\_\_\_\_

(Title)

**END SECTION 00601**

## SECTION 00750

### SUMMARY SCHEDULE AND KEY MILESTONES

#### 1.0 GENERAL

##### 1.01 THIS SECTION INCLUDES

- A. Summary Submittals
- B. Key Milestones
- C. Base Bid Summary Schedule
- D. Alternate Summary Schedule (If Applicable)

##### 1.02 SUMMARY SCHEDULE

- A. Summary Schedules referred to in this section will be developed by the Contractor and the Owner illustrating an approach to designing and constructing the project. The activities to be shown on the schedules will be monitored and updated.
- B. Milestones shown on the Summary Schedules will be “Key Milestones” and are to be included in the Contractor’s Contract Schedule. The Contractor is responsible to develop his/her own activities and logic to meet the required Key Milestone Intermediate Dates. Refer to Division 1, Section 01310, Project Management and Coordination.

##### 1.03 KEY MILESTONES

- A. Key Milestones shall be included in all Contractor Schedules and show completing on the intermediate dates shown in this Section.
- B. Key Milestones are a contractual requirement and liquidated damages as specified in *The Project Manual, Vol. 1, Division 1, Section 01010, Summary of Work*, will be assessed for each Key Milestone that completes beyond the dates listed below. Refer to Division 1, Section 01010 and Summary of Work.
- C. Key Milestones for the Base Bid are as follows:

**Substation Completion: 75 calendar days from Notice to Proceed**  
**Final Completion: 90 calendar days from Notice to Proceed.**

**END OF SECTION 00750**  
**END OF DIVISION 0**

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## SECTION 01010

### SUMMARY OF WORK

#### PART 1: GENERAL

##### 1.01 LOCATION OF WORK

- A. The Work of this Contract is generally located in Georgetown County, South Carolina. The project site is the Georgetown County Solid Waste Facility located on Highway 51 approximately 5 miles northwest of Georgetown, South Carolina.
- B. The project consists of furnishing and installing, complete, including labor, equipment, parts, materials, and other work incidental for the installation of the following:
  - 1. Newly constructed landfill cells: Five (5) submersible leachate pumps and appurtenances and new electrical service:
  - 2. Existing leachate tank: replacement of existing mixer; installation of a new blower; demolition of existing effluent pumps, valves, meters, etc.; installation of new effluent pumps, valves, meters, etc. and new electrical service.

##### 1.02 WORK TO BE DONE

- A. Provide all labor, materials, equipment, tools, services and incidentals necessary to complete all work required by the Contract Documents to furnish and install all work as shown on the Drawings and specified herein.
- B. Complete the Work, in place, tested, and ready for continuous service. Perform or provide repairs, replacements and restoration required as a result of damages resulting from construction operations.
- C. Furnish and install all materials, equipment, and incidentals which are reasonably and properly inferable and necessary for the proper completion of the Work, whether specifically indicated in the Contract Documents or not.

##### 1.03 DRAWINGS AND SPECIFICATIONS FURNISHED TO THE CONTRACTOR FOR CONSTRUCTION

- A. Three sets of Drawing and three sets of Specifications shall be furnished to the Contractor for construction at no charge. Additional sets may be purchased at the cost of reproduction.

1.04 ABBREVIATIONS AND REFERENCES

A. Whenever reference is made to the furnishing of materials or testing thereof to conform to the standards of any technical society, organization or body, it shall be construed to mean the latest standard, code, specification or tentative specification adopted and published at the date of advertisement for bids, even if reference has been made to an earlier standard. Where standards, specifications or codes of the various technical societies, organizations or bodies have been referred to throughout the Specifications, the referenced standard, specification or code is hereby made a part of the Contract the same as if herein repeated in full.

In the event of any conflict between any of these specifications, standards, codes or tentative specifications, and the Specifications, the latter shall govern.

B. Reference to a technical society, organization, or body may be made in the Specifications by abbreviations, in accordance with the following list:

AASHTO	-	The American Assoc. of State Highway and Transportation Officials
ACI	-	American Concrete Institute
AISC	-	American Institute of Steel Construction
AGA	-	American Gas Association
ANSI		American National Standards Institute
ASCE	-	American Society of Civil Engineers
ASME	-	American Society at Mechanical Engineers
ASTM	-	American Society of Testing Materials
AWS	-	American Welding Society
AWWA	-	American Water Works Association
DIPRA	-	Ductile Iron Pipe Research Association
EPA	-	Environmental Protection Agency
FED.SPEC.	-	Federal Specifications
IEEE	-	Institute of Electrical and Electronic Engineers
OSHA	-	Occupational Safety and Health Administration
SCDOT	-	South Carolina Department of Transportation
NEMA	-	National Electrical Manufacturers Association
DHEC	-	South Carolina Department of Health and Environment Control

C. When no reference is made to a code, standard, or specification, the standard specifications of the ASTM, the ANSI, the ASME, the IEEE, or the NEMA shall govern.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION (Not Used)

END OF SECTION 01010

**SECTION 01025**  
**MEASUREMENT AND PAYMENT**

**PART 1: GENERAL**

**1.01 SCOPE OF WORK**

A The Project generally consists of furnishing and installing, complete, including labor, equipment, parts, materials, and other work incidental for the 1) leachate tank facility upgrades and 2) leachate sump pumps.

B All contract prices included in Section 00300 will be full compensation for all labor, materials, tools, equipment and incidentals necessary to complete the Work as shown on the Drawings and specified in the Contract Documents to be performed under this Contract.

C The items listed below, refer to and are the same pay items listed in the Bid Form. They constitute all of the pay items for the completion of the Work. No direct or separate payment will be made for providing miscellaneous temporary or accessory work, services, job signs, sanitary requirements, testing, safety devices, surveying, field engineering, approval and record drawings, water supplies, power, maintaining traffic, removal of waste, watchmen, and all other requirements of the General Conditions and DIVISION 1 - GENERAL REQUIREMENTS. Compensation for all such services, equipment and materials shall be included in the prices stipulated for the lump sum and unit price bid items listed herein.

D Each lump sum and unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR'S overhead and profit for each separately identified item.

E Restoration is not a separate bid item but is considered to be an integral part of the work under the contract, and all contract bid prices include the cost of restoration necessitated by the work related to that bid item.

F Progress Payment for any item for which certifying surveys are required by Section 01050 will be made based on estimated quantities verified by the ENGINEER. The ENGINEER will verify all final quantities prior to Final Payment for that item. Certifying surveys will be required for payment greater than 75% of the estimated total amount of that bid item as required by Section 01050. No Final Payment will be made for any item for which certifying surveys required by Section 01050 have not been submitted and approved by the ENGINEER.

**1.02 BID ITEMS**

Item 1 – Bonds, Insurance, Mobilization, and Demobilization

1. Measurement for this item will be based on actual invoice amounts to substantiate the actual bond and insurance premiums and other invoiced costs, as well as an allowance for mobilization/demobilization. Mobilization will be paid for at the contract lump sum bid price, which price and payment shall be full compensation for organizing and moving all forces, supplies, equipment and incidentals to the project site, regardless of the number of times such moves are made, and all pre-construction costs incurred after award of the contract. This price shall also include costs for demobilization.
2. Payment of this item will be made at the applicable lump sum amount, as above determined, and will represent full compensation for providing the required 100 percent Payment Bond, 100 percent Performance Bond, all insurance and mobilization/demobilization in accordance with the requirements of the General Conditions. The ENGINEER will include payments for mobilization on the first and second construction estimates. Each payment will be for ½ of the contract lump sum price for Mobilization, subject to the limits shown in the following table:

Contract Amount (CA)	Max. Payment First Estimate	Max. Payment Second Estimate
0 - \$40,000	CA x 0.05	CA x 0.05
\$40,000 - \$200,000	\$2,000	\$2,000
\$200,000 - \$2,000,000	CA x 0.01	CA x 0.01
\$2,000,000 and above	(CA x 0.005) + \$10,000	(CA x 0.005) + \$10,000

### **Tank Influent Piping Modifications**

#### **Item 2 – Tanker Truck for Onsite Pump & Haul**

1. The lump sum price bid for Tanker Truck Pumping & Hauling will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required to plan, furnish, install, and operate Tanker Truck Pumping & Hauling during construction. Tanker Truck Pumping & Hauling includes, but is not limited to, planning for temporary leachate management and disposal during construction, installation of necessary devices/controls other than as called for on the Plan Drawings, furnishing and operating the pump and haul operations to include tanker truck(s), pumps and pumping equipment, manpower, pumping operations from the Manhole #2 pump station wetwell to the tanker truck, hauling to and disposal at the Georgetown County Sewer and Water District (GCSWD) pump station (located on the Solid Waste Facility), maintenance of all controls and devices, and any other leachate management controls necessary to adequately manage leachate at the project area, prevent release from the manhole wetwell, and protect the working area for which payment is not provided under other items in the bid form. Tanker Truck Pumping & Hauling be provided during the specified construction sequence as required and acceptable by the OWNER. Payment will be made in monthly increments equaling the lump sum price divided by the contract time in months (not to exceed the contract price).

#### **Item 3 – Concrete Pad**

1. The lump sum price for this item shall be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the Concrete Pad as shown in the Drawings and specified herein, including but not limited to, forming, concrete conforming to the specifications herein, reinforcing steel, waterstops as needed, testing, anchor bolts (as necessary), and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

#### Item 4 – Stainless Steel Class 150 Socket Weld Flange Connection

1. Measurement: The quantity of Stainless Steel Class 150 Socket Weld Flange to be paid for under these items will be the actual number of furnished and installed flanges.
2. Payment: The unit price bids for these items will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the designated flange connections as shown on the Drawings and specified herein, including but not limited to furnishing and installing all pipe fittings, flanges, bolts, couplings (including contractor provided couplings for HDPE to Stainless Steel pipe connections, as approved by the Engineer), trench excavation and backfilling, cleaning, testing, and all other appurtenances.

#### Item 5 – 4-Inch Diameter Stainless Steel Piping

1. Measurement: The quantity of 4-Inch Diameter Stainless Steel Piping to be paid for under these items will be the actual number of linear feet of pipe in place measured horizontally along the centerline of the installed pipes.
2. Payment: The unit price bids per linear foot for these items will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the designated pipe as shown on the Drawings and specified herein, including but not limited to furnishing and installing all pipe, fittings, flanges, bolts, pipe supports, crosses, wye laterals, couplings (including contractor provided couplings for HDPE to Stainless Steel pipe connections, as approved by the Engineer), trench excavation and backfilling, cleaning, testing, and all other appurtenances.

#### Item 6 – 4-Inch Diameter Stainless Steel Piping Tees

1. Measurement: The quantity of 4-Inch Diameter Stainless Steel Tees to be paid for under these items will be the actual number of furnished and installed tees.
2. Payment: The unit price bids for these items will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the designated pipe tee as shown on the Drawings and specified herein, including but not limited to furnishing and installing all pipe tees, fittings, flanges, bolts, couplings, cleaning, testing, and all other appurtenances.

#### Item 7 – 4-Inch Diameter Ball Valves

1. Measurement: The quantity of 4-Inch Diameter Ball Valves to be paid for under these items will be the actual number of furnished and installed ball valves.
2. Payment: The unit price bids for these items will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the designated ball valves as shown on the Drawings and specified herein, including but not limited to furnishing and installing all pipe fittings, flanges, bolts, couplings, cleaning, testing, and all other appurtenances.

#### Item 8 – 4-inch Diameter HDPE Piping Tank Bypass

1. Measurement: The quantity of 4-inch Diameter HDPE Piping to be paid under these items will be the actual number of linear feet of pipe installed as measured horizontally along the centerline of the installed pipe.
2. Payment: The unit price per linear foot for these items will be full compensation for furnishing all labor, materials, tools, equipment, supervision and incidentals required for installing the force main as shown on the Drawings and specified herein, including but not limited to furnishing and installing pipe, fittings, caps, plugs, connections to existing pipelines (stainless steel & HDPE pipelines), flex restraints/thrust anchors, trench excavation and backfilling, miscellaneous appurtenances, bedding material, as-built alignment marking devices, surveying, cleaning, and testing.

#### Item 9 – Pipe Supports

1. Measurement: The quantity of Pipe Supports to be paid for under these items will be the actual number of furnished and installed pipe supports.
2. Payment: The unit price bids for these items will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing pipe supports as shown on the Drawings and specified herein, including but not limited to furnishing and installing all supports, fittings, anchors, bolts, and all other appurtenances.

#### **Tank Effluent Pump Station**

#### Item 10 – 4-Inch Diameter Ball Valves

1. Measurement: The quantity of 4-Inch Diameter Ball Valves to be paid for under these items will be the actual number of furnished and installed ball valves.
2. Payment: The unit price bids for these items will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the designated ball valves as shown on the Drawings and specified herein, including but not limited to furnishing and installing all pipe fittings, flanges, bolts, couplings, cleaning, testing, and all other appurtenances.

#### Item 11 – 4-Inch Diameter Check Valves

1. Measurement: The quantity of 4-Inch Diameter Check Valves to be paid for under these items will be the actual number of furnished and installed check valves.
2. Payment: The unit price bids for these items will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the designated ball valves as shown on the Drawings and specified herein, including but not limited to furnishing and installing all pipe fittings, flanges, bolts, couplings, cleaning, testing, and all other appurtenances.

#### Item 12 – 4-inch Magnetic Flow Meter

1. Measurement: The quantity of 4-Inch Magnetic Flow Meters to be paid for under these items will be the actual number of furnished and installed magnetic flow meters.
2. Payment: The unit price bids for these items will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the Magnetic Flow Meters as shown in the Drawings and specified herein, including but not limited to, magnetic

flow meter, pipe fittings, couplings, electrical connections, and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

#### Item 13 – 4-Inch Diameter Stainless Steel Piping

1. Measurement: The quantity of 4-Inch Diameter Stainless Steel Piping to be paid for under these items will be the actual number of linear feet of pipe in place measured horizontally along the centerline of the installed pipes.
2. Payment: The unit price bids per linear foot for these items will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the designated pipe as shown on the Drawings and specified herein, including but not limited to furnishing and installing all pipe, fittings, flanges, bolts, pipe supports, crosses, wye laterals, couplings (including contractor provided couplings for HDPE to Stainless Steel pipe connections, as approved by the Engineer), trench excavation and backfilling, cleaning, testing, and all other appurtenances.

#### Item 14 – 4-Inch Diameter Stainless Steel Piping Tees

1. Measurement: The quantity of 4-Inch Diameter Stainless Steel Tees to be paid for under these items will be the actual number of furnished and installed tees.
2. Payment: The unit price bids for these items will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the designated pipe tee as shown on the Drawings and specified herein, including but not limited to furnishing and installing all pipe tees, fittings, flanges, bolts, couplings, cleaning, testing, and all other appurtenances.

#### Item 15 – Pressure Gages

1. Measurement: The quantity of Pressure Gages to be paid for under these items will be the actual number of furnished and installed gages.
2. Payment: The unit price bids for these items will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the designated pressure gages as shown on the Drawings and specified herein, including but not limited to furnishing and installing all fittings, cleaning, testing, and all other appurtenances.

#### Item 16 – Purchase Leachate Transfer Pumps

1. Measurement: The quantity of Leachate Transfer Pumps to be paid for under these items will be the actual number of furnished leachate transfer pumps.
2. Payment: The unit price bids for this item shall be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing the Leachate Transfer Pumps as shown in the Drawings and specified herein, including but not limited to, transfer pumps, isolation joints, pressure gauges with shutoff cock, piping and pipe connections, mounts and concrete foundation connections, and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract. Schedules of values for this item shall include, at a minimum, detailed breakdowns for leachate transfer pumps, pump control panels, and pump system installation.

#### Item 17 – Purchase Leachate Transfer Pump Control Panels

1. Measurement: The quantity of Leachate Transfer Pump Control Panels to be paid for under these

items will be the actual number of furnished leachate transfer pump control panels.

2. Payment: The unit price bids for this item shall be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing the Leachate Transfer Pump Control Panels as shown in the Drawings and specified herein, including but not limited to, panels, wiring, panel boxes, connectors, any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

#### Item 18 – Install Leachate Transfer Pumps and Control Panels

1. The lump sum price for this item shall be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for installing the Leachate Transfer Pump System as shown in the Drawings and specified herein, including but not limited to, leachate transfer pump installation, leachate transfer pump control panel installation, electrical connections, tank penetration and pipe connections, mounts and concrete pad securement, testing, start-up pump testing and reporting, and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

#### Item 19 – Pipe Supports

1. Measurement: The quantity of Pipe Supports to be paid for under these items will be the actual number of furnished and installed pipe supports.
2. Payment: The unit price bids for these items will be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing pipe supports as shown on the Drawings and specified herein, including but not limited to furnishing and installing all supports, fittings, anchors, bolts, and all other appurtenances.

### **Tank Equipment**

#### Item 20 – Blower System Piping

1. The lump sum price for this item shall be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the Blower System piping, complete, as shown in the Drawings and specified herein, including but not limited to, blower piping (outside & inside the tank), pipe supports, isolation joint, check valve, butterfly valve, connections, and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

#### Item 21 – Purchase Blower Equipment

1. The lump sum price for this item shall be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing the Blower Equipment, complete, as shown in the Drawings and specified herein, including but not limited to, blower equipment, electrical connections and controls, mounts, and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

#### Item 22 – Install Blower Equipment

1. The lump sum price for this item shall be full compensation for all labor, materials, tools,

equipment, supervision and incidentals required for installing the Blower System, complete, as shown in the Drawings and specified herein, including but not limited to, installing the blower and blower system piping (outside & inside the tank), pipe supports, tank penetration, isolation joint, electrical connections and controls, tank penetration, check valve, butterfly valve, mounts and concrete pad securement, testing, start-up, and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

#### Item 23 – Side-Entry Mixer System

1. The lump sum price for this item shall be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for removing the existing side-entry mixer and furnishing and installing a new Side-Entry Mixer System as shown in the Drawings and specified herein, including but not limited to, side-entry mixer assembly, electrical connections and controls, tank penetration, mounts and concrete pad securement, testing, start-up, and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

#### Item 24 – Liquid Level Indicator

1. The lump sum price for this item shall be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the Liquid Level Indicator as shown in the Drawings and specified herein, including but not limited to, float, float guides, float cable, fiberglass blind flange, fiberglass gauge board, pipe fittings, couplings, connections, and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

#### Item 25 – Liquid Level Transmitter

1. The lump sum price for this item shall be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the Liquid Level Transmitter as shown in the Drawings and specified herein, including but not limited to sensing element, conduit, supports, cables, transmitter, LCD indicator and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

### **Landfill Equipment**

#### Item 26 – Purchase Leachate Sump Pumps

1. Measurement: The quantity of Leachate Sump Pumps to be paid for under these items will be the actual number of furnished leachate sump pumps.
2. The unit price bids for this item shall be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing the Leachate Sump Pumps as shown in the Drawings and specified herein, including but not limited to, submersible leachate sump pump, 4” diameter PVC flexible discharge pipe, flexible pipe quick disconnect fitting, ¼” stainless steel suspension cable, and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

#### Item 27 – Purchase Leachate Sump Pumps Control Panels

1. Measurement: The quantity of Leachate Sump Pump Control Panels to be paid for under these items will be the actual number of furnished leachate sump pumps control panels.

2. The unit price bids for this item shall be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for furnishing and installing the Leachate Sump Pump Control Panels as shown in the Drawings and specified herein, including but not limited to, pump control panel, control panel mount, electrical connections, flow meter connections, and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

Item 28 – Install Leachate Sump Pumps & Control Panel

1. The lump sum price for this item shall be full compensation for all labor, materials, tools, equipment, supervision and incidentals required for installing the Leachate Sump Pumps and Leachate Sump Pump Control Panels as shown in the Drawings and specified herein, including but not limited to, equipment installation, wiring, testing, start-up pump testing and reporting, and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

**Electrical**

Item 29 – Leachate Tank Electrical

1. The lump sum price for Leachate Tank Electrical shall be full compensation for all labor, materials, tools, equipment, supervision, and incidentals necessary for furnishing and installing the complete electrical system as shown on the drawings to include, but not limited to, electrical service rack, meter, switch, pump control panel, arrester, conduit, cable and equipment, surveying, and testing as identified in the drawings and as specified herein, and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

Item 30 – Leachate Sump Pumps & Controls Electrical

1. The lump sum price for Leachate Sump Pumps & Controls Electrical shall be full compensation for all labor, materials, tools, equipment, supervision, and incidentals necessary for furnishing and installing the complete electrical system as shown on the drawings to include, but not limited to, electrical service rack, meter, switch, pump control panel, arrester, conduit, cable and equipment, surveying, and testing as identified in the drawings and as specified herein, and any other work not specifically included for payment under any other item but obviously necessary to complete the Contract.

**END OF SECTION 1025**

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**SECTION 01026**  
**SCHEDULE OF VALUES**

**PART 1: GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A. Submit to the ENGINEER a Schedule of Values allocated to the various portions of the Work as listed in the bid form, Section 00300, within 21 days after the effective date of the Agreement.
- B. Upon request of the ENGINEER, support the values with data that will substantiate their correctness.
- C. The accepted Schedule of Values shall be used as the basis for the CONTRACTOR'S Applications for Progress Payments.

**1.02 RELATED REQUIREMENTS**

- A. Section 00300- Bid Form
- B. Section 01010: Summary of Work
- C. Section 01027: Application for Payment

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

- A. Type schedule on an 8-1/2-in by 11-in or 8-1/2-in by 14-in white paper furnished by the OWNER; CONTRACTOR'S standard forms and automated printout will be considered for approval by the ENGINEER upon CONTRACTOR'S request. Identify schedule with:
  - 1. Title of PROJECT and location.
  - 2. ENGINEER and PROJECT number.
  - 3. Name and Address of CONTRACTOR.
  - 4. Contract designation.
  - 5. Date of submission.
- B. Schedule shall list the installed value of the component parts of the Work in sufficient detail to serve as a basis for computing values for progress payments during construction and shall include a breakdown of all Lump Sum Bid Items. At a minimum the component parts listed in the bid form shall be used.
- C. For each major line item list sub-values of major products or operations under the item.
- D. For the various portions of the Work:
  - 1. Each item shall include a directly proportional amount of the CONTRACTOR'S overhead and profit.

2. For items on which progress payments will be requested for stored materials, break down the value into:
  - a. The cost of the materials, delivered and unloaded, with taxes paid. Paid invoices are required for materials upon request by the ENGINEER.
  - b. The total installed value.

E. The sum of all values listed in the schedule shall equal the total Contract Sum.

#### 1.04 SUBSCHEDULE OF UNIT MATERIAL VALUES

A. Submit a sub-schedule of unit costs and quantities for:

1. Products on which progress payments will be requested for stored products.

B. The form of submittal shall parallel that of the Schedule of Values, with each item identified the same as the line item in the Schedule of Values.

C. The unit quantity for bulk materials shall include an allowance for normal waste.

D. The unit values for the materials shall be broken down into:

1. Cost of the material, delivered and unloaded at the site, with taxes paid.
2. Copies of invoices for component material shall be included with the payment request in which the material first appears.
3. Paid invoices shall be provided with the second payment request in which the material appears or no payment shall be allowed and/or may be deleted from the request.

E. The installed unit value multiplied by the quantity listed shall equal the cost of that item in the Schedule of Values.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION (Not Used)

**END OF SECTION 01026**

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## **SECTION 01027**

### **APPLICATIONS FOR PAYMENT**

#### **PART 1: GENERAL**

##### **1.01 REQUIREMENTS INCLUDED**

- A. Submit Applications for Payment to the ENGINEER in accordance with the schedule established by Conditions of the Contract and Agreement Between OWNER and CONTRACTOR.
- B. The accepted Schedule of Values, Section 01026, shall be used as the basis for the CONTRACTOR'S Application for Payment.

##### **1.02 RELATED WORK**

- A. Section 01010: Summary of Work
- B. Section 01025: Measurement and Payment
- C. Section 01026: Schedule of Values
- D. Section 01036: Change Order Procedures
- E. Section 01310: Construction Schedule
- F. Section 01380: Construction Photographs
- G. Section 01700: Contract Closeout
- H. Section 01720: Project Record Documents

##### **1.03 SUBMITTALS**

- A. Submit Application for Payment and continuation sheets in format consistent with Section 01026-Schedule of Values and approved by the OWNER providing complete documentation of all items for which payments is requested. The Application for Payment form and continuation sheets shall be typed on 8-1/2-inch by 11-inch or 8-1/2-inch by 14-inch white paper. Each Application for Payment submittal shall include an Excel Spreadsheet file (provided on a 3.5 inch high density floppy disk)
- B. Provide construction photographs in accordance with Section 01380.

##### **1.04 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT**

- A. Application Form:
  - 1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.
  - 2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.
  - 3. Execute certification with signature of a responsible officer of Contract firm.
- B. Continuation Sheets:

1. Fill in total list of all scheduled component items of Work, with item number and scheduled dollar value for each item.
2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored.
  - a. Round off values to nearest dollar, or as specified for Schedule of Values.
3. List each Change Order executed prior to date of submission, at the end of the continuation sheets.
  - a. List by Change Order Number and description, as for an original component item of work.
4. To receive approval for payment on component material stored on site, submit copies of the original paid invoices with the second application for payment.

#### 1.05 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. When the OWNER or the ENGINEER requires substantiating data, CONTRACTOR shall submit suitable information, with a cover letter identifying:
  1. Project.
  2. Application number and date.
  3. Detailed list of enclosures.
  4. For stored products:
    - a. Item number and identification as shown on application.
    - b. Description of specific material.
- B. Submit one copy of data and cover letter for each copy of application.
- C. As a prerequisite for payment, CONTRACTOR is to submit a "Surety Acknowledgement of Payment Request" letter showing amount of progress payment which the CONTRACTOR is requesting.
- D. The CONTRACTOR is to maintain an updated set of drawings to be used as record drawings in accordance with Section 01720. As a prerequisite for monthly progress payments, the CONTRACTOR is to exhibit the updated record drawings and surveys in accordance with Section 01050 for review by the OWNER and the ENGINEER.
- E. CONTRACTOR shall maintain an updated construction schedule in accordance with Section 01310. As a prerequisite for monthly progress payments, CONTRACTOR shall submit the updated construction schedule with the applications for progress payments. If the CONTRACTOR fails to submit the required updated schedule within the time prescribed, the ENGINEER may withhold approval of progress payment estimates until such time as the CONTRACTOR submits the required updated schedule. Submit one copy for each copy of application.
- F. The CONTRACTOR shall demonstrate, as a prerequisite for monthly progress payments, compliance with all requirements specified in Section 02276-Erosion and Sediment Control to the ENGINEER. If the CONTRACTOR fails to demonstrate compliance with Section 02276-Erosion

and Sediment Control, the ENGINEER reserves the right to withhold approval of progress payment estimates until such time as the CONTRACTOR demonstrates to the ENGINEER full compliance with Section 02276-Erosion and Sediment Control.

- G. The CONTRACTOR shall provide, as a prerequisite for monthly progress payments, an accumulating cost curve (tabular and diagram) indicating schedule, forecast and actual progress.

1.06 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Fill in Application form as specified for progress payments.
- B. Use continuation sheet for presenting the final statement of accounting as specified in Section 01700 - Contract Closeout.
- C. Submit all Project Record Documents in accordance with Sections 01050 and 01720.

1.07 SUBMITTAL PROCEDURE

- A. Submit Applications for Payment to the ENGINEER at the times stipulated in the Agreement.
- B. Number: Five copies of each Application.
- C. When the ENGINEER finds Application properly completed and correct, ENGINEER will transmit certificate for payment to OWNER, with copy to CONTRACTOR.
- D. Submit one copy of the invoices for all equipment and materials purchased under the Contract with each Application for Payment current through the previous payment period. Invoices shall show the sales tax paid and shall be used by the OWNER for recovery of taxes.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION (Not Used)

**END OF SECTION 01027**

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## SECTION 01030

### SPECIAL PROJECT PROCEDURES

#### PART 1: GENERAL

##### 1.01 General

- A Carefully coordinate and conduct all work in strict accordance with Federal, State, and County requirements and standards.

##### 1.02 LINES AND GRADES

- A The CONTRACTOR shall be responsible for establishing all lines and measurements necessary for proper prosecution and control of the work. Available horizontal and vertical controls are shown on the Drawings.

##### 1.03 ACCESS AND DRAINAGE

- A The CONTRACTOR shall provide and maintain adequate access to and throughout the site and shall keep all natural drainage and water courses unobstructed or provide equal courses effectively placed. He shall maintain the access and drainage facilities in accordance with their original condition. The OWNER assumes no responsibility for the placement, condition or maintenance of any access roads or structures that may be used by the CONTRACTOR in the performance of his work.
- B Operation will continue at the facility. Proper safety measures, such as signs, barricades, and other means of traffic guidance, shall be implemented to ensure that the safety of these facilities is not jeopardized.

##### 1.04 RIGHT-OF-WAYS

- A Work performed in RIGHT-OF-WAYS (R-O-W) shall be subject to the provisions of the R-O-W agreements. In general, these easements provide for restoring the property to the condition existing before construction began, except where otherwise noted on the Plans.

##### 1.05 PROVISIONS FOR THE CONTROL OF DUST

- A Sufficient precautions shall be taken during construction to minimize dust. Water or calcium chloride shall be applied as required to control dust.

##### 1.06 LOCATION, PROTECTION AND MAINTENANCE OF EXISTING UTILITIES, STRUCTURES AND PROPERTY

- A Existing utilities are located and are operating in the construction area. CONTRACTOR shall contact the office of each utility operator and ascertain the extent of specific service areas. CONTRACTOR shall contact the South Carolina One Call system (1-888-721-7877) at least 48 hours prior to excavating.

- B The location of existing utilities across or along the line of the proposed work is not necessarily shown on the Drawings and where shown is only approximately correct. The CONTRACTOR shall locate all underground lines and structures prior to excavation.
- C The CONTRACTOR shall assume full responsibility for the protection and restoration of all buildings, structures, and utilities, public or private, including poles, signs, services to buildings, utilities in the street, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the Drawings. CONTRACTOR shall carefully support and protect all such structures and utilities from injury. Damages resulting from the construction operations shall be repaired by CONTRACTOR.
- D The CONTRACTOR shall fully cooperate at all times with the utility owners to maintain the operation of existing utilities with the least amount of interference and interruption possible. Continuous service, public health and safety considerations shall exceed all others and the CONTRACTOR'S schedule, plans and work shall at all times be subject to alteration and revision if necessary for these considerations.
- E Temporary support, adequate protection and maintenance of all underground and surface utility installations and structures, drains, sewers, and other obstructions encountered shall be provided as required by the CONTRACTOR. Arrange and pay all costs for required support of utility poles and other structures as required by the utility owners prior to excavation.
- F Trees, shrubbery, fences, poles, signs and all other property shall be protected to the extent practicable.
- G. No wetlands area shall be disturbed without written approval from the OWNER.

#### 1.07 RELOCATION OF UTILITIES AND STRUCTURES

- A The CONTRACTOR shall be responsible for the temporary or permanent relocation of structures and utilities, including but not limited to poles, signs, fences, hydrants, valves, piping, conduits and drains that interfere with the positioning of the Work as shown on the Drawings.
- B No relocations of utilities shall be made without approval of the OWNER of the utility.
- C All valve boxes and manhole frames and covers in intersections and elsewhere shall be adjusted as required to be flush with the final pavement surface.

#### 1.08 CLAIMS FOR PROPERTY DAMAGE

- A Upon notification by the OWNER, the CONTRACTOR shall investigate each claim for property damage and shall file, within ten (10) days of such notification, a statement with OWNER setting forth all facts and details relative to such claim.

#### 1.09 CARE AND PROTECTION OF PROPERTY

- A The CONTRACTOR shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done

to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the CONTRACTOR, such property shall be restored by the CONTRACTOR, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in other manner acceptable to the ENGINEER.

- B All driveways, sidewalks, curb and gutters disturbed by the CONTRACTOR'S operations shall be restored to their original condition in accordance with SCDOT and County requirements.
- C All fences, signs, mailboxes, and other physical features shall be protected and restored in a workmanlike manner by the CONTRACTOR. Fences and other features removed by the CONTRACTOR shall be replaced as soon as conditions permit. All grass areas beyond the limits of construction that have been damaged by the CONTRACTOR shall be regraded and restored to their original condition.
- D All highways and roads that become littered or soiled by the CONTRACTOR from hauling of borrow material to the construction site shall be kept clean. In addition, signs indicating construction traffic shall be installed at the entrances to the borrow area(s).
- E During the hauling of off-site borrow material onto the site the entrance road to the landfill from highway 90 to the maintenance building shall be cleaned by sweeping twice per month or at the direction of the ENGINEER.
- F Landfill gas (LFG) system pipes and appurtenances, leachate collection system pipes and appurtenances, and all other existing utilities shall be protected from construction activities. Any landfill gas and/or leachate collection system components that become damaged during construction activities by the CONTRACTOR shall be repaired by the CONTRACTOR at his cost.

#### 1.10 GUARANTEE

- A Work on this PROJECT shall be guaranteed in accordance with requirements of Article 13 of the General Conditions. Work found to be defective within 1 year after the date of Substantial Completion shall be corrected or replaced in accordance with the General Conditions.

#### 1.11 HURRICANE PREPAREDNESS PLAN

- A Within fifteen (15) days of the date of Notice to Proceed, the CONTRACTOR shall submit to the ENGINEER and OWNER a Hurricane Preparedness Plan. The plan should outline the necessary measures which the CONTRACTOR proposes to perform at no additional cost to the OWNER in the event of a hurricane warning. Such measures shall be in accordance with state and local requirements.
- B In the event of inclement weather, the CONTRACTOR will, and will cause Subcontractors, to protect carefully the Work and materials against damage or injury from the weather at no additional cost to the OWNER. If, in the opinion of the ENGINEER, any portion of the Work or materials shall have been damaged or injured by reason of failure on the part of the CONTRACTOR or Subcontractors to so protect the work, such Work and materials shall be removed and replaced at the expense of the CONTRACTOR.

1.12 DAMAGE DUE TO HIGH WATER

- A The CONTRACTOR shall hold himself responsible for all damage done to the Work by heavy rains or flood and CONTRACTOR shall take all reasonable precautions to provide against damages in a permittable manner.

1.13 EMERGENCIES

- A The CONTRACTOR shall at all times after regular working hours, including weekend and holidays, maintain a telephone where the CONTRACTOR or his representative can be reached on an emergency basis. The CONTRACTOR or his representative shall be prepared to act to correct conditions on the site deemed to constitute an emergency by either the OWNER, his agent, or the ENGINEER. The CONTRACTOR shall give the ENGINEER prompt written notice of all significant changes in the Work or deviations from the Contract caused thereby. If a condition on the site requires attention after working hours, either the OWNER, his agent, ENGINEER, or local authority shall call the CONTRACTOR of his representative at the emergency telephone number, identify himself and describe the emergency condition. The CONTRACTOR is expected to dispatch men and equipment to adequately institute corrective measures within two (2) hours. If the CONTRACTOR or his representative cannot be reached at the emergency number after a reasonable time (1/2 hour), the OWNER shall have the right to immediately initiate corrective measures, and the cost of such measures shall be borne by the CONTRACTOR.
- B Emergency phone numbers (fire, medical, police) shall be posted at the CONTRACTOR'S phone and its location known to all.
- C Accidents or incidents shall be reported immediately to the ENGINEER by messenger or phone.
- D All accidents or incidents shall be documented and a fully detailed written report, including police reports if produced, submitted to the ENGINEER after each occurrence.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION (Not Used)

END OF SECTION 01030

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## SECTION 01036

### CHANGE ORDER PROCEDURES

#### PART 1: GENERAL

##### 1.01 REQUIREMENTS INCLUDED

A Promptly implement change order procedures.

1. Provide full written data required to evaluate changes.
2. Maintain detailed records of work done on a time-and-material/ force account basis.
3. Provide full documentation to ENGINEER on request.

B Designate in writing the member of CONTRACTOR'S organization:

1. Who is authorized to accept changes in the Work.
2. Who is responsible for informing others in the CONTRACTOR'S employ of the authorization of changes in the Work.

C OWNER will designate in writing the person who is authorized to execute Change Orders.

##### 1.02 RELATED REQUIREMENTS

A Section 00500: Contract.

B Section 001010: Summary of Work

C Section 01027: Application for Payment.

D Section 01310: Construction Schedules.

E Section 01026: Schedule of Values.

F Section 01630: Substitutions and Product Options.

H Section 01720: Project Record Documents.

##### 1.03 PRELIMINARY PROCEDURES

A OWNER or ENGINEER may initiate changes by submitting a Request for Proposal (RFP) to CONTRACTOR. Request will include:

1. Detailed description of the Change, Products, and location of the change in the PROJECT.
2. Supplementary or revised Drawings and Specifications.
3. The projected time span for making the change, and a specific statement as to whether overtime work is, or is not, authorized.
4. A specific period of time during which the requested price will be considered valid.
5. Such request is for information only, and is not an instruction to execute the changes, nor to stop work in progress.

B CONTRACTOR may initiate changes by submitting a written notice to ENGINEER, containing:

1. Description of the proposed changes.
2. Statement of the reason for making the changes.
3. Statement of the effect on the Contract Sum and the Contract Time.
4. Statement of the effect on the work of separate contractors.
5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

#### 1.04 WORK DIRECTIVE CHANGE (WDC)

- A In lieu of a Request for Proposal (RFP), OWNER or ENGINEER may issue a Work Directive Change (WDC) for CONTRACTOR to proceed with a change for subsequent inclusion in a Change Order.
- B Each WDC will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change, and will designate the method of determining any change in the Contract Sum and any change in Contract Time.
- C OWNER and ENGINEER will sign and date the WDC as authorization for the CONTRACTOR to proceed with the changes.
- D CONTRACTOR may sign and date the WDC indicate agreement with the terms therein.

#### 1.05 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A Support each quotation for a lump-sum proposal, and for each unit price which has not previously been established, with sufficient substantiating data to allow ENGINEER to evaluate the quotation.
- B On request, provide additional data to support time and cost computations.
1. Labor required.

2. Equipment required.
3. Products required.
  - a. Recommended source of purchase and unit cost.
  - b. Quantities required.
4. Taxes, insurance and bonds.
5. Credit for work deleted from Contract, similarly documented.
6. Overhead and profit.
7. Justification for any change in Contract Time.

C Support each claim for additional costs, and for work done on a time-and-material/force account basis, with documentation as required for a lump-sum proposal, plus additional information.

1. Name of the OWNER'S authorized agent who ordered the work, and date of the order.
2. Dates and times work was performed, and by whom.
3. Time record, summary of hours worked, and hourly rates paid.
4. Receipts and invoices for:
  - a. Equipment used, listing dates and times of use.
  - b. Products used, listing of quantities.
  - c. Subcontracts.

D Document requests for substitutions for Products as specified in Section 01630.

#### 1.06 PREPARATION OF CHANGE ORDERS AND FIELD ORDERS

A ENGINEER will prepare each Change Order and Field Order.

B Forms: See end of this section for forms.

C Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.

D Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

- E Field Order will describe interpretations or clarifications of Contract Documents, order minor changes in the Work, and/or memorialize trade-off agreements.
- F Field Order work will be accomplished without change in the Contract Sum, Contract Time, and/or claims for other costs.

#### 1.07 LUMP-SUM/FIXED PRICE CHANGE ORDER

- A Content of Change Orders will be based on, either:
  - 1. ENGINEER'S Proposal Request and CONTRACTOR'S responsive Proposal as mutually agreed between OWNER and CONTRACTOR.
  - 2. CONTRACTOR'S Proposal for a change, as recommended by ENGINEER.
- B OWNER and ENGINEER will sign and date the Change Order as authorization for the CONTRACTOR to proceed with the changes.
- C CONTRACTOR will sign and date the Change Order to indicate agreement with the terms therein.

#### 1.08 UNIT PRICE CHANGE ORDER

- A Content of Change Orders will be based on, either:
  - 1. ENGINEER'S definition of the scope of the required changes.
  - 2. CONTRACTOR'S Proposal for a change, as recommended by ENGINEER.
  - 3. Survey of completed work.
- B The amounts of the unit prices to be:
  - 1. Those stated in the Agreement.
  - 2. Those mutually agreed upon between OWNER and CONTRACTOR.
- C When quantities of each of the items affected by the Change Order can be determined prior to start of the work:
  - 1. OWNER and ENGINEER will sign and date the Change Order as authorization for CONTRACTOR to proceed with the changes.
  - 2. CONTRACTOR will sign and date the Change Order to indicate agreement with the terms therein.
- D When quantities of the items cannot be determined prior to start of the work:

1. ENGINEER or OWNER will issue a WDC directing CONTRACTOR to proceed with the change on the basis of unit prices, and will cite the applicable unit prices.
2. At completion of the change, ENGINEER will determine the cost of such work based on the unit prices and quantities used.
  - a. CONTRACTOR shall submit documentation to establish the number of units of each item and any claims for a change in Contract Time.
3. ENGINEER will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
4. OWNER and CONTRACTOR will sign and date the Change Order to indicate their agreement with the terms therein.

#### 1.09 TIME AND MATERIAL/FORCE ACCOUNT CHANGE ORDER/WORK DIRECTIVE CHANGE

- A ENGINEER and OWNER will issue a WDC directing CONTRACTOR to proceed with the changes.
- B At completion of the change, CONTRACTOR shall submit itemized accounting and supporting data as provided in the Article "Documentation of Proposals and Claims" of this Section.
- C ENGINEER will determine the allowable cost of such work, as provided in General Conditions and Supplementary Conditions.
- D ENGINEER will sign and date the Change Order to establish the change in Contract Sum and in Contract Time.
- E OWNER and CONTRACTOR will sign and date the Change Order to indicate their agreement therewith.

#### 1.10 CORRELATION WITH CONTRACTOR'S SUBMITTALS

- A Periodically revise Schedule of Values and Request for Payment forms to record each change as a separate item of Work, and to record the adjusted Contract Sum.
- B Periodically revise the Construction Schedule to reflect each change in Contract Time.
  1. Revise sub-schedules to show changes for other items of work affected by the changes.
- C Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

PART 2: PRODUCTS (NOT USED)  
PART 3: EXECUTION (NOT USED)

END OF SECTION 01036

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## **SECTION 01055**

### **DUTIES, RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY OF RESIDENT PROJECT REPRESENTATIVE**

#### **PART 1:**

##### **A. GENERAL**

ENGINEER'S Resident Project Representative (RPR) will act as directed by and under the supervision of the ENGINEER, and will confer with ENGINEER regarding his actions. Resident Project Representative's dealings in matters pertaining to the on-site work shall in general be only with ENGINEER and CONTRACTOR, and dealing with Subcontractors shall only be through or with the full knowledge of CONTRACTOR.

##### **B. DUTIES AND RESPONSIBILITIES**

Resident Project Representative will:

###### **1. Schedule:**

- a. Review the progress schedule, schedule of Shop Drawing submissions and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning their acceptability.

###### **2. Meetings:**

- a. Attend pre-construction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with ENGINEER and notify those expected to attend in advance. Attend meetings, and maintain and circulate copies of minutes thereof.

###### **3. Liaison:**

- a. Serve as ENGINEER'S liaison with CONTRACTOR, working principally through CONTRACTOR'S superintendent and assist him in understanding the intent of the CONTRACT Documents. Assist ENGINEER in serving as OWNER'S liaison with CONTRACTOR when CONTRACTOR'S operations affect OWNER'S on-site operations.
- b. As requested by ENGINEER, assist in obtaining from OWNER additional details or information, when required at the job site for proper execution of the PROJECT.

###### **4. Shop Drawings and Samples:**

- a. Receive and record data of receipt of Shop Drawings and samples, receive samples that are furnished at the site by CONTRACTOR, and notify ENGINEER of their availability for examination.
- b. Advise ENGINEER and CONTRACTOR or his superintendent immediately of the commencement of any work requiring a Shop drawing or sample submission if the submission has not been approved by the ENGINEER.

5. Review of PROJECT, Rejection of Defective Work, Inspections and Tests:

- a. Conduct on-site observations of the work in progress to assist ENGINEER in determining if the PROJECT is proceeding in accordance with the CONTRACT Documents and that completed Work will conform to the CONTRACT Documents.
- b. Report to ENGINEER whenever he believes that any work is unsatisfactory, faulty, or defective or does not conform to the CONTRACT Documents, or does not meet the requirements of any inspections, tests or approval required to be made or has been damaged prior to final payment; and advise ENGINEER when he believes work should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
- c. Verify that tests, equipment, and system start-ups and operating and maintenance instructions are conducted as required by the CONTRACT Documents and in the presence of the required personnel, and that CONTRACTOR maintains adequate records thereof, observe, record, and report to ENGINEER appropriate details relative to the test procedures and start-ups.
- d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the PROJECT, record the outcome of these inspections and report to the ENGINEER.

6. Interpretation of CONTRACT Documents:

- a. Transmit to CONTRACTOR, ENGINEER'S clarifications and interpretations of the CONTRACT Documents.

7. Recommendations:

- a. Consider and evaluate CONTRACTOR's suggestions for modifications in Drawings or Specifications and report them with recommendations to ENGINEER

8. Records:

- a. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and sample submissions, reproductions of original CONTRACT Documents including all Addenda, change orders, field orders, additional Drawings issued subsequent to the execution of the CONTRACT, ENGINEER'S clarifications and interpretations of the CONTRACT Documents, progress reports, and other PROJECT related documents.
- b. Keep a diary or log book, recording hours on the job site, weather conditions (temperature, estimated wind direction and speed, rainfall amounts, and time of occurrence), data relative to questions of extras or deductions, list of visiting officials and representatives of manufactures, fabricators, suppliers and distributors, daily activities, decisions, observations in general and specific observations in more detail as the case of observing test procedures. Send copies to ENGINEER.
- c. Record names, addresses and telephone numbers of all CONTRACTORS, Subcontractors and major suppliers of materials and equipment.
- d. Furnish ENGINEER periodic reports as required of progress of the PROJECT and CONTRACTOR'S compliance with the approved progress schedule and schedule of Shop Drawing submissions.
- e. Consult with ENGINEER in advance of scheduled major tests, inspections, or start of important phases of the PROJECT.
- f. Report immediately to ENGINEER upon the occurrence of any accident.

9. Payment Requisitions:

- a. Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and forward them with recommendations to ENGINEER, noting particularly their relation to the schedule of values, work completed, and materials and equipment delivered at the site but not incorporated in the PROJECT.

10. Certificates, Maintenance and Operation Manuals:

- a. During the course of the PROJECT, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed; and deliver this material to ENGINEER for his review and forward to OWNER prior to final acceptance of the PROJECT.

11. Completion:

- a. Before ENGINEER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring completion or correction.

- b. Conduct final inspection in the company of ENGINEER, OWNER, and CONTRACTOR and prepare a final list of items to be completed or corrected.
- c. Verify that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

### C. LIMITATIONS OF AUTHORITY

Except upon written instructions of ENGINEER, Resident Project Representative:

1. Shall not authorize any deviation from the CONTRACT Documents or approve any substitute materials or equipment.
2. Shall not exceed limitations on ENGINEER'S authority as set forth in the CONTRACT Documents.
3. Shall not undertake any of the responsibilities of CONTRACTOR, Subcontractor, or CONTRACTOR'S Superintendent, or expedite the PROJECT.
4. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the CONTRACT Documents.
5. Shall not advise on or issue directions as to safety precautions and programs in connection with the PROJECT.
6. Shall not authorize OWNER to occupy the PROJECT in whole or in part.

END OF SECTION 01055

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**SECTION 01200  
PROJECT MEETINGS**

**PART 1: GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A The ENGINEER shall schedule and administer a pre-construction meeting, periodic progress meetings, and specially called meetings throughout progress of the work. The ENGINEER shall:
1. Prepare agenda for meetings.
  2. Make physical arrangements for meetings.
  3. Preside at meetings.
  4. Keep a record of the meeting, to include significant proceedings and decisions.
  5. Reproduce and distribute copies of the record within five working days after each meeting:
    - a. To participants in the meeting.
    - b. To parties affected by decisions made at the meeting.
- B Representatives of the CONTRACTOR, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
- C The CONTRACTOR shall provide an updated schedule at each PROJECT meeting.
- D The CONTRACTOR shall attend meetings to ascertain that work is expedited consistent with Contract Documents and construction schedules.

**1.02 RELATED REQUIREMENTS**

- A Section 01010: Summary of Work.
- B Section 01310: Construction Schedules.
- C Section 01340: Shop Drawings, Product Data, Working Drawings, and Samples.
- D Section 01720: PROJECT Record Documents

**1.03 PRE-CONSTRUCTION MEETING**

- A The ENGINEER will schedule a pre-construction meeting in accordance with Article 2.8 of the General Conditions.

B Location: A central site, convenient for all parties, designated by the OWNER.

C Attendance:

1. ENGINEER.
2. OWNER Representative.
3. CONTRACTOR'S Superintendent.
4. Major Subcontractors.
5. Major suppliers.
6. Utilities
7. Others as appropriate.

D Agenda:

1. Distribution and discussion of:
  - a. List of major subcontractors and suppliers.
  - b. Projected Construction Schedules.
2. Critical work sequencing.
3. Major equipment deliveries and priorities.
4. PROJECT Coordination.
  - a. Designation of responsible personnel.
5. Procedures and processing of:
  - a. Field decisions.
  - b. Proposal requests.
  - c. Submittals.
  - d. Change Orders.
  - e. Applications for Payment (monthly date of Payment to be determined).
6. Adequacy of distribution of Contract Documents.

7. Procedures for maintaining Record Documents.
8. Use of premises:
  - a. Office, work and storage areas.
  - b. OWNER'S requirements.
9. Construction facilities, controls and construction aids.
10. Temporary utilities.
11. Housekeeping procedures.
12. Safety

#### 1.04 PROGRESS MEETINGS

- A. The ENGINEER will schedule regular progress meetings. The progress meetings will be held approximately every **30** days with the first meeting 15 days after the pre-construction meeting or no later than 30 days after the date of Notice to Proceed.
- B. ENGINEER, OWNER, or CONTRACTOR may hold or call meetings as required by progress of the work.
- C. Location of the meetings: PROJECT field office of CONTRACTOR or ENGINEER.
- D. Attendance:
  1. OWNER'S Representative
  2. ENGINEER
  3. RPR
  4. CONTRACTOR'S Superintendent
  5. Subcontractors as appropriate to the agenda.
  6. Suppliers as appropriate to the agenda.
  7. Others as appropriate.
- E. Agenda:
  1. Review, approval of minutes of previous meeting.

2. Review of work progress since previous meeting.
  3. Field observations, problems, conflicts.
  4. Problems which impede Construction Schedule.
  5. Review of off-site fabrication, delivery schedules.
  6. Measures and procedures to maintain projected schedule.
  7. Revisions to Construction Schedule.
  8. Progress, schedule, during succeeding work period.
  9. Coordination of schedules.
  10. Review submittal schedules; expedite as required.
  11. Maintenance of quality standards.
  12. Pending changes and substitutions.
  13. Review proposed changes for:
    - a. Effect on Construction Schedule and on completion date.
    - b. Effect on other contracts of the PROJECT.
  14. Construction Schedule
  15. Critical/long lead items.
  16. Other business.
- F The CONTRACTOR is to attend progress meetings and is to study previous meeting minutes and current agenda items, in order to be prepared to discuss pertinent topics such as deliveries of materials and equipment, progress of the work, etc.
- G The CONTRACTOR is to provide a current submittal log at each progress meeting in accordance with Section 01340.

END OF SECTION 01200  
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## SECTION 01310

### CONSTRUCTION SCHEDULES

#### PART 1: GENERAL

##### 1.01 WORK INCLUDED

- A Promptly after award of the Contract and within five days after the effective date of the Agreement, prepare and submit to the ENGINEER estimated construction progress schedules for the Work, with sub-schedules of related activities which are essential to its progress.
- B Submit revised progress schedules on a monthly basis.

##### 1.02 RELATED REQUIREMENTS

- A Section 01010: Summary of Work.
- B Section 01027: Application for Payment
- C Section 01200: Project Meetings.
- D Section 01340: Shop Drawings, Product Data and Samples.
- E Section 01026: Schedule of Values

##### 1.03 FORM OF SCHEDULES

- A Prepare schedules in the form of a horizontal bar chart.
  - 1. Provide separate horizontal bar for each trade or operation for each item of work.
  - 2. Horizontal time scale: In weeks from start of construction and identify the first work day of each month.
  - 3. Scale and spacing: To allow space for notations and future revisions.
- B Format of listings: The chronological order of the start of each item of work.
- C Identification of listings: By major specification section numbers as applicable.

##### 1.04 CONTENT OF SCHEDULES

- A Construction Progress Schedule:
  - 1. Show the complete sequence of construction by activity.

2. Show the dates for the beginning of, and completion of, each major element of construction in no more than a two-week increment scale. Specifically list, but not limit to:
  - a. Notice to Proceed
  - b. Substantial Completion
  - c. Final Completion
  - d. Mobilization
  - e. Temporary Erosion Control Measures
  - f. Stripping and Fine Grading Intermediate Cover
  - g. Backfill Installation
  - h. Compacted Soil Liner Installation (including QC Testing)
  - i. Major Material Deliveries (separate different materials)
  - j. HDPE Liner Installation
  - k. Geocomposite Drainage Net Installation
  - l. Leachate Collection System
  - m. Protective Cover Layer Installation
  - n. Stormwater Collection and Conveyance System Installation
  - o. Seeding and Mulching
  - p. Restoration
3. Show projected percentage of completion for each item, as of the first day of each month.
4. Show projected dollar cash flow requirements for each month of construction.
5. Highlight all activities on the critical path.

**B Submittals Schedule for Shop Drawings, Product Data and Samples in accordance with Section 01340. Show:**

1. The dates for CONTRACTOR'S submittals.

2. The dates submittals will be required for OWNER-furnished products, if applicable.

3. The dates approved submittals will be required from the ENGINEER.

C A list of all long lead items (equipment, materials, etc.)

#### 1.05 PROGRESS REVISIONS

A Indicate progress of each activity to date of submission.

B Show changes occurring since previous submission of schedule:

1. Major changes in scope.

2. Activities modified since previous submission.

3. Revised projections of progress and completion.

4. Other identifiable changes.

#### 1.06 SUBMISSIONS

A Submit initial schedules to the ENGINEER within 5 days after the effective date of the Agreement. Resubmit revised schedules within 5 days after receiving Engineer's review comments.

B Submit revised progress schedules with that month's application for payment.

#### 1.07 DISTRIBUTION

A Distribute copies of the reviewed schedules to:

1. ENGINEER (four copies).

2. CONTRACTOR'S job site file.

3. Subcontractors.

4. Other concerned parties.

B Instruct recipients to report promptly to the CONTRACTOR, in writing, any problems anticipated by the projections shown in the schedules.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION

### 3.01 RESPONSIBILITY FOR SCHEDULE COMPLIANCE

- A The CONTRACTOR agrees that whenever it becomes apparent from the current monthly schedule that delays to the project schedule have resulted, and hence, that the contract completion date will not be met, he will take some or all of the following actions at no additional cost to the OWNER, submitting to the OWNER for approval, a written statement of the steps he intends to take to remove or arrest the delay in the approved schedule.
1. Increased construction manpower in such quantities and crafts as will substantially eliminate the backlog of work.
  2. Increase the number of working hours per shift, shifts per working days per week, the amount of construction equipment, or any combination of the foregoing, sufficiently to substantially eliminate the backlog of work.
  3. Reschedule activities to achieve maximum practical concurrency of accomplishment of activities, and comply with the revised schedule.
  4. Costs incurred by the OWNER arising from such lengthening of hours, including extended time for the RPR or furnishing of Inspectors, shall be the CONTRACTOR'S responsibility and shall be deducted from monies due him. Failure of the CONTRACTOR to comply with these requirements may be grounds for determination by the ENGINEER that the CONTRACTOR is not proceeding at such rates as will insure completion within the specified time and may result in the termination of the right of the CONTRACTOR to continue the work.

### 3.02 ADJUSTMENT OF CONTRACT SCHEDULE AND COMPLETION TIME

- A If the CONTRACTOR desires to make changes in his method of operating which affect the approved schedule, he shall notify the ENGINEER in writing, stating what changes are proposed and the reason for the change. If the ENGINEER approves these changes, the CONTRACTOR shall revise and submit for approval, without additional cost to the OWNER, all of the affected portion of the schedule. The schedule shall be adjusted by the CONTRACTOR only after prior approval of his proposed changes by the ENGINEER.
- B The contract completion time will be adjusted only for causes specified in this contract. In the event the CONTRACTOR requests an extension of any contract completion date, he shall furnish such justification and supporting evidence as the ENGINEER may deem necessary for a determination as to whether the CONTRACTOR is entitled to an extension of time under the provisions of this contract. ENGINEER will, after receipt of such justification and supporting evidence make findings of fact and will advise the CONTRACTOR in writing thereof. If the ENGINEER finds that the CONTRACTOR is entitled to any extension of any contract completion date under the provisions of this contract, the ENGINEER'S determination as to the total number of days extension shall be based upon the currently approved schedule and on all data relevant to the extension. Such data shall be included in the next monthly updating of the schedule. The CONTRACTOR acknowledges and agrees that actual delays in activities which, according to the schedule, do not affect any contract completion date shown by the critical path in the schedule do not have any effect on the contract completion date or dates, and therefore, will not be the basis for a change.

### 3.03 ADJUSTMENT BY ENGINEER

A From time to time it may be necessary for the Contract schedule and/or completion time to be adjusted by the ENGINEER due to the effects of job conditions, acts or omissions of other CONTRACTORS not directly associated with this contract, weather, technical difficulties, unavoidable delays and other enforceable conditions which may indicate schedule adjustments and/or completion time extension. Under such conditions, the ENGINEER shall direct the CONTRACTOR to reschedule the work to reflect the changed conditions, and the CONTRACTOR shall revise his schedule accordingly. Schedule extensions affecting the Contract completion time shall be granted only by the ENGINEER in writing. No additional compensation shall be made to the CONTRACTOR for such schedule changes except for unavoidable overall Contract time extensions beyond the actual completion of all unaffected Work in the Contract, in which case the CONTRACTOR shall take all possible action to minimize any time extension and any additional cost to the Owner.

### 3.04 COORDINATING SCHEDULES WITH OTHER CONTRACT SCHEDULES

A Where work is to be performed under this contract concurrently with and/or contingent upon work performed on the same facilities or area under other contracts, the CONTRACTOR'S schedule shall be coordinated with the schedules of the other contracts. The CONTRACTOR shall obtain the schedules of the other appropriate contracts for the preparation and updating of his schedule and shall make the required changes in his schedule when indicated by changes in corresponding schedules.

B The OWNER controls the float time in the approved schedule and, therefore, without obligation to extend either the overall completion date or any intermediate completion dates set out in the schedule, the OWNER may initiate changes to the work that absorb float time only. OWNER initiated changes that affect the Critical Path on the approved schedule shall be the sole grounds for extending said completion dates. CONTRACTOR-initiated changes that encroach on the float time identified in the approved schedule may be accomplished with the OWNER'S concurrence. Such changes, however, shall give way to OWNER-initiated changes competing for the same float time.

END OF SECTION 01310

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## SECTION 01340

### SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS, AND SAMPLES

#### PART 1: GENERAL

##### 1.01 DESCRIPTION OF REQUIREMENTS

- A This Section specifies the general methods and requirements of submissions applicable to the following work-related submittals: Shop Drawings, Product Data and Samples. Detailed submittal requirements are specified in the technical specifications sections.
- B All submittals shall be clearly identified by reference to Specification Section, Paragraph, Drawing No. or Detail as applicable. Submittals shall be clear and legible and of sufficient size for sufficient presentation of data.

##### 1.02 SHOP DRAWINGS, PRODUCT DATA, SAMPLES

###### A Shop Drawings

1. Shop drawings, as defined in the General Conditions, and as specified in individual work Sections include, but are not necessarily limited to, custom-prepared data such as fabrication and erection/installation (working) drawings, scheduled information, setting diagrams, actual shop work manufacturing instructions, custom templates, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certifications, as applicable to the Work.
2. All shop drawings submitted by subcontractors for approval shall be sent directly to the CONTRACTOR for checking. The CONTRACTOR shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.
3. The CONTRACTOR shall check all subcontractor's shop drawings regarding measurements, size of members, materials, and details to satisfy himself that they conform to the intent of the Drawings and Specifications. Shop drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors for correction before submission thereof.
4. All details on shop drawings submitted for approval shall show clearly the relation of the various parts to the main members and lines of the structure, and where correct fabrication of the work depends upon field measurements, such measurements shall be made and noted on the drawings before being submitted for approval.

###### B Product Data

1. Product data as specified in individual Sections, include, but are not necessarily limited to, standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare-parts listing and printed product warranties, as applicable to the Work.

###### C Working Drawings

1. When used in the Contract Documents, the term "working drawings" shall be considered to mean the CONTRACTOR'S plans for temporary structures such as temporary bulkheads, support of

open cut excavation, support of utilities, ground water control systems, forming and false work; and for such other work as may be required for construction but does not become an integral part of the PROJECT.

2. Working drawings shall be prepared and sealed by a registered Professional ENGINEER, currently licensed to practice in the State of South Carolina. The CONTRACTOR shall submit a letter of certification from the Professional ENGINEER stating that he/she has prepared the designs and has verified that the materials/equipment have been installed as designed. No working drawings or calculations/computations relating to the working drawings shall be submitted to the ENGINEER unless specifically requested in writing.

#### D Samples

1. Samples specified in individual Sections, include, but are not necessarily limited to, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively-used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols and units of work to be used by the ENGINEER or OWNER for independent inspection and testing, as applicable to the Work.

### 1.03 CONTRACTOR'S RESPONSIBILITIES

- A The CONTRACTOR shall review shop drawings, product data and samples, including those by subcontractors, prior to submission to determine and verify the following:

1. Field measurements
2. Field construction criteria
3. Catalog numbers and similar data
4. Conformance with the Specifications

- B Each shop drawing, sample and product data submitted by the CONTRACTOR shall have affixed to it the following Certification Statement including the CONTRACTOR'S Company name and signed by the CONTRACTOR: "Certification Statement: By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements." Shop drawings and product data sheets 11-in x 17-in and smaller shall be bound together in an orderly fashion and bear the above Certification Statement on the cover sheet. The cover sheet shall fully describe the packaged data and include a listing of all items within the package. Provide to the OWNER'S Representative a copy of each submittal transmittal sheet for shop drawings, product data and samples at the time of submittal of said drawings, product data and samples to the ENGINEER.

- C The CONTRACTOR shall utilize a 10-character submittal identification numbering system in the following manner:

1. The first character shall be a D, S, P, M, or R, which represents Shop/Working Drawing and other Product Data (D), Sample (S), Preliminary Submittal (P), Operating/Maintenance Manual (M), or Request for Information (R).
2. The next five digits shall be the applicable Specification Section Number.
3. The next three digits shall be the numbers 001-999 to sequentially number each initial separate item or drawing submitted under each specific Section number.



- a. CONTRACTOR
  - b. Supplier
  - c. Manufacturer
5. Identification of the product, with the specification section number, page and paragraph(s).
  6. Field dimensions, clearly identified as such.
  7. Relation to adjacent or critical features of the Work or materials.
  8. Applicable standards, such as ASTM or Federal Specification numbers.
  9. Identification of deviations from Contract Documents.
  10. Identification of revisions on resubmittals.
  11. An 8-in x 3-in blank space for CONTRACTOR and ENGINEER stamps.

1.05 REVIEW OF SHOP DRAWINGS, PRODUCT DATA, WORKING DRAWINGS AND SAMPLES

- A The review of shop drawings, data, and samples will be for general conformance with the design concept and Contract Documents. They shall not be construed:
  1. as permitting any departure from the Contract requirements;
  2. as relieving the CONTRACTOR of responsibility for any errors, including details, dimensions, and materials;
  3. as approving departures from details furnished by the ENGINEER, except as otherwise provided herein.
- B The CONTRACTOR remains responsible for details and accuracy, for coordinating the work with all other associated work and trades, for selecting fabrication processes, for techniques of assembly, and for performing work in a safe manner.
- C If the shop drawings, data or samples as submitted describe variations and show a departure from the Contract requirements which ENGINEER finds to be in the interest of the OWNER and to be so minor as not to involve a change in Contract Price or time for performance, the ENGINEER may return the reviewed drawings without noting an exception.
- D Submittals will be returned to the CONTRACTOR under one of the following codes.

Code 1 - "REVIEWED" is assigned when there are no notations or comments on the submittal. When returned under this code the CONTRACTOR may release the equipment and/or material for manufacture.

Code 2 - "FURNISH AS CORRECTED". This code is assigned when a confirmation of the notations and comments IS NOT required by the CONTRACTOR. The CONTRACTOR may release the equipment or material for manufacture; however, all notations and comments must be incorporated into the final product.

Code 3 - "REVISE AND RESUBMIT". This combination of codes is assigned when notations and comments are extensive enough to require a resubmittal of the package. The CONTRACTOR may release the equipment or material for manufacture; however, all

notations and comments must be incorporated into the final product. This resubmittal is to address all comments, omissions and non-conforming items that were noted. Resubmittal is to be received by the ENGINEER within 10 calendar days of the date of the ENGINEER'S transmittal requiring the resubmittal.

Code 4 - "REJECTED" is assigned when the submittal does not meet the intent of the Contract Documents. The CONTRACTOR must resubmit the entire package revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the Contract Documents.

Code 5 - "SUBMIT SPECIFIC ITEM" is assigned where there are comments attached to the returned submittal which provide additional data to aid the CONTRACTOR.

Codes 1 through 4 designate the status of the reviewed submittal with Code 5 showing there has been an attachment of additional data.

In each case above, ENGINEER does not assume responsibility for accuracy of the product referenced on the submittal. CONTRACTOR is responsible for complying with the Contract Documents in all submittals unless so stated by the ENGINEER.

- E Resubmittals will be handled in the same manner as first submittals. On resubmittals the CONTRACTOR shall direct specific attention, in writing on the letter of transmittal and on resubmitted shop drawings by use of revision triangles or other similar methods, to revisions other than the corrections requested by the ENGINEER, on previous submissions. Any such revisions which are not clearly identified shall be made at the risk of the CONTRACTOR. The CONTRACTOR shall make corrections to any work done because of this type revision that is not in accordance to the Contract Documents as may be required by the ENGINEER.
- F Partial submittals may not be reviewed. The ENGINEER will be the only judge as to the completeness of a submittal. Submittals not complete will be returned to the CONTRACTOR, and will be considered "Rejected" until resubmitted. The ENGINEER may at his/her option provide a list or mark the submittal directing the CONTRACTOR to the areas that are incomplete.
- G Repetitive Review
  - 1. Shop drawings and other submittals will be reviewed no more than twice at the Owner's expense. All subsequent reviews will be performed at times convenient to the ENGINEER and at the CONTRACTOR'S expense, based on the ENGINEER'S then prevailing rates. The CONTRACTOR shall reimburse the OWNER for all such fees invoiced to the OWNER by the ENGINEER. Submittals are required until approved.
  - 2. Any need for more than one resubmission, or any other delay in obtaining ENGINEER'S review of submittals, will not entitle CONTRACTOR to extension of the Contract Time.
- H If the CONTRACTOR considers any correction indicated on the shop drawings to constitute a change to the Contract Documents, the CONTRACTOR shall give written notice thereof to the ENGINEER at least seven working days prior to release for manufacture.
- I When the shop drawings have been completed to the satisfaction of the ENGINEER, the CONTRACTOR shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the ENGINEER.

## 1.06 DISTRIBUTION

- A Distribute reproductions of reviewed shop drawings and copies of reviewed product data and samples, where required, to the job site file and elsewhere as directed by the ENGINEER. Number of copies shall be as directed by the ENGINEER but shall not exceed 6.

1.07 PROFESSIONAL ENGINEER (P.E.) CERTIFICATION FORM

- A If specifically required in other Sections of these Specifications, the CONTRACTOR shall submit a P.E./RLS Certification for each item required, in the form attached to this Section, completely filled in and stamped.

1.08 GENERAL PROCEDURES FOR SUBMITTALS

- A Coordination of Submittal Times: Prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work sections, of the Specifications, so that the installation will not be delayed by processing times including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery and similar sequenced activities. No extension of time will be authorized because of the CONTRACTOR'S failure to transmit submittals sufficiently in advance of the Work.

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P.E./R.L.S. CERTIFICATION FORM

The undersigned hereby certifies that he/she is a Professional Engineer/Registered Land Surveyor registered in the State of South Carolina and that he/she has been employed by

\_\_\_\_\_ (Name of Contractor)  
to design

\_\_\_\_\_ in accordance with Specification Section \_\_\_\_\_ for the

\_\_\_\_\_ (Name of Project)

The undersigned further certifies that he/she has performed the design of the

\_\_\_\_\_ ,

that said design is in conformance with all applicable local, state and federal codes, rules, and regulations, and that his/her signature and P.E./R.L.S. stamp have been affixed to all calculations and drawings used in, and resulting from, the design.

The undersigned hereby agrees to make all original design drawings and calculations available to the

\_\_\_\_\_ (Insert Name of Owner)

or OWNER'S representative with five working days following written request therefore by the OWNER.

\_\_\_\_\_  
P.E./R.L.S. Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Address

\_\_\_\_\_  
Contractor's Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Address

END OF SECTION 01340

**SECTION 01380  
CONSTRUCTION PHOTOGRAPHS**

**PART 1: GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A Employ competent photographer to take construction record photographs periodically during course of the Work.

**1.02 RELATED REQUIREMENTS**

- A Section 01010: Summary of Work.
- B Section 01720: PROJECT Record Documents.

**1.03 PHOTOGRAPHY REQUIRED**

- A Provide photographs of the general construction area prior to starting construction.
- B Provide photographs taken on cutoff date for each scheduled Application for Payment.
- C Provide photographs taken at each major stage of construction:
  - 1. Prior to initiation of construction.
  - 2. Following excavation work.
  - 3. Following completion of any bid item.

**D Views and Quantities Required:**

- 1. At each specified time, photograph PROJECT from a minimum of five different locations, as approved and/or requested by the ENGINEER.
- 1 Provide five prints of each view.
- 2 Digital copies of photographs may be provided by the CONTRACTOR in lieu of paper copies. All digital photographs shall be submitted on a compact disc (CD) and shall be a resolution of 4 megapixels or greater.
- 4. Aerial photographs may be used upon prior approval by the OWNER.

**E Negatives:**

- 1. Remain property of photographer.

2. Require that photographer maintain negatives for a period of two years from Date of Completion of entire PROJECT.
3. Photographer shall agree to furnish additional prints to OWNER and the ENGINEER at commercial rates applicable at time of purchase.

#### 1.04 COSTS OF PHOTOGRAPHY

A Pay costs for specified photography and prints.

1. Parties requiring additional photography or prints will pay photographer directly.

### PART 2: PRODUCTS

#### 2.01 PRINTS

A Color:

1. Paper: Single weight, color print paper.
2. Finish: Smooth surface, glossy.
3. Size: 8-inch x 10-inch.

B Identify each print on back, listing:

1. Name of PROJECT.
2. Description of subject and orientation of view.
3. Date and time of exposure.
4. Name and address of photographer.
5. Photographer's numbered identification of exposure.

C Aerial photographs to be color.

### PART 3: EXECUTION

#### 3.01 TECHNIQUE

A Factual presentation.

B Correct exposure and focus.

1. High resolution and sharpness.

2. Maximum depth-of-field.
3. Minimum distortion.

### 3.02 VIEWS REQUIRED

- A Photograph from locations to adequately illustrate condition of construction and state of progress.
1. At successive periods of photography, take at least one photograph from the same overall view as previously.
  2. Consult with the ENGINEER at each period of photography for instructions concerning views required.

### 3.03 ASSEMBLY OF PRINTS

- A Prints shall be mounted on muslin with a one-inch hinge or binding edge.
- B Provide a suitably sized 3-ring binder for each set of prints. Binders shall be furnished in sufficient quantities to hold all photographs taken for the duration of the contract. Each binder shall be engraved on the front and spine with the PROJECT name.

### 3.04 DELIVERY OF PRINTS

- A Deliver prints to the ENGINEER to accompany each Application for Payment.
- B Distribution of prints as soon as processed, is anticipated to be as follows:
1. OWNER (one set).
  2. ENGINEER (two sets).
  3. PROJECT Record File (one set to be stored by CONTRACTOR).
  4. CONTRACTOR (one set).

END OF SECTION 01380

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## SECTION 01600

### MATERIAL AND EQUIPMENT

#### PART 1: GENERAL

##### 1.01 REQUIREMENTS INCLUDED

###### A Material and equipment incorporated into the Work:

1. Conform to applicable specifications and standards.
2. Comply with size, make, type and quality specified, or as specifically approved in writing by the ENGINEER.
3. Manufactured and Fabricated Products
  - a. Design, fabricate and assemble in accord with the best engineering and shop practices.
  - b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
  - c. Two or more items of the same kind shall be identical, by the same manufacturer.
  - d. Products shall be suitable for service conditions.
  - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

##### 1.02 RELATED REQUIREMENTS

- A Section 01010 Summary of Work
- B Section 01030: Special Project Procedures
- C Section 01340: Shop Drawings, Product Data, Working Drawings, and Samples
- D Section 01630: Substitutions and Product Options
- E Section 01740: Warranties and Bonds

##### 1.03 APPROVAL OF MATERIALS

- A Only new materials and equipment shall be incorporated in the work. All materials and equipment furnished by the CONTRACTOR shall be subject to the inspection and approval of the Engineer. No material shall be incorporated into the work without prior approval of the Engineer.
- B The CONTRACTOR shall submit data and samples sufficiently early to permit consideration and approval before materials are necessary for incorporation in the work. Any delay of approval resulting from the CONTRACTOR'S failure to submit samples or data promptly shall not be used as a basis of claim against the OWNER or the ENGINEER.
- C In order to demonstrate the proficiency of workmen or to facilitate the choice among several textures, types, finishes, and surfaces, the CONTRACTOR shall provide such samples of workmanship or finish as may be required.
- D The materials and equipment used on the work shall correspond to the approved samples or other data.

1.04 MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION

- A When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including five copies to the ENGINEER.
  - 1. Maintain one set of complete instructions at the job site during installation and until completion.
- B Handle, install, connect, clean, condition and adjust products in strict accord with such instructions and in conformity with specified requirements.
  - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with ENGINEER for further instructions.
  - 2. Do not proceed with work without clear instructions.
- C Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.05 TRANSPORTATION AND HANDLING

- A Arrange deliveries of Products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.
  - 1. Deliver Products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
  - 2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that Products are properly protected and undamaged.
- B Provide equipment and personnel to handle Products by methods to prevent soiling or damage to Products or packaging.

## 1.06 STORAGE AND PROTECTION

- A The CONTRACTOR shall furnish a covered, weather-protected storage structure providing a clean, dry, non-corrosive environment for all mechanical equipment, valves, and special equipment and materials to be incorporated into this project. Storage of materials shall be in strict accordance with the "instructions for storage" of each supplier and manufacturer. The CONTRACTOR shall furnish a copy of the manufacturer's instructions for storage to the ENGINEER prior to storage of all equipment and materials. Corroded, damaged or deteriorated equipment and parts shall be replaced before acceptance of the project. Equipment and materials not properly stored will not be included in a payment estimate.
- B Store Products in accordance with manufacturer's instructions, with seals and labels intact and legible.
1. Store products subject to damage by the elements in weathertight enclosures.
  2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
  3. Store fabricated products above the ground, on blocking or skids, prevent soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.
  4. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- C All materials and equipment to be incorporated in the work shall be handled and stored by the CONTRACTOR before, during, and after shipment in a manner to prevent warping, twisting, bending, breaking, chipping, rusting, and any injury, theft or damage of any kind whatsoever to the material or equipment.
- D Cement, sand and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. Brick, block and similar masonry products shall be handled and stored in a manner to reduce breakage, chipping, cracking, and spalling to a minimum.
- E All materials which, in the opinion of the ENGINEER, have become so damaged as to be unfit for the use intended or specified shall be promptly removed from the site of the work, and the CONTRACTOR shall receive no compensation for the damaged material or its removal.
- F Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored Products to assure that Products are maintained under specified conditions, and free from damage or deterioration.
- G Protection After Installation
1. Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove covering when no longer needed.

H The CONTRACTOR shall be responsible for all material, equipment, and supplies sold and delivered to the OWNER under this Contract until final inspection of the work and acceptance thereof by the OWNER. In the event any such material, equipment, and supplies are lost, stolen, damaged, or destroyed prior to final inspection and acceptance, the CONTRACTOR shall replace same without additional cost to the OWNER.

I Should the CONTRACTOR fail to take proper action on storage and handling of equipment supplied under this Contract within seven days after written notice to do so has been given, the OWNER retains the right to correct all deficiencies noted in previously transmitted written notice and deduct the cost associated with these corrections from any amounts due and payable to the CONTRACTOR. These costs may be comprised of expenditures for labor, equipment usage, administrative, clerical, engineering and any other costs associated with making the necessary corrections.

#### 1.07 SPECIAL TOOLS

A Manufacturers of equipment and machinery shall furnish any special tools required for normal adjustment, operations and maintenance, together with instructions for their use. The CONTRACTOR shall preserve and deliver to the OWNER these tools and instructions in good order upon receipt but no later than ten (10) days prior to equipment start-up.

#### 1.08 STORAGE AND HANDLING OF EQUIPMENT ON SITE

A Because of the long period allowed for construction, special attention shall be given to the storage and handling of equipment on site. As a minimum, the procedure outlined below shall be followed.

1. Equipment shall not be shipped until approved by the ENGINEER. The intent of this requirement is to reduce on-site storage time prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from the ENGINEER. Operation and maintenance data as described in Section 01730 shall be submitted to the ENGINEER for review prior to shipment of equipment.
2. All equipment having moving parts such as gears, electric motors, etc. and/or instruments shall be stored in a temperature and humidity controlled building approved by the Engineer, until such time as the equipment is to be installed.
3. All equipment shall be stored fully lubricated with oil, grease, etc. unless otherwise instructed by the manufacturer.
4. A copy of the manufacturer's storage instructions shall be given to the ENGINEER and shall be carefully studied by the CONTRACTOR and reviewed with the ENGINEER by him. These instructions shall be carefully followed and a written record of this kept by the CONTRACTOR.
5. Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Upon installation of the equipment, the CONTRACTOR shall start the equipment, at least half load, once weekly for an adequate period of time to insure that the equipment does not deteriorate from lack of use.

6. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. Mechanical equipment to be used in the work, if stored for longer than ninety (90) days, shall have the bearings cleaned, flushed and lubricated prior to testing and startup, at no extra cost to the OWNER.
7. Prior to acceptance of the equipment, the CONTRACTOR shall have the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guarantee the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the CONTRACTOR's expense.

#### 1.09 WARRANTY

- A For all major pieces of equipment, submit a warranty from the equipment manufacturer as specified in Section 01740.

#### 1.10 SPARE PARTS

- A The CONTRACTOR shall collect and store all spare parts as required by the manufacturer in accordance with paragraph 1.08 of this Section. In addition, the CONTRACTOR shall furnish to the ENGINEER an inventory listing all spare parts, the equipment they are associated with, the name and address of the supplier, and the delivered cost of each item. Copies of actual invoices for each item shall be furnished with the inventory to substantiate the delivered cost. The CONTRACTOR shall deliver the spare parts to the OWNER not more than thirty (30) nor less later than ten (10) days prior to plant start-up.
- B All spare parts shall be the products of the original equipment manufacturer.

#### 1.11 GREASE, OIL, AND FUEL

- A All grease, oil, and fuel required for testing of equipment shall be furnished with the respective equipment. The OWNER shall be furnished with a year's supply of required lubricants including grease and oil of the type recommended by the manufacturer, and approved by the OWNER, with each item of equipment supplied under Divisions 11, 12, 13, 14, 15 and 16. Refer to paragraph 2.01 for additional requirements for lubricants.
- B The CONTRACTOR shall be responsible for furnishing and changing the oil in all drives and intermediate drives of each piece of mechanical equipment after initial break-in of the equipment, which in no event shall be any longer than three weeks of operation.

### PART 2: PRODUCTS

#### 2.01 LUBRICANTS

- A All lubricants furnished on this Project shall be 100 percent paraffin based lubricants, that contain Monolec or Amosol, such as the products offered by Lubrication Engineers, Inc. (LE), Fort Worth, TX.

Only LE lubricants, or approved equal paraffin based lubricants shall be used for factory testing of equipment. In the event that other lubricants are used for factory testing or furnished with the delivered equipment, the CONTRACTOR shall be responsible for draining, flushing and replacing the unapproved lubricants with acceptable products. Shop drawings shall indicate the manufacturer's recommended LE products, or proposed equal.

PART 3: EXECUTION (Not Used)

END OF SECTION 01600

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## SECTION 01630

### SUBSTITUTIONS AND PRODUCT OPTIONS

#### PART 1: GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A Furnish and install Products specified, under options and conditions for substitutions stated in this Section.
- B Whenever a product, material or item of equipment is specified or described by using the name of a proprietary product or the name of a particular manufacturer or vendor, followed by the phase "or equal," the specific item mentioned shall be the basis upon which bids are to be prepared, and shall be understood as establishing the type, function, dimension, appearance and quality desired. Other manufacturer's or vendor's products not named will be considered as substitutions, provided the required information is submitted in the manner set forth in this section and provided the substitution will not require substantial revision to the Contract Documents.

##### 1.02 RELATED REQUIREMENTS

- A Section 00100: Instruction to Bidders.
- B Section 00300: Bid Form.
- C Section 01036: Change Order Procedures.
- D Section 01600: Material and Equipment.

##### 1.03 SUBMITTALS

- A Written requests for changes in products, materials, equipment and methods of construction required by the Contract Documents shall be submitted to the Owner before the deadline for questions dated Wednesday, November 20, 2019 @ 3:30pm. The written request must be submitted on the Material Substitution Request form provided As Exhibit K. Substitutions details are provided in Section 01630

##### 1.04 CONTRACTOR'S OPTIONS

- A For products specified only by reference standard, select product meeting that standard, by any manufacturer.
- B For products specified by naming several products or manufacturers, select any one of products and manufacturers named which complies with Specifications.
- C For products specified by naming one or more products or manufacturers and stating "or equal," submit a request as for substitutions, for any product or manufacturer which is not specifically named.
- D For products specified by naming only one product and manufacturer, there is no option and no substitution will be allowed.

## 1.05 SUBSTITUTIONS

- A. In order for substitutions to be considered Written requests for changes in products, materials, equipment and methods of construction required by the Contract Documents shall be submitted to the Owner before the deadline for questions dated Wednesday, November 20, 2019 @ 3:30pm. The written request must be submitted on the Material Substitution Request form provided As Exhibit K. Contractor shall submit complete data as set forth herein to permit complete analysis of all proposed substitutions noted on Material Substitution Request Form Exhibit K. No substitutions request will be accepted after the above noted deadline for questions.
- B Submit separate request for each substitution. Support each request with:
1. Complete data substantiating compliance of proposed substitution with requirements stated in Contract Documents:
    - a. Product identification, including manufacturer's name and address.
    - b. Manufacturer's literature; identify:
      - 1) Product description.
      - 2) Reference standards.
      - 3) Performance and test data.
      - 4) Operation and maintenance data.
    - c. Samples, as applicable.
    - d. Name and address and contact with phone number of similar projects on which product has been used and date of each installation.
  2. Itemized comparison of the proposed substitution with product specified; list significant variations. Substitution shall not change design intent and shall perform equal to that specified.
  3. Data relating to impact on construction schedule occasioned by the proposed substitution.
  4. Any effect of substitution on separate contracts.
  5. List of changes required in other work or products.
  6. Accurate cost data comparing proposed substitution with product specified.
    - a. Amount of any net change to Contract Sum.
  7. Designation of required license fees or royalties.
  8. Designation of availability of maintenance services, sources of replacement materials.
- C Substitutions will not be considered for acceptance when:
1. They are indicated or implied on shop drawings or product data submittals without a formal request from CONTRACTORS.

2. They are requested directly by a subcontractor or supplier.
3. Acceptance will require substantial revision of Contract Documents.

D Requests for substitutions submitted after Deadline for Questions will not be considered unless evidence is submitted to the Engineer that all of the following circumstances exist:

1. The specified product is unavailable for reasons beyond the control of the CONTRACTOR. Such reasons shall consist of strikes, bankruptcy, discontinuance of manufacturer, or acts of God.
2. Complete data as set forth herein to permit complete analysis of the proposed substitution is submitted with the request.

E The ENGINEER'S decision regarding evaluation of substitutions shall be considered final and binding. Requests for time extensions and additional costs based on submission of, acceptance of, or rejection of substitutions will not be allowed. All approved substitutions will be approved by the Engineer and will be announced as an addendum.

#### 1.06 CONTRACTOR'S REPRESENTATION

A In making formal request for substitution, CONTRACTOR represents that:

1. He has investigated proposed product and has determined that it is equal to or superior in all respects to that specified.
2. He will provide same warranties or bonds for substitution as for product specified.
3. He will coordinate installation of accepted substitution into the Work and will make such changes as may be required for the Work to be complete in all respects.
4. He waives claims for additional costs caused by substitution which may subsequently become apparent.
5. Cost data is complete and includes related costs under his/her Contract, but not:
  - a. Costs under separate contracts.
  - b. ENGINEER'S costs for redesign or revision of Contract Documents.

#### 1.07 ENGINEER DUTIES

A Review CONTRACTOR'S requests for substitutions with reasonable promptness.

B Notify CONTRACTOR, in writing, of decision to accept or reject requested substitution.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION 01630

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**SECTION 01700**  
**CONTRACT CLOSEOUT**

**PART 1: GENERAL**

**1.01 REQUIREMENTS INCLUDED**

- A Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the Work.

**1.02 RELATED REQUIREMENTS**

- A Section 01010: Summary of Work.
- B Section 01720: Project Record Documents.
- C Section 01740: Warranties and Bonds.
- D The respective sections of Specifications: Closeout Submittals Required of Trades, Vendors, Suppliers, and Manufacturers.

**1.03 FINAL INSPECTION**

- A When CONTRACTOR considers the Work is complete, he shall submit written certification that:
  - 1. Contract Documents have been reviewed.
  - 2. Work has been inspected for compliance with Contract Documents.
  - 3. Work has been completed in accordance with Contract Documents.
  - 4. Equipment and systems have been tested in the presence of the OWNER'S representative and are operational.
  - 5. Work is completed and ready for final inspection.
- B The ENGINEER will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C Should the ENGINEER consider that the Work is incomplete or defective :
  - 1. The ENGINEER will promptly notify the CONTRACTOR in writing, listing the incomplete or defective work.

2. CONTRACTOR shall take immediate steps to remedy the stated deficiencies, and send a second written certification to the ENGINEER that the Work is complete.

3. The ENGINEER will re-inspect the Work.

D When the ENGINEER finds that the Work is acceptable under the Contract Documents, he shall request the CONTRACTOR to make closeout submittals.

#### 1.04 REINSPECTION FEES

A Should the ENGINEER perform re-inspections due to failure of the Work to comply with the claims of status of completion made by the CONTRACTOR:

1. OWNER will compensate the ENGINEER for such additional services.

2. OWNER will deduct the amount of such compensation from the final payment to the CONTRACTOR.

#### 1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

A Evidence of compliance with requirements of governing authorities.

B Project Record Documents: To requirements of Section 01720.

C Warranties and Bonds: To requirements of Section 01740.

D Evidence of Payment and Release of Liens: To requirements of General and Supplementary Conditions.

#### 1.06 FINAL ADJUSTMENT OF ACCOUNTS

A Submit a final statement of accounting to the ENGINEER.

B Statement shall reflect all adjustments to the Contract Sum.

1. The original Contract Sum.

2. Additions and deductions resulting from:

a. Previous Change Orders.

b. Allowances.

c. Unit Prices.

d. Deductions for uncorrected Work.

e. Deductions for liquidated damages.

f. Deductions for re-inspection payments.

g. Other adjustments.

3. Total Contract Sum, as adjusted.

4. Previous payments.

5. Sum remaining due.

C ENGINEER will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

#### 1.07 FINAL APPLICATION FOR PAYMENT

A Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the General Conditions of the Contract.

PART 2: PRODUCTS (Not Used)

PART 3: EXECUTION (Not Used)

END OF SECTION 01700

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## SECTION 01720

### PROJECT RECORD DOCUMENTS

#### PART 1: GENERAL

##### 1.01 REQUIREMENTS INCLUDED

- A Maintain at the site for the OWNER one record copy of:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other Modifications to the Contract.
  - 5. ENGINEER'S Field Orders or written instructions.
  - 6. Approved Shop Drawings, Working Drawings and Samples.
  - 7. Field Test records.
  - 8. Construction photographs.
  - 9. All other construction related permits.

##### 1.02 RELATED REQUIREMENTS

- A Section 01200: Project Meetings.
- B Section 01340: Shop Drawings, Product Data, Working Drawings, and Samples.
- C Section 01380: Construction Photographs.

##### 1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A Store documents and samples in CONTRACTOR'S field office apart from documents used for construction.
  - 1. Provide files and racks for storage of documents.
  - 2. Provide locked cabinet or secure storage space for storage of samples.
- B File documents and samples in accordance with CSI format.

- C Maintain documents in a clean, dry, legible, condition and in good order. Do not use record documents for construction purposes.
- D Make documents and samples available at all times for inspection by the ENGINEER.
- E As a prerequisite for monthly progress payments, the CONTRACTOR is to exhibit the currently updated "Project Record Documents" and survey data in accordance with Section 01050 for review by the ENGINEER and OWNER.

#### 1.04 MARKING DEVICES

- A Provide felt tip marking pens for recording information in the color code designated by the ENGINEER.

#### 1.05 RECORDING

- A Label each document "PROJECT RECORD" in neat large printed letters.

- B Record information concurrently with construction progress.

1. Do not conceal any work until required information is recorded.

- C Drawings: Legibly mark to record actual construction:

1. Depths of various elements of foundation in relation to grade elevation.
2. All underground piping with elevations and dimensions. Changes to piping location. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Actual installed pipe material, class, etc.
3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
4. Field changes of dimension and detail.
5. Changes made by Field Order or by Change Order.
6. Details not on original contract drawings.
7. Equipment and piping relocations.
8. Major architectural and structural changes including relocation of doors, windows, etc.
9. Architectural schedule changes according to CONTRACTOR'S records and shop drawings.

- D Specifications and Addenda; legibly mark each Section to record:

1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
2. Changes made by Field Order or by Change Order.

E Shop Drawings (after final review and approval):

1. Five sets of record drawings for each process equipment, piping, electrical system and instrumentation system.

#### 1.06 SUBMITTAL

A At Contract close-out, deliver Record Documents to the ENGINEER for the OWNER.

B Accompany submittal with transmittal letter in duplicate, containing:

1. Date.
2. PROJECT title and number.
3. CONTRACTOR'S name and address.
4. Title and number of each Record Document.
5. Signature of CONTRACTOR or his authorized representative.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION 01720

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**SECTION 01740**  
**WARRANTIES AND BONDS**

**PART 1: GENERAL**

**1.01 SCOPE OF WORK**

- A This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties.

**1.02 RELATED WORK**

- A Instructions to Bidders: Bid or Proposal Bonds.
- B Section 01010- Summary of Work
- C Section 01030: Special Project Procedures.
- D Section 01700: Contract Closeout.
- E Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Sections of Division 2 through 16.
- F Certifications and other commitments and agreements for continuing services to OWNER are specified elsewhere in the Contract Documents.

**1.03 SUBMITTALS**

- A Submit written warranties to the OWNER prior to the date fixed by the ENGINEER for Substantial Completion. If the Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the OWNER.
- B When a designated portion of the Work is completed and occupied or used by the OWNER, by separate agreement with the CONTRACTOR during the construction period, submit properly executed warranties to the OWNER within fifteen days of completion of that designated portion of the Work.
- C When a special warranty is required to be executed by the CONTRACTOR, or the CONTRACTOR and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the OWNER for approval prior to final execution.
- D Refer to individual Sections of Divisions 2 through 16 for specific content requirements, and particular requirements for submittal of special warranties.

**1.04 WARRANTY REQUIREMENT**

- A Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.
- B Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The CONTRACTOR is responsible for the cost of replacing or rebuilding defective Work regardless of whether the OWNER has benefited from use of the Work through a portion of its anticipated useful service life.
- D OWNER's Recourse: Written warranties made to the OWNER are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the OWNER can enforce such other duties, obligations, rights, or remedies.
- E Rejection of Warranties: The OWNER reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the contract Documents.
- F The OWNER reserves the right to refuse to accept Work for the PROJECT where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.
- G Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the CONTRACTOR of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the CONTRACTOR.
- H Separate Prime Contracts: Each Prime CONTRACTOR is responsible for warranties related to its own Contract.

1.05 DEFINITIONS

- A Standard Product Warranties are pre-printed written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the OWNER.
- B Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the OWNER.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION 01740  
 END OF DIVISION 1

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## **DIVISION 2 SITE WORK**

### **SECTION 02623**

#### **HIGH DENSITY POLYETHYLENE (HDPE) PIPE**

##### **PART 1: GENERAL**

##### **1.01 SCOPE OF WORK**

- A Furnish all labor, materials, equipment and incidentals required and install high density polyethylene leachate pipe, fittings and appurtenances as shown on the Drawings and as specified herein.

##### **1.03 SUBMITTALS**

A Within 30 days following the Effective Date of the Agreement, submit the following information in accordance with Section 01340:

1. List of materials to be furnished, the names of the suppliers and the scheduled date of delivery of materials to the site.
2. The origin of the resin to be used in the manufacturing of the pipe including the suppliers name and production plant, as well as brand name and number.
3. Documentation from the resin's manufacturer showing results of tests for resin identification, including:
  - a. Melt Flow Index           ASTM D1238
  - b. Density                    ASTM D1505
4. Manufacturer quality control manual describing implementation of quality control procedures during pipe manufacturing process.
5. Pipe Manufacturer's Certification of compliance with these Specifications.
6. Complete, detailed shop drawings of all polyethylene pipe and appurtenances, including the location of all fittings, joints and connections to structures.
7. Manufacturer's recommendations for handling, storing and installing pipe and fittings.
8. For each shipment of pipe a manufacturer's certification that the pipe was manufactured from the same resin identified in Paragraph 1.03.A1.

9. Certification demonstrating that the joining technician was trained by the pipe manufacturer and is qualified to perform heat fusion welding.

#### 1.04 REFERENCE STANDARDS

##### A American Society for Testing and Materials (ASTM)

1. ASTM D1238 - Standard Test Method for Flow Rates Thermoplastics by Extrusion Plastometer.
2. ASTM D1248 - Standard Specification for Polyethylene Plastic Molding and Extrusion Materials.
3. ASTM D1505 - Standard Test Method for Density of Plastic by the Density Gradient Technique.
4. ASTM D2837 - Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.
5. ASTM D3350 - Specification for Polyethylene Plastic Pipe and Fitting Materials.
6. ASTM F714 - Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter.

- ##### B
- Where reference is made to one of the above standards, the revision in effect at the time of construction shall apply.

#### 1.05 QUALITY ASSURANCE

##### A Resin Evaluation

1. All incoming resin shall be sampled for conformance testing against test results supplied by the resin manufacturer. Samples shall be taken from the top and bottom of each compartment from every hopper car received. The following conformance tests shall be performed on the sample:

- a. Melt Flow Index           ASTM D1238
- b. Density                    ASTM D1505

The results of these tests shall become part of the manufacturer's permanent quality control records.

##### B Finished Product Evaluation

1. Each length of pipe produced shall be checked by production staff for the items listed below. The results of all measurements shall be recorded on production sheets which become part of the manufacturer's permanent records.

- a. Pipe in process shall be checked visually, inside and out for cosmetic defects (grooves, pits, hollows, etc).
- b. Pipe outside diameter shall be measured using a suitable periphery tape to ensure conformance with ASTM F714.
- c. Pipe wall thickness shall be measured at 12 equally spaced locations around the circumference at both ends of the pipe to ensure conformance with ASTM F714.
- d. Pipe length shall be measured.
- e. Pipe marking shall be examined and checked for accuracy.
- f. Pipe ends shall be checked to ensure they are cut square and clean.
- g. Subject inside surface to a "reverse bend test" to ensure the pipe is free of oxidation (brittleness).

#### C Stress Regression Testing

- 1. The polyethylene pipe manufacturer shall provide certification that stress regression testing has been performed on the specific polyethylene resin being utilized in the manufacture of this product. This stress regression testing shall have been done in accordance with ASTM D2837 and the manufacturer shall provide a product supplying a minimum Hydrostatic Design Basis (HDB) of 1,600 psi as determined in accordance with ASTM D2837.

#### 1.06 WARRANTY

- A The pipe material manufacturer shall provide an unconditional extended warranty for the pipe covering the cost of materials for repair or replacement plus installation manpower should the pipe fail within the warranty period. The manufacturer's extended warranty shall be for ten years after the final acceptance of the project by the OWNER. The manufacturer shall guarantee that the pipe furnished is suitable for the purpose intended and free from defects of material and workmanship for the duration of the extended warranty. In the event the pipe fails to perform as specified, the pipe manufacturer shall promptly replace defective pipe without any cost to the OWNER.

#### PART 2: PRODUCT

##### 2.01 HIGH DENSITY POLYETHYLENE (HDPE) PIPE

- A The pipe supplied shall be high density, high molecular weight, polyethylene (HDPE) pipe. The pipe shall conform to ASTM D3350 with a minimum cell classification value of 345434C.
- B All fittings shall be made from polyethylene resin which meets this same specification as in 2.01A.

- C HDPE pipe shall be of size as identified on the Drawings and Standard Dimension Ratio (SDR) 17.0
- D All polyethylene pipes shall meet the requirements of ASTM F714.
- E Pipe shall be furnished in standard laying lengths not exceeding 50 feet.

## 2.02 PIPE IDENTIFICATION

- A The following shall be continuously printed on the pipe or spaced at intervals not exceeding 5-ft:
  1. Name and/or trademark of the pipe manufacturer.
  2. Nominal pipe size.
  3. Dimension ratio.
  4. The letters PE followed by the polyethylene grade in accordance with ASTM D1248, followed by the hydrostatic design basis in 100's of psi, e.g., PE 3408, PE 4710.
  5. Manufacturing standard reference, e.g., ASTM F714.
  6. A production code from which the date and place of manufacture can be determined.

## 2.03 PERFORATIONS

- A PERFORATED PIPE: locations for perforated pipe, perforation sizes and hole patterns are detailed in the Contract Drawings.
- B For accuracy and uniformity, the pipe shall be drilled to design specifications by machines designed for perforating pipe.

## PART 3: EXECUTION

### 3.01 INSTALLATION

- A High Density Polyethylene (HDPE) Pipe shall be installed in accordance with the instruction of the manufacturer, as shown on the Drawings and as specified herein. All heat fusion joints shall be done by a qualified joining technician as designated by the pipe manufacturer.
- B Pipe shall be laid to lines and grade shown on the Drawings with bedding and backfill as shown on the Drawings.
- C PERFORATED PIPE: Tape covering perforations shall be removed during installation. The pipe shall be installed such that perforations face the bottom of trench. The perforations of pipe sections shall be aligned when connected. The pipe shall be joined by butt fusion or by a method of coupling as approved by the ENGINEER.

- D When installation is not in progress, including breaks in work, the open ends of the pipe shall be closed by fabricated plugs, or by other approved means.
- E HANDLING OF PIPE: Pipe shall be stored on clean level ground to prevent undue scratching or gouging. The handling of the pipe shall be in such a manner that the pipe is not damaged by dragging it over sharp or rough objects and/or areas. The maximum allowable depth of cuts, scratches or gouges on the exterior of the pipe is 10 percent of wall thickness. The interior pipe surface shall be free of cuts, gouges or scratches.
- F REPAIR OF PIPE: Sections of pipe with cuts, scratches or gouges deeper than allowed shall be removed completely and the undamaged sections of the pipe re-joined.
- G JOINING: The pipe shall be joined by the method of thermal butt fusion, as outlined in ASTM D2657. All joints shall be made in strict compliance with the manufacturer's recommendations. In locations where butt fusion cannot be achieved (ex. tie-in to bootless pipe penetration), a thermal coupling such as electro-fusion connections may be used as approved by the ENGINEER. Hot air welding is not permitted.
- H MECHANICAL CONNECTIONS: Flange adaptors shall be used to connect pipe to auxiliary equipment such as valves, pumps and tanks, and shall consist of the following:
1. A stainless steel back-up, polyethylene flange shall be thermally butt fused to the stub end of the pipe.
  2. A 316 stainless steel back up ring on both sides of the connection shall be used as approved by the ENGINEER.
  3. Flange connections shall be provided with a full face neoprene gasket.
- I Fused segments of the pipe shall be handled so as to avoid damage to the pipe. Chains or cable type chokers must be avoided when lifting fused sections of pipe. Nylon slings are preferred. Spreader bars are recommended when lifting long fused sections.
- J BACKFILLING: All HDPE pipe must be at the temperature of the surrounding soil at the time of backfilling and compaction. Marking tape shall be installed in the backfill of all piping installed outside the lined areas, i.e. force main.
- K Installation of pipe shall be observed and accepted by the CQA Officer prior to backfilling.

### 3.02 TESTING

- A All non-perforated pipe shall be field tested (with the exception of non-perforated cleanouts). The CONTRACTOR shall supply all labor, equipment, material, gages, pumps, meters and incidentals required for testing.

- B** All non-perforated pipe shall be tested at a pressure of 130 psi. The test pressure shall be measured at the highest point along the test section by a recording type pressure gage and a copy of the readout shall be submitted to the ENGINEER upon completion of the test. All testing shall be conducted in the presence of the ENGINEER or the RPR.
- C** Testing shall be conducted after backfilling has been completed and before placement of permanent surface.
- D** Testing procedure shall be as follows:
1. Fill line slowly with water; maintain flow velocity less than two feet per second.
  2. Expel air completely from the line during filling and again before applying test pressure.
  3. Apply initial test pressure and allow to stand without makeup pressure for three hours, to allow for diametric expansion or pipe stretching to stabilize.
  4. After this equilibrium period, apply the specified test pressure and turn the pump off. The final test pressure shall be held for three hours.
  5. Upon completion of the test, the pressure shall be bled off from a location other than the point where the pressure is monitored. The pressure drop shall be witnessed by the RPR. The point where the pressure is being monitored shall show on the recorded pressure readout submitted to the ENGINEER.
- E** Allowable amount of makeup water for expansion during the pressure test shall conform to Table 5, Allowance for Expansion Under Test Pressure, Technical Report TR 31/88, published by the Plastic Pipe Institute (PPI). If there are no visual leaks or significant pressure drops during the final test period, the installed pipe passes the test.
- F** If any test of pipe laid disclosed leakage or significant pressure drop greater than that allowed, the CONTRACTOR shall, at his/her own expense, locate and repair the cause of leakage and retest the line.
- G** All visible leaks are to be repaired by an approved method, regardless of the amount of leakage.

### 3.03 CLEANING

- A** At the conclusion of the work, thoroughly clean all of the new pipelines to remove all dirt, stones, and pieces of wood or other material that may have entered during the construction period. Debris cleaned from the lines shall be removed from the job site. If, after this cleaning, any obstructions remain, they shall be removed.
- B** Special attention shall be given to clean free and remove HDPE shavings and particles resultant of fusion welding activities. Any area where these activities occurred shall be inspected by the CQA

Representative and Contractor prior to acceptance of the Work; this includes sump areas, header line areas and low points of drainage.

### 3.04 VIDEO INSPECTION

- A. Prior to Substantial Completion, all proposed leachate collection and header pipes shall be subject to video camera inspection by the Contractor under the observation of the Owner and Engineer. It is the intent to video leachate pipes to locate pipe defects, deviations to gradient, and clogs. When this inspection is performed, the Contractor shall be responsible for preparing the pipes for inspection and furnishing labor as required at no expense to the Owner. Video inspections of the leachate collection and header pipes shall be conducted by a qualified contractor experienced in working within landfill environments. DVD recordings of the completed leachate pipes shall be provided to the Owner and Engineer as a permanent record. Each DVD recording shall have an audio and written log of that video tape's contents.
- B. Video camera system shall be capable of accessing the leachate collection and header lines from the proposed cleanouts or sump risers. Video camera equipment utilized to inspect the leachate pipes must comply with the requirements of Class 1, Division 1 Groups C&D of the National Electrical Code Section NFPA 70.
- C. The recordings shall be properly exposed and the camera shall be in proper focus so that good, clear recordings showing detail are produced. Recordings shall be identified by audio recordings noting the leachate pipe, any leaks, cracks, or pipe defects. DVDs (original and one copy) of the completed leachate pipes shall be delivered to the Engineer. The Contractor shall provide any assistance required by the Engineer to assist the Engineer with visual inspections.

END OF SECTION 02623  
END OF DIVISION 2

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**DIVISION 3 CONCRETE**  
**SECTION 03301**  
**CONCRETE & REINFORCING STEELE**

**PART 1 GENERAL**

**1.01 SCOPE OF WORK**

- A. Furnish all labor, materials, equipment and incidentals required and install all concrete work complete as shown on the Drawings and as specified herein.

**1.02 SUBMITTALS**

- A. Submit to the ENGINEER, in accordance with Section 01300, shop drawings and product data. Submittals shall include at least the following:
1. Concrete mix for each formulation of concrete proposed for use including constituent quantities per cubic yard, water cementitious ratio, type and manufacturer of cement.
  2. Placing drawings and bar bending details in conformity with the recommendations of ACI 315.
  3. Technical data on all materials and components.
  4. Material Safety Data Sheets (MSDS) for all concrete admixtures and curing agents.
- B. Test Reports
1. Sieve analysis of fine and coarse aggregates.
  2. Concrete mix for each formulation of concrete proposed for use including constituent quantities per cubic yard, water cementitious ratio, type and manufacturer of cement.
    - a. Standard deviation data for each proposed concrete mix based on statistical records.
    - b. Water cementitious ratio curve for each proposed concrete mix based on laboratory tests. Give average cylinder strength test results at 28 days for laboratory concrete mix designs. Provide results of 7 and 14 day tests if available.
- C. Certifications
1. Certify admixtures used in the same concrete mix are compatible with each other and the aggregates.

## 1.03 REFERENCE STANDARDS

### A. American Society for Testing and Materials (ASTM)

1. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
2. ASTM A185 - Standard Specification for Steel Welded Wire Fabric, Plain for Concrete Reinforcement.
3. ASTM A615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
4. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
5. ASTM C33 - Standard Specification for Concrete Aggregates.
6. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
7. ASTM C143 - Standard Test Method for Slump of Hydraulic Cement Concrete
8. ASTM C150 - Standard Specification for Portland Cement
9. ASTM C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
10. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
11. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
12. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.

### B. American Concrete Institute (ACI).

1. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete.
2. ACI 301 - Specifications for Structural Concrete for Buildings.
3. ACI 305R - Hot Weather Concreting.
4. ACI 306R - Cold Weather Concreting.
5. ACI 315 - Details and Detailing of Concrete Reinforcement.
6. ACI 318 - Building Code Requirements for Reinforced Concrete.

7. ACI 350R - Environmental Engineering Concrete Structures.

C. Concrete Reinforcing Steel Institute (CRSI)

1. MSP - Manual of Standard Practice

D. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

#### 1.04 QUALITY ASSURANCE

A. If, during the progress of the work, it is impossible to secure concrete of the required workability and strength with the materials being furnished, the ENGINEER may order such changes in proportions or materials, or both, as may be necessary to secure the desired properties. All changes so ordered shall be made at the CONTRACTOR's expense.

B. Reinforced concrete shall comply with ACI 318 and the recommendations of ACI 350R.

C. All testing and inspection services required, unless otherwise specified, shall be provided and paid for by the OWNER. Testing necessary to establish the concrete mixes shall be performed by and at the expense of the CONTRACTOR. Methods of testing shall comply with the latest applicable ASTM standards.

#### 1.05 DELIVERY, STORAGE AND HANDLING

A. Reinforcing steel shall be shipped and stored with bars of the same size and shape fastened bundles with durable tags, marked in a legible manner with waterproof markings showing the same designations as shown on the submitted placing drawings. Reinforcing steel shall be free from mill scale, loose rust, dirt, grease, or other foreign matter. Store off the ground and protect from moisture, dirt, oil, or other injurious contaminants.

B. Products shall be stored in conformity with the MANUFACTURER's recommendations.

C. Sand, aggregates and cement shall be stored or stockpiled in conformity with the recommendations of ACI 301.

### PART 2 PRODUCTS

#### 2.01 GENERAL

A. The use of MANUFACTURER's name and model or catalog number is for the purpose of establishing the standard of quality and general configuration desired.

- B. Like items of materials shall be the end products of one MANUFACTURER in order to provide standardization for appearance, maintenance and MANUFACTURER's service.
- C. Materials shall comply with this Section and any applicable State or local requirements.

## 2.02 MATERIALS

- A. Cement shall be domestic portland cement conforming to ASTM C150. The allowable types of cement for each concrete class are shown in Table 1. Air entraining cements shall not be used.
- B. Fine aggregate shall be washed inert natural sand conforming to the requirements of ASTM C33.
- C. Coarse aggregate shall be a well-graded crushed stone or washed gravel conforming to the requirements of ASTM C33, size 57. Limits of Deleterious Substances and Physical Property Requirements shall be as recommended for severe weathering regions.
- D. Water shall be potable, clean and free from injurious amounts of oils, acids, alkalis, organic matter, or other deleterious substances.
- E. Concrete admixtures shall be free of chlorides and alkalis (except for those attributable to water). When it is required to use more than one admixture in a concrete mix, the admixtures shall be from the same manufacturer. Admixtures shall be compatible with the concrete mix including other admixtures.
  - 1. Air entraining admixture shall comply with ASTM C260. Proportioning and mixing shall be in accordance with MANUFACTURER's recommendations.
  - 2. Water reducing admixture shall comply with ASTM C494, Type A. Proportioning and mixing shall be in accordance with MANUFACTURER's recommendations.
  - 3. Admixtures causing retarded or accelerated setting of concrete shall not be used without written approval from the ENGINEER. When allowed, the admixtures shall be retarding or accelerating water reducing admixtures.
- F. Reinforcing steel bars shall be deformed, intermediate grade, steel conforming to ASTM A615 Grade 60.
- G. Reinforcing steel spirals for columns shall conform to ASTM A82 or ASTM A615 Grade 60.
- H. Welded steel wire fabric shall conform to ASTM A185.
- I. Tie wires for reinforcing steel shall be 16 gauge or heavier, black annealed wire.
- J. Precast concrete block bar supports shall conform to CRSI - Manual of Standard Practice (MSP) for Precast Concrete Bar Supports.

2.03 MIXES

- A. Select proportions of ingredients to meet the design strength and materials limits specified in Table 1 and to produce concrete having proper placability, durability, strength, appearance and other required properties. Proportion ingredients to produce a homogenous mixture which will readily work into corners and angles of forms and around reinforcement without permitting materials to segregate or allowing excessive free water to collect on the surface.
- B. The design of each mix shall be based on standard deviation data of prior mixes with essentially the same proportions of the same constituents or, if not available, be developed by independent testing laboratory acceptable to the ENGINEER engaged by and at the expense of the CONTRACTOR. Acceptance of mixes based on standard deviation shall be based on the modification factors for standard deviation tests contained in ACI 318. Acceptance of mixes based on laboratory tests shall be based on strengths greater than the required design strengths specified in ACI 318. The water content of the concrete mixes to be used, as determined from the curve, shall correspond to strengths 16 percent greater than the required design strength. The resulting mix shall not conflict with the limiting values for maximum water cementitious ratio and net minimum cementitious content as specified in Table 1.
- C. Compression Tests: Provide testing of the proposed concrete mix or mixes to demonstrate compliance with the compression strength requirements in conformity with the provisions of ACI 318.
- D. Entrained air, as measured by ASTM C231, shall be as shown in Table 1.
- E. Slump of the concrete as measured by ASTM C143, shall be as shown in Table 1.
- F. Proportion admixtures according to the MANUFACTURER's recommendations. Two or more admixtures specified may be used in the same mix provided that the admixtures in combination retain full efficiency and have no deleterious effect on the concrete or on the properties of each other.

TABLE 1

Class	Design Strength (1)	Cement	Cement Content (2)	W/C (3)	WR (4)	Slump Range Inches
A	4000	Type I or II	560	0.45 max.	Yes	3½ - 4½

All concrete classes shall have 3.5 to 6 percent air entrainment.

NOTES:

- (1) Minimum compressive strength at 28 day in psi, per ASTM C-150
- (2) Minimum cement content in lbs/cu yd
- (3) W/C is Water Cement ratio
- (4) WR is water reducing admixture

## 2.04 MEASURING, BATCHING, MIXING AND TRANSPORTING CONCRETE

- A. Measuring, batching, mixing and transporting concrete shall conform to ASTM C94 and the requirements herein, or as otherwise approved in writing by the ENGINEER.
- B. Ready-mixed concrete, whether produced by a concrete supplier or the CONTRACTOR shall conform to the requirements above. No hand mixing will be permitted.
- C. Admixtures shall be dispensed into the batch in conformity with the recommendations of the MANUFACTURER of the admixtures.
- D. Concrete shall be mixed until there is uniform distribution of the materials and shall be discharged completely before the mixer is recharged. The mixer shall be rotated at a speed recommended by the mixer manufacturer and mixing shall be continued for at least 1-1/2 minutes after all the materials are in the mixer. Concrete shall be placed within 1-1/2 hours of the time at which water was first added, otherwise it shall be rejected. Concrete which has been remixed or retempered, or to which an excess amount of water has been added, shall also be rejected.

## 2.05 FORMS

- A. Forms shall be free from roughness and imperfections, substantially watertight and adequately braced and tied to prevent motion when concrete is placed. No wooden spreaders will be allowed in the concrete.
- B. Wire ties will not be allowed. Metal ties or anchorages which are necessary within the forms shall be so constructed that the metal work can be removed for a depth of at least 1-in from the surface of the concrete without injury to such surface by spalling or otherwise. Forms shall be thoroughly cleaned before using and shall be treated with oil, or other approved material.
- C. All exposed edges of the finished concrete shall be chamfered 3/4-in.

## PART 3 EXECUTION

### 3.01 REINFORCING STEEL

- A. Reinforcing steel shall be accurately fabricated to the dimensions shown. Bars shall be bent around a revolving collar having a diameter of not less than that recommended in ACI 318. All bars shall be bent cold.
- B. Unless otherwise shown, splices in reinforcing steel shall be lapped not less than 24 diameters. All bar splices shall be staggered wherever possible. When splicing bars of different diameters, the length of lap is based on the larger bar.
- C. Splices in welded wire fabric shall be lapped not less than 1-1/2 courses or 12-in, whichever is greater. Wire fabric splices shall be tied together with wire ties spaced no more than 24-in on center.

- D. Before being placed in position, reinforcement shall be thoroughly cleaned of loose mill and rust scale, dirt and other coatings, including ice, that reduce or destroy bond. Where there is a delay in depositing concrete after the reinforcement is in place. Bars shall be re-inspected and cleaned when necessary.
- E. Reinforcement which is to be exposed for a considerable length of time after being placed shall be given a heavy coat of cement grout.
- F. In no case shall any reinforcing steel be covered with concrete until the amount and position of the reinforcements have been checked by the ENGINEER and his permission given to proceed with the concreting.

### 3.02 INSPECTION AND COORDINATION

A. The batching, mixing, transporting, placing and curing of concrete shall be subject to the inspection of the ENGINEER at all times. The CONTRACTOR shall advise the ENGINEER of his/her readiness to proceed at least 24 hours prior to each concrete placement. The ENGINEER will inspect the preparations for concreting including the preparation of previously placed concrete, the reinforcing and the alignment, cleanliness and tightness of formwork. No placement shall be made without the inspection and acceptance of the ENGINEER.

### 3.03 CONCRETE APPEARANCE

A. Concrete mix showing either poor cohesion or poor coating of the coarse aggregate with paste shall be remixed. If this does not correct the condition, the concrete shall be rejected.

B. Concrete for the work shall provide a homogeneous structure which, when hardened, will have the required strength, durability and appearance. Mixtures and workmanship shall be such that concrete surfaces, when exposed, will require no finishing. When concrete surfaces are stripped, the concrete when viewed in good lighting from 10-ft away shall be pleasing in appearance, and at 20-ft shall show no visible defects.

### 4.04 PLACING AND COMPACTING

A. No concrete shall be placed until forms, condition of subgrade and method of placement have been approved by the ENGINEER. Before depositing concrete, all debris, foreign matter, dirt and water shall be removed from the forms. The contact surface between concrete previously placed and new concrete shall be cleaned and brushed with cement paste. Concrete except as indicated shall not be placed in water or submerged within 24 hours after placing, nor shall running water be permitted to flow over the surface of fresh concrete within 4 days after its placing.

B. Deposit concrete as near its final position as possible to avoid segregation due to rehandling or flowing. Pumping of concrete will be permitted when an approved design mix and aggregate sizes, suitable for pumping, are used. Do not deposit concrete which has partially hardened or has been contaminated by foreign materials. If the section cannot be placed continuously, place construction joints as specified or as approved. Place concrete for walls using tremie tubes in 12 to 24-in lifts, keeping the surface horizontal. Do not drop concrete more than 4-ft.

D. High frequency mechanical vibrators shall be used to the extent necessary to obtain proper consolidation of the concrete, but not to move or transport concrete in the forms. Care shall be taken to avoid segregation of aggregates by excess vibration. Vibration shall continue until the frequency returns to normal, trapped air ceases to rise and the surface appears liquefied, flattened and glistening. Concrete adjacent to forms and around pipe stubs shall be carefully spaded or rodded.

### 3.05 CURING AND PROTECTION

- A. Protect all concrete work against injury from the elements and defacements of any nature during construction operations.
- B. Concrete that is to be used for the containment of water shall be water cured. Water curing shall be by ponding, by continuous sprinkling or by covering with continuously saturated burlap. Other concrete shall be cured by either water curing, sheet material curing or liquid membrane curing compound except that liquid membrane curing compound shall not be used on any concrete surface where additional concrete is to be placed or where the concrete surface is to be coated or painted.
- C. Finished surfaces and slabs shall be protected from the direct rays of the sun to prevent checking and crazing.
- D. Concrete placed during cold weather shall be batched, delivered, placed, cured and protected in compliance with the recommendations of ACI 306R. Salt, manure or other chemicals shall not be used for cold weather protection.
- E. Concrete placed during hot weather, shall be batched, delivered, placed, cured and protected in compliance with the recommendations of ACI 305R. The temperature of the concrete shall be such that it will cause no difficulties from loss of slump, flash set or cold joints. Immediately cover plastic concrete with sheet material during hot weather.

### 3.06 FIELD TESTS

- A. Sets of three field control cylinder specimens will be taken by the CONTRACTOR during the progress of the work, in compliance with ASTM C31. The number of sets of concrete test cylinders taken of each class of concrete placed each day shall not be less than one set, nor less than one set for each 150 cu yds of concrete nor less than one set for each 5,000 sq ft of surface area for slabs or walls. One cylinder shall be broken at 7 days and two cylinders shall be broken and their strengths averaged at 28 days. When the average 28 day compressive strength of the cylinders in any set falls below the required compressive strength or below proportional minimum 7 day strengths (where proper relation between 7 and 28 day strengths have been established by tests); the ENGINEER may reject the concrete represented by the set of cylinders, may require modification of the concrete and/or require modification of the proportions, water content, or temperature conditions of the design mix to achieve the required strengths.

- B. Cooperate in the making of tests by allowing free access to the work for the selection of samples, providing an insulated closed curing box for specimens, affording protection to the specimens against injury or loss through his/her operations and furnishing material and labor required for the purpose of taking concrete cylinder samples.
- C. Slump tests will be made in the field by the CONTRACTOR in conformity with ASTM C143.
- D. Tests for air content shall be made in compliance with either the pressure method complying with ASTM C231 or by the volumetric method complying with ASTM C173.

### 3.07 STRIPPING AND FINISHING CONCRETE

- A. Forms shall not be stripped before the concrete has attained a strength of at least 30 percent of the ultimate design strength, except as otherwise specified. This is equivalent to approximately "100 day-degrees" of moist curing.
- B. Care shall be exercised to prevent damaging edges or obliterating the lines of chamfers, rustications or corners when removing the forms or doing any other work adjacent thereto.
- C. Clean all exposed concrete surfaces and adjoining work stained by leakage of concrete, to the satisfaction of the ENGINEER.
- D. As soon as forms have been stripped, form ties, if employed, shall be removed, and the recess filled to insure complete water tightness. Any defects in the surface of the walls shall be chipped out and repaired in a workmanlike manner. Defective concrete where it occurs shall be cut to a minimum depth of 1-in, thoroughly roughened and neat cement brushed in. The hole shall then be filled with mortar in the proportion of 1 part cement and 2-1/2 parts sand with a minimum of water. Mortar for filling form tie recesses shall be mixed to a slightly damp consistency (just short of "balling"), pressed into the recess until dense, and troweled smooth. Mortar in larger patches shall be applied and allowed to assume a partial set following which it shall be struck off flush with the adjoining surface. Patches shall be kept moist for several days to assure proper curing.
- E. Concrete to receive damp proofing and concrete not exposed in the finished work shall have off-form finish with fins and other projections removed and tie cones and defects filled as specified.
- F. Top surface of slabs shall be screeded to the established grades and shall be level with a tolerance of 1/8-in when checked with a 12-ft straightedge. The surface shall be pitched to drain. The surface shall be finished to give a smooth, hard, even surface free from high or low spots or other defects. Concrete subject to pedestrian traffic shall be given a broom finish. Failure to meet the condition shall be cause for removal, grinding, or other correction as directed by the ENGINEER

END OF SECTION 03301  
END OF DIVISION 3

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**DIVISION 4 MASONRY (NOT USED)**

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**DIVISION 5 METALS**  
**SECTION 05500**  
**MISCELLANEOUS METAL**

**PART 1 GENERAL**

**1.01 SCOPE OF WORK**

- A. Furnish all labor, materials, equipment and incidentals required and install all miscellaneous metal complete as shown on the Drawings and as specified herein.

**1.02 RELATED WORK**

- A. Concrete and reinforcing steel is included in Section 03301.
- B. Equipment anchor bolts are included in the respective Sections of Divisions 11, 14 and 15.

**1.03 SUBMITTALS**

- A. Submit to the ENGINEER, in accordance with Section 01300, shop drawings and product data showing materials of construction and details of installation for:
1. Shop drawings, showing sizes of members, method of assembly, anchorage and connection to other members.
- B. Design Data
1. Submit calculations or test data demonstrating that the railings will resist the loads specified in the South Carolina State Building Code at the post spacing provided.
- C. Test Reports
1. Certified copy of mill test reports on each steel aluminum proposed for use showing the physical properties and chemical analysis.
- D. Certificates
1. Submit certification that the railing system is in compliance with OSHA requirements and South Carolina State Building Code.

**1.04 REFERENCE STANDARDS**

- A. Aluminum Association (AA)

1. AA M31C22A41

- a. M31: Mechanical Finish, Fine Satin
- b. C22: Finish, Medium Matte
- c. A41: Clear Anodic Coating, Class I

C. American Society for Testing and Materials (ASTM)

- 1. ASTM A36 - Standard Specification for Carbon Structural Steel.
- 2. ASTM A48 - Standard Specification for Gray Iron Castings.
- 3. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- 4. ASTM A108 - Standard Specification for Steel Bars, Carbon, Cold Finished, Standard Quality.
- 5. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- 6. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- 7. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 Psi Tensile Strength.
- 8. ASTM A366 - Standard Specification for Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality.
- 9. ASTM A501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
- 10. ASTM A536 - Standard Specification for Ductile Iron Castings.
- 11. ASTM A570 - Standard Specification for Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality.
- 12. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- 13. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes.
- 14. ASTM B429 - Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.

C. American Welding Society (AWS)

- 1. AWS D1.1 - Structural Welding Code Steel.
- 2. AWS D1.2 - Structural Welding Code Aluminum.

D. Federal Specifications

1. FS-FF-B-575C - Bolts, Hexagonal and Square

E. Occupational Safety and Health Administration (OSHA)

F. Building and Code

1. South Carolina State Building Code

G. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

### 1.05 QUALITY ASSURANCE

- A. The work of this Section shall be completely coordinated with the work of other Sections. Verify, at the site, both the dimensions and work of other trades adjoining items of work in this Section before fabrication and installation of items herein specified.
- B. Furnish to the pertinent trades all items included under this Section that are to be built into the work of other Sections.
- C. All welding shall be performed by qualified welders and shall conform to the applicable AWS welding code. Welding of steel shall conform to AWS D1.1 and welding of aluminum shall conform to AWS D1.2.

### 1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver items to be incorporated into the work of other trades in sufficient time to be checked prior to installation.
- B. Repair items which have become damaged or corroded to the satisfaction of the ENGINEER prior to incorporating them into the work.

### 1.07 PROJECT/SITE REQUIREMENTS

- A. Field measurements shall be taken at the site, prior to fabrication of items, to verify or supplement indicated dimensions and to ensure proper fitting of all items.



## 2.03 ANCHORS, BOLTS AND FASTENING DEVICES

- A. Anchor bolt material shall be ASTM A307 unless otherwise noted.
- B. Unless otherwise noted, bolts for the connection of carbon steel or iron shall be steel machine bolts; bolts for the connection of galvanized steel or iron shall be galvanized steel or stainless steel machine bolts; and bolts for the connection of aluminum or stainless steel shall be stainless steel machine bolts.
- C. Unless otherwise noted, expansion anchors shall be zinc plated carbon steel wedge type anchors complete with nuts and washers. Type 316 stainless steel, wedge type anchors shall be used where they will be submerged or exposed to the weather or where stainless steel wedge type anchors are required. When the length or embedment of the bolt is not noted on the Drawings, provide length sufficient to place the wedge and expansion sleeve portion of the bolt at least 1-in behind the concrete reinforcing steel. Expansion anchors shall be Hilti, Kwick-bolt II; ITW Ramset; Redhead trubolt, or equal.
- D. Adhesive capsule anchors shall be a two-part stud and capsule chemical resin anchoring system. Capsules shall contain premeasured amounts of polyester or vinyl ester resin, aggregate and a hardener contained in a separate vial within the capsule. Stud assemblies shall consist of an all-thread anchor rod with nut and washer. Adhesive capsule anchors shall be Hilti, HVA Adhesive Anchor; Molly, Parabond; Rawlplug, Rawl Chem-Stud or equal.
- E. Machine bolts and nuts shall conform to Federal Specification FF-B-575C. Bolts and nuts shall be hexagon type. Bolts, nuts, screws, washers and related appurtenances shall be Type 316 stainless steel.
- F. Toggle bolts shall be Hilti, Toggler Bolt or equal.

2.04 NOT USED

2.05 NOT USED

## 2.06 MISCELLANEOUS ALUMINUM

- A. All miscellaneous metal work shall be formed true to detail, with clean, straight, sharply defined profiles and smooth surfaces of uniform color and texture and free from defects impairing strength or durability. Holes shall be drilled or punched. Edges shall be smooth and without burrs. Fabricate supplementary pieces necessary to complete each item though such pieces are not definitely shown or specified.
- B. Connections and accessories shall be of sufficient strength to safely withstand the stresses and strains to which they will be subjected. Exposed joints shall be close fitting and jointed where least conspicuous. Threaded connections shall have the threads concealed where practical. Welded connections shall have continuous welds or intermittent welds as specified or shown. The face of welds shall be dressed flush and smooth. Welding shall be on the unexposed side as much as possible in order to prevent pitting or discoloration of the aluminum exposed surface. Provide holes for temporary field connections and for attachment of the work of other trades.
- C. Miscellaneous aluminum items shall include: beams, angles, closure angles, grates, stair nosings, and any other miscellaneous aluminum called for on the Drawings and not otherwise specified.

- D. Angle frames for hatches, beams, grates, etc, shall be complete with welded strap anchors attached.
- E. Stair treads for aluminum stairs shall have abrasive non-slip nosing as approved.
- F. Aluminum shall be given an anodic oxide treatment in accordance with the AA M31C22A41. Other aluminum items shall have a cleaned and degreased mill finish.

## 2.07 MISCELLANEOUS STEEL

- A. All miscellaneous metal work shall be formed true to detail, with clean, straight, sharply defined profiles and smooth surfaces of uniform color and texture and free from defects impairing strength or durability. Holes shall be drilled or punched. Edges shall be smooth and without burrs. Fabricate supplementary pieces necessary to complete each item though such pieces are not definitely shown or specified.
- B. Connections and accessories shall be of sufficient strength to safely withstand the stresses and strains to which they will be subjected. Exposed joints shall be close fitting and jointed where least conspicuous. Threaded connections shall have the threads concealed where practical. Welded connections shall have continuous welds or intermittent welds as specified or shown. The face of welds shall be dressed flush and smooth. Provide holes for temporary field connections and for attachment of the work of other trades.
- C. Miscellaneous steel items shall include: beams, angles, base plates for other than structural steel or equipment, closure angles, splice plates and any other miscellaneous steel called for on the Drawings and not otherwise specified.
- D. Steel pipe pieces for sleeves, lifting attachments and other functions shall be Schedule 40 pipe unless otherwise shown on the Drawings. Wall and floor sleeves, of steel pipe, shall have welded circumferential steel water stops at mid-length.
- E. All steel finish work shall be thoroughly cleaned, by effective means, of all loose mill scale, rust and foreign matter and shall be given one shop coat of primer compatible with the finish coat after fabrication but before shipment. Paint shall be omitted within 3-in of proposed field welds. Paint shall be applied to dry surfaces and shall be thoroughly and evenly spread and well worked into joints and other open spaces.
- G. Galvanizing, where required, shall be the hot-dip zinc process after fabrication. Coating shall be not less than 2 oz/sq ft of surface.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Install all items except those to be embedded in concrete or other masonry which shall be installed under Division 3 and Division 4 respectively. Items to be attached to concrete or masonry after such work is completed shall be installed in accordance with the details shown. Fastening to wood plugs in masonry will not be permitted.

- B. Abrasions in the shop primer shall be touched up immediately after erection. Areas left unprimed for welding shall be painted with primer after welding.
- C. Zinc coating which has been burned by welding, abraded, or otherwise damaged shall be cleaned and repaired after installation. The damage area shall be thoroughly cleaned by wire brushing and all traces of welding flux and loose or cracked zinc coating removed prior to painting. The cleaned area shall be painted with two coats of zinc oxide-zinc dust paint conforming to the requirements of Military Specifications MIL-P-15145. The paint shall be properly compounded with a suitable vehicle in the ratio of one part zinc oxide to four parts zinc dust by weight.
- D. Specialty products shall be installed in accordance with the manufacturer's recommendations.
- E. Expansion bolts shall be checked for tightness a minimum of 24 hours after initial installation.
- F. Install adhesive capsule anchors using MANUFACTURER's recommended drive units and adapters and in compliance with the MANUFACTURER's recommendations.
- G. All railings shall be erected to line and plumb.
- H. All steel surfaces that come into contact with exposed concrete or masonry shall receive a protective coating of an approved heavy bitumastic troweling mastic applied in accordance with the MANUFACTURER's instructions prior to installation.
- I. Where aluminum contacts a dissimilar metal, apply a heavy brush coat of zinc-chromate primer followed by two coats of aluminum metal and masonry paint to the dissimilar metal.
- J. Where aluminum contacts masonry or concrete, apply a heavy coat of approved alkali resistant paint to the masonry or concrete.
- K. Between aluminum grating, aluminum stair treads, or aluminum handrail brackets and steel supports, insert 1/4-in thick neoprene isolator pads, 85 plus or minus 5 Shore A durometer, sized for full width and length of bracket or support.

END OF SECTION 05500  
END OF DIVISION 5

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**DIVISION 6 WOOD AND PLASTICS (NOT USED)**

**DIVISION 7 THERMAL AND MOISTURE PROTECTION (NOT USED)**

**DIVISION 8 DOORS AND WINDOWS (NOT USED)**

**DIVISION 9 FINISHES (NOT USED)**

**DIVISION 10 SPECIALTIES (NOT USED)**

**END OF DIVISION 6,7,8,9 AND 10**

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## **DIVISION 11 EQUIPMENT**

### **SECTION 11185 BLOWER PACKAGE**

#### **PART 1 -- GENERAL**

##### **1.01 THE REQUIREMENT**

- A. The Contractor shall furnish, install, test, adjust, and place in satisfactory operation one (1) heavy duty positive displacement blower system complete with all accessories including 25 HP motors, steel bases, inlet filters, inlet silencers, discharge silencers, relief valves, check valves, butterfly valves, pressure gauges, flexible connectors, V-belt drive, guards, vibration isolation, and other components for a complete blower system as shown on the Drawings and as specified herein.
- B. Blower systems shall be as manufactured by United Blower, Inc., Universal Blower Pac, Inc., or equal.

##### **1.02 RELATED WORK SPECIFIED ELSEWHERE**

- A. Division 1 - General Requirements
- B. Division 16 - Electrical

##### **1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS**

- A. Shall be as specified in Section 01090 - Reference Standards.

##### **1.04 SUBMITTALS**

- A. In addition to the submittal requirements specified in Section 01300 - Submittal, submit the following:
  - 1. Performance Affidavit
  - 2. Support locations and loads that will be transmitted to bases and foundations.
  - 3. Complete electrical field termination drawings.
  - 4. Overall equipment layout and piping interconnection drawings.
  - 5. Copies of certified shop test reports.
  - 6. Field test results.

## 1.05 CONTRACTOR'S RESPONSIBILITY

- A. The Contractor shall arrange for the equipment manufacturer to furnish the services of qualified service persons with at least five (5) years of experience who are regularly involved in the inspection, installation, start-up, troubleshooting, testing, maintenance, and operation of positive displacement blower systems. The service persons shall:
1. Witness and check installation.
  2. Assist the Contractor in conducting field tests and preparing a written report as specified below.
  3. Witness and check start-up of the system.
  4. Assist the Contractor in making adjustments and modifications as necessary to optimize operation of system components.
  5. Troubleshoot and correct any mechanical or control problems which are noted during tests and start-up.
  6. Submit written certification that the system has been properly installed, tested, and adjusted; and that all controls and protective devices operate properly, including date of final acceptance test, as well as a listing of all persons present during the tests.
  7. Investigate and supervise correction of any operating problems which may arise up to the end of the guarantee period of the equipment.
  8. Instruct Owner personnel in the operation and maintenance of the equipment.
- B. The services of a qualified manufacturer's technical representative shall be provided at no additional cost to the Owner for a period of not less than two (2) days as follows:
1. At least one trip of one (1) day during installation of the equipment.
  2. At least one trip of one (1) day after acceptance of the equipment for start-up purposes.
- C. Any additional time required to achieve successful installation and operation shall be at the expense of the Contractor.

## 1.06 FACTORY TESTING

- A. After assembly, each blower system shall be factory lubricated, aligned and operationally tested. Run time on each blower shall be at least one hour after which each blower shall be rechecked for alignment and tension of V-belts and adjusted if necessary. If adjustments are made, the blower(s) shall be restarted and run an additional 15 minutes, shut down and rechecked again.
- B. A report on each blower system, signed by an officer of the company, shall be furnished with the O&M manuals giving as a minimum the following readings taken at/or near the end of the one hour run time.

1. Amperage draw, per leg
2. Voltage draw, per leg
3. Pressure, psi
4. Housing surface temperatures of motor bearings, blower bearings, and blower discharge air.

## PART 2 -- PRODUCTS

### 2.01 EQUIPMENT REQUIREMENTS

- A. The Contractor shall furnish one (1) positive displacement blower, complete with motors, and all accessories. Blower shall have a maximum pressure capability in excess of 12.0 psig. Each blower shall provide 250 scfm at 10.5 psig discharge pressure at a blower speed of no greater than 75% of maximum design speed. Standard conditions shall be defined as a standard pressure of 14.7 psia, standard temperature of 68°F, and air specific gravity of 1.0. Local conditions are as follows:

Maximum inlet temperature	105°F
Maximum relative humidity	100%
Elevation	45' above MSL

The blower brake horsepower shall not exceed 25. Blower performance curves shall be submitted with the Shop Drawings.

- B. The blower casing shall be of one piece with separate headplates, and shall be made of close-grained cast iron suitably ribbed to prevent distortion under the specified operating conditions.
- C. Each lobe and shaft shall be made from a common ductile iron casting. The lobes shall be of the straight, two-lobe or tri-lobe involute type and shall operate without rubbing or liquid seals or lubrication and shall be positively timed by a pair of accurately machined heat-treated alloy steel, helical tooth timing gears. The timing gears shall be mounted on the lobe shafts on a tapered fit and properly secured. Each lobe /shaft shall be supported by cylindrical roller bearings sized for a minimum of 100,000 hours B-10 life. Shafts shall be alloy steel forgings.
- D. The lube oil system shall be supplied with a sight glass and ample reservoir capacity. A lip type oil seal shall be provided at each bearing, designed to prevent lubricant from leaking into the air stream. Rotary piston ring shaft seals shall be provided at the point where the shaft passes through the headplate. Further provision shall be made to vent the rotor side of the oil seal to atmosphere to eliminate any possible carry over of lubricant into the air stream.
- E. The timing gears and the bearings shall be splash oil lubricated from oil slingers mounted on the driven shaft and dipping in oil. Grease lubricated bearings are not acceptable.

- F. The blowers shall be shipped with openings sealed after injection of rust inhibiting powder and shall include copies of the instructional manual and parts list. G. Each blower shall be given a factory mechanical test to assure mechanical integrity. If the test indicates that adjustments are necessary to insure conformance to the manufacturer's standards, such adjustments shall be made prior to shipment.
- H. A welded steel fabricated base shall be provided for the blower and electric drive. Silencers shall be properly supported in order to prevent distortion of the blower housing. Installation shall conform to recommendations of the blower and V-belt drive manufacturers. The manufacturer shall be responsible for the compatibility of all blower components including motor, V-belt drive, and all accessory items.
- I. Motor shall be 25 HP, 460V, 3-phase, high efficiency motor with TEFC enclosure. Motors shall include 120V space heaters powered from the 120V control circuit and three temperature switches embedded in the motor windings to shut down the motor on high temperature.
- J. 4-inch threaded connections and a flexible hose connection on the discharge shall be provided.
- K. Pressure relief valve shall be provided for each blower. Pressure relief valve shall be installed as close to the blower discharge as feasible. Initial set pressure shall be 0.5 psi over the specified maximum operating pressure. Relief valve shall be weighted type relief valve, cast iron construction, as manufactured by Roots, or equal. Relief valve shall be rated and sized to relieve 110% of the maximum calculated air flow at the specified local conditions.
- L. Inlet and discharge silencers shall be combination chamber-absorptive type, heavy-duty, double shell, all welded unit constructed of carbon steel with prime and finish paint according to service conditions. Inlet and discharge silencers shall provide positive noise reduction to non-objectionable noise levels.
- M. Inlet air filters shall be provided on the inlet of each blower and shall be Universal CCF series filter, or equal. Inlet air filter shall be rated to filter 150% of the maximum calculated air flow at the specified local conditions.
- N. Discharge check valve shall be provided on the discharge of each blower unit and shall be a Techno Corp. 5050 check valve. Discs shall be ductile iron, electroless nickel coated, spring loaded by means of two (2) 316 stainless steel springs which act independently on each of two (2) hinged discs. Valve seating shall be butyl or Viton A.
- O. Provide molded, synthetic rubber and cork, vibration isolation pads for each blower, sized to fit the structural steel base. Provide isolators as manufactured by Korfund or equal.
- P. Provide a differential pressure gauge to indicate pressure drop through the air filter for each blower equal to Model 2010 by Dwyer Instruments, Inc. or equal.
1. Range: 0 to 10 inches water gauge.
  2. Accuracy: 2% of full scale.
  3. Dial: 4 1/2"; 120<sup>0</sup> scale; .20 WC minor divisions.
  4. Mounting: Vertical
  5. Construction: Die cast aluminum case; silicone rubber diaphragm; calibrated range spring; samarium-cobalt magnet; heli of high magnetic permeability mounted in sapphire bearings; clear

plastic cover with O-ring seal and zeroing screw; litho-printed scale; red-tipped pointer with rubber pointer stops.

Q. Provide a liquid filled pressure gauge for each blower equal to type 1008A manufactured by Ashcroft or equal.

1. Range: 0 to 25 psig.
2. Accuracy: 1% of full scale.
3. Dial: 4 1/2" diameter; 270<sup>0</sup> scale; heavy gauge aluminum with white background and black markings; 0.25 psig minor divisions.
4. Case: Stainless steel.
5. Ring: Stainless steel.
6. Movement: Stainless Steel
7. Bourdon Tube: Phosphor bronze, large bore tubing which is silver soldered to socket and tip.
8. Connection: Forged brass 1/4" NPT black connection.

R. Provide a liquid filled bimetal thermometer for each blower manufactured by Ashcroft or equal.

1. Range: 50 to 300<sup>0</sup>F Series EL discharge and - 40 to 160<sup>0</sup>F inlet.
2. Accuracy: 1% full span.
3. Dial: 3" diameter; 270<sup>0</sup> scale; heavy gauge stainless steel with white background and black markings; 5<sup>0</sup>F minor divisions.
4. Case: Stainless steel.
5. Ring: Stainless steel.
6. Movement: Stainless steel.
7. Actuating Element: Type 304 stainless steel, precision rolled, fully annealed tubing.
8. Compensation: Bimetal compensator to offset ambient temperature changes in case area.

S. A high temperature shutdown switch for each blower shall be provided as manufactured by Ashcroft, Type 400, T4 Series, or equal with an operating range of 150<sup>0</sup> to 260<sup>0</sup>F. The maximum temperature capability shall be 400<sup>0</sup>F. Sensor is to be capillary type with remote 3-3/4" brass bulb. Contractor to provide 1/2" FPT in discharge piping near blower for thermostat well. Piping under 4 inches will require a tee with bushings to mount the well. Piping 4 inches and over may be drilled and tapped.

T. A high pressure shutdown switch for each blower shall be provided as manufactured by Ashcroft, Type 400, B4 Series, or equal. Pressure switch operating range shall be from 1 to 20 psig. Actuator seal shall be Viton.

U. A butterfly valve shall be provided on the discharge of each blower unit.

## PART 3 -- EXECUTION

### 3.01 INSTALLATION AND TESTING

A. The equipment shall be installed in accordance with the instructions and drawings of the manufacturer, and the specifications.

- B. The Contractor shall furnish and install the filters and all related items in strict accordance with manufacturer's instructions including proper support and anchoring of the blowers. All supports, fasteners, anchors, equipment, hardware, etc. shall be furnished for a complete installation.
- C. Prior to field testing of blower equipment, the Contractor shall take all necessary precautions to insure that the piping is completely clean and free of any debris, dirt, or other foreign materials which could clog the underdrain system or interfere with acceptable operation.
- D. After each blower unit and its accessories have been completely installed and the electrical connections have been made, it shall be subjected to field tests conducted by the Contractor and witnessed by the Engineer to determine if it is free from all objectionable vibration, bearing heating, noise, or other defects. Vibration shall not exceed 1.0 in/sec at any bearing in any plane. Each blower unit shall be subjected to running tests under actual operating conditions for a period of 12 hours during the field test. The Contractor shall make such changes of alterations in the blower units or their auxiliaries necessary for satisfactory operation as directed by the Engineer based on the results of the field tests.

3.02 PAINTING

- A. Painting shall be as specified herein.

END OF SECTION 11185

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**SECTION 11311  
LEACHATE TRANSFER PUMPS**

**PART 1 GENERAL**

**1.01 SCOPE OF WORK**

- A. The Contractor shall furnish all labor, materials, equipment and incidentals required and install two horizontal closed coupled end suction pumps units complete with motors, couplings, bases, and accessories as shown on the Drawings and as specified herein.
- B. These Specifications are intended to give a general description of what is required, but do not cover all details which will vary in accordance with the requirements of the equipment furnished. They are, however, intended to cover the furnishing, shop testing, delivery and complete installation and field testing of all materials, equipment and appurtenances for the complete pumping system herein specified, whether specifically mentioned in the Specifications or not.
- C. For all units there shall be furnished and installed all necessary and desirable accessory equipment and auxiliaries whether specifically mentioned in these Specifications or not. This installation shall incorporate the highest standards for the type of service shown on the drawings including field testing of the entire installation and instruction of the regular operating personnel in the care, operation and maintenance of all equipment.

**1.02 DESCRIPTION OF SYSTEM**

- A. Leachate Transfer Pumps
  - 1. Two (2) Leachate Transfer Pumps shall be provided and will pump stored leachate from the “existing” leachate storage tank as shown on the Drawings.
  - 2. Controls will be furnished under this section and as specified will include the following operational modes:
    - a. Local Manual Control: In this mode, pumps will be started and stopped as necessary at the local pump control panel.
  - 3. Equipment Required:
    - a. Two (2) horizontal closed coupled end suction pumps for outside installation.
    - b. Two (2) NEMA standard JP shaft motors with TEFC enclosure.
    - c. Two (2) fabricated steel bases, as required.

### 1.03 QUALIFICATIONS

- A. All the equipment specified herein shall be the standard cataloged product of a single pump (Manufacturer) who shall assume unit responsibility for proper operation of the pumping units as a system. To assure unity of responsibility, all equipment specified in this section of the Specifications including the pumps, motors, variable frequency drives and controls shall be furnished and coordinated by the pump Manufacturer. The Contractor shall assume full responsibility for the satisfactory installation and operation of the pumping units as a system.
- B. The pumps covered by these Specifications are intended to be pumping equipment of proven ability as manufactured by reputable Manufacturers having long experience in the production of identical pumps. The pumps furnished shall be designed, constructed and installed in accordance with the best practice and methods, and shall operate satisfactorily when installed, and shall be manufactured in accordance with Hydraulic Institute Standards.
- C. All equipment furnished under these Specifications shall be new and unused and shall be the standard cataloged product of a Manufacturer having a successful record of manufacturing and servicing the equipment and systems specified herein for a minimum of five (5) years.

### 1.04 REFERENCE STANDARDS

- A. Design, manufacturing and assembly of elements of the equipment herein specified shall be in accordance with, but not limited to, published standards of the following, as applicable:
1. American Gear Manufacturers Association (AGMA)
  2. American Institute of Steel Construction (AISC)
  3. American Iron and Steel Institute (AISI)
  4. American Society of Mechanical Engineers (ASME)
  5. American National Standards institute (ANSI)
  6. American Society for Testing Materials (ASTM)
  7. American Welding Society (AWS)
  8. Anti-Friction Bearing Manufacturers Association (AFBMA)
  9. Hydraulic Institute Standards (current edition)
  10. Institute of Electrical and Electronics Engineers (IEEE)
  11. National Electric Code (NEC)
  12. National Electrical Manufacturers Association (NEMA)

13. Occupational Safety and Health Administration (OSHA)
  14. Steel Structures Painting Council (SSPC)
  15. Underwriters Laboratories, Inc. (UL)
- B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

#### 1.05 SUBMITTALS

- A. Copies of all materials required to establish compliance with the Specifications shall be submitted in accordance with the provisions of the General Conditions and Section 01340. Submittals shall include at least the following:
1. Certified shop and erection drawings showing all important details of construction, dimensions and anchor bolt locations.
  2. Descriptive literature, bulletins and/or catalogs of the equipment.
  3. Data on the characteristics and performance of each pump. Data shall include guaranteed performance curves, based on actual shop tests of similar units, which show that they meet the specified requirements for head, capacity, efficiency, allowable NPSH and horsepower. Curves shall be submitted on 8-2-inch x 11-inch sheets at as large a scale as is practical. Curves shall be plotted from no flow at shut-off head to pump capacity at minimum specified total head.
  4. The total weight of the equipment including the weight of the single largest item.
  5. A complete total bill of materials of all equipment.
  6. A list of the Manufacturer's recommended spare parts with the Manufacturer's current price for each item. Include gaskets, packing, etc. on the list. List bearings by the bearing Manufacturer's numbers only.
  7. Complete motor data.
- B. Operating and Maintenance Manuals: Provide Operating and Maintenance manuals in accordance with the applicable provisions of Section 01730, Operating and Maintenance data.

## 1.06 OPERATING INSTRUCTIONS

- A. A factory representative who has complete knowledge of proper operation and maintenance shall be provided for a minimum of one (1) 8-hour working days total to instruct representatives of the Owner and the Engineer in proper operation and maintenance of the equipment with both dedicated classroom training and dedicated hands-on training as specified in Paragraphs B and C.
- B. A factory representative who has complete knowledge of proper operation and maintenance shall be provided for one (1) day of O & M training to the Owner prior to the initial start-up of the respective system/equipment. This overview training, if deemed necessary by the Owner and Engineer, shall be provided twice, in two (2) 4-hour sessions on the same day.
- C. The acceptance of this training will be in accordance to the successful completion of the Vendor Training Review Checklist as provided in Section 01730. This Checklist will be completed by the Owner and Engineer at the completion of each vendor training session.
- D. This instruction period shall be scheduled at least ten (10) working days in advance with the Owner and shall take place prior to plant start-up and acceptance by the Owner. The final copies of Operation and Maintenance manuals specified in Section 01730 must have been delivered to the Owner prior to scheduling the instruction period with the Owner.
- E. Start-Up: One (1) day of O & M hands-on training and system optimization shall be provided to the Owner and Engineer on the day of system/equipment start-up and on-line operation. This work may be conducted during the same trip as the inspection of installation and test run as provided under Part 3 - Execution, unless otherwise specified. If there are difficulties in operation of the equipment due to the Manufacturer's design or fabrication, additional service shall be provided at no cost to the Owner.

## 1.07 TOOLS AND SPARE PARTS

- A. One (1) set of all special tools if required for normal maintenance shall be provided by the Manufacturer. All such tools shall be furnished in a suitable steel tool chest complete with lock and duplicate keys.
- B. The Manufacturer shall furnish a complete list of recommended spare parts necessary for the five (5) years of operation of each pumping system. Spare parts to be supplied shall include at least the following:
  - 1. One (1) complete set of gaskets for the each group of pumps.
  - 2. One (1) complete set of packing for the each group of pumps.

3. One (1) complete set of shaft sleeves, keys and accessories for the each group of pumps.
- C. All spare parts shall be properly protected for long periods of storage and packed in containers which are clearly identified with indelible markings as to the contents.

#### 1.08 PRODUCT HANDLING

- A. All parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is completed and the units and equipment are ready for operation.
- B. All equipment and spare parts must be properly protected against any damage during a prolonged period at the site.
- C. Factory assembled parts and components shall not be dismantled for shipment unless permission is received in writing from the Engineer.
- D. Finished surfaces of all exposed pump openings shall be protected by wooden planks, strongly built and securely bolted thereto.
- E. Finished iron or steel surfaces not painted shall be properly protected to prevent rust and corrosion.
- F. After hydrostatic or other tests, all entrapped water shall be drained prior to shipment and proper care shall be taken to protect parts from the entrance of water during shipment, storage and handling.
- G. Each box or package shall be properly marked to show its net weight, in addition to its contents.

#### 1.09 WARRANTY

- A. The Manufacturer shall provide a one (1) year warranty. The Manufacturer shall guarantee that the equipment furnished is suitable for the purpose intended and free from defects of design, material and workmanship. In the event the equipment fails to perform as specified, the equipment Manufacturer shall promptly repair or replace the defective equipment without cost to the Owner (including handling and shipment costs).

#### 1.10 EQUIPMENT TESTING USING VIBRATION ANALYSIS

- A. After all the equipment has been installed and the pumps are ready to be placed into operation, the Contractor or his designated representative will retain the services of a qualified Mechanical Testing Firm to analyze the installed mechanical equipment for vibration, alignment, allowable tolerances, etc. for compliance with the Manufacturer's recommendations and these Specifications pertaining thereto. These

services will be paid for by the Contractor, and all work found to be defective or requiring modification or adjustment will be corrected by the Contractor at no expense to the Owner.

## PART 2 PRODUCTS

### 2.01 MATERIALS AND EQUIPMENT

- A. The equipment covered by these Specifications is intended to be standard pumping of proven ability as manufactured by reputable concerns having long experience in the production of such equipment. The equipment furnished shall be designed, constructed and installed in accordance with the best practice and methods and shall operate satisfactorily when installed as shown on the drawings.
- B. Equipment shall be designed and built for 24-hour continuous service at any and all points within the specified range of operation, without overheating, cavitation and without excessive vibration or strain.
- C. All parts shall be so designed and proportioned as to have liberal strength, stability and stiffness and to be especially adapted for the work to be done. Ample room and facilities shall be provided for inspection, repairs and adjustments.
- D. The pump bases shall be rigidly and accurately anchored into position, precisely leveled and aligned, so that the completed installation is free from stress or distortion. All necessary foundation bolts, plates, nuts and washers shall be furnished and installed by the Contractor to conform to the recommendations and instructions of the Manufacturer's. Anchor bolts, nuts and washers shall be Type 304 stainless steel. Grouting under bases after the equipment is set is included as work under this section.
- E. Stainless steel nameplates giving the name of the Manufacturer, the rated capacity, head, speed and all other pertinent data shall be attached to the pump.
- F. Stainless steel nameplates giving the name of the Manufacturer, serial number, model number, horsepower, speed voltage, amperes and all other pertinent data shall be attached to the motor.
- G. The nameplate ratings of the motor shall not be exceeded nor shall the service factor be reached when its pump is operating at any point on its characteristic curve at maximum speed.

## 2.02 PUMPS- GENERAL

- A. The pumps shall be of the horizontal closed coupled end suction pumps for outside installation as shown on the drawings.
- B. The pumps shall be of standard dimensions, built to limit gauges or formed to templates, such that parts will be interchangeable between like units.
- C. The pumps shall conform to all requirements stipulated herein without exception.
- D. Pumps - Certified Factory Testing:
  - 1. Factory testing in accordance with the standards of the Hydraulic Institute shall be required for all pumps. Certified pump performance curves shall be submitted including head, capacity, brake horsepower and pump efficiency for each pump supplied. Certified data shall be provided to verify that the NPSH and submergence required by the pumps at the secondary operating point is adequate for water levels shown on the drawings. Prior to conducting a pre-test, notification of such test and a list of test equipment and test procedures shall be forwarded to the Engineer at least thirty (30) working days before the scheduled test date. All electronic transducers, meters, gauges and other test instruments shall be calibrated within thirty (30) working days prior to the scheduled test and certified calibration data shall be provided. Differential pressure type flow meters, such as venturi meters are preferred and shall have been calibrated and its accuracy certified within the past twelve (12) months. Mechanical variation of the meter throat diameter will be accepted as verification of calibration validity.
  - 2. Each pump shall be tested through the specified range of flow vs. head/capacity/efficiency with curves plotted at pump design speed. During each test, the pump shall be run at each head/capacity condition as specified for sufficient time to accurately determine discharge head, power input and efficiency. If any pump tested fails to meet any Specification requirement, it will be modified until it meets all Specification requirements.
  - 3. If any pump tested fails to meet the specified efficiency requirements and all reasonable attempts to correct the inefficiency condition are unsuccessful, it will be rejected. No shipment shall be permitted until the Engineer has approved the test results.
- 3 All test results shall be sealed and signed by a registered professional Engineer and shall be submitted for review and approval prior to shipment.

## 2.03 PUMP CONSTRUCTION

- A. Pumps shall be Vertiflo Series 1600, Model 1626 horizontal closed-coupled back pull-out Vortex recessed impeller pumps.
- B. All stainless steel construction.
- C. See Table 1 for additional specifications.

## 2.04 MOTORS

- A. General
  - 1. Pump shall be closed-coupled to a horizontal foot-mounted JP shaft motor.
  - 2. All motors shall be built in accordance with latest NEMA, IEEE, ANSI and AFBMA standards, where applicable.
  - 3. Motors and drives shall be compatible.

## 2.05 CONTROL PANEL AND CONTROL SYSTEM

- A. General
  - 1. The transfer pump control panel shall be the standard system of the MANUFACTURER as modified for this application and as specified herein.
  - 2. Electrical power to be furnished to the control panel shall be 480V, three phase indicated on the Drawings.
  - 3. The control panel shall be a NEMA 4X enclosure installed at the leachate storage tank transfer pump station, as shown on the Drawings.
  - 4. The controller shall respond to the remote start/stop station to transfer leachate from storage tank to truck.
- B. Operation Requirement

The leachate storage tank transfer pump control panel shall contain all control components and operate as follows:

- 1. Pump control shall be selected by an Auto/On/Off switch located on the control panel. Provide a three position switch to manually select or automatically alternate the position of the lead and lag pumps after each pumping cycle.

2. A high level float-type switch mounted on each storage tank shall activate a high level alarm fault indicator and common alarm horn and light at the control panel.

## 2.06 FLOAT SWITCHES

A. Provide high level float switches for the storage tank. Float switches shall be of the suspended type with polypropylene or PVC body. Units shall have an integral electrical cable, type SJTO-W/A with two #18 AWG stranded conductors. Float switches shall be pilot duty, normally open or normally closed as required for the application. Float switches shall be Roto-Float type S or equal. The mounting hardware, including but not limited to the guide rail, mounting brackets, and level-switch rack, shall be supplied by the pumping equipment supplier/manufacturer.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Installation shall be in strict accordance with the Manufacturer's instructions and recommendations in the locations shown on the Drawing. Installations shall include furnishing the required oil and grease for initial operation, in accordance with the Manufacturer's recommendations. Anchor bolts shall be set in accordance with the Manufacturer's recommendations.

### 3.02 SHOP PAINTING

- A. Before exposure to weather and prior to shop painting, all surfaces shall be thoroughly cleaned, dry and free from all mill/scale, rust, grease, dirt and other foreign matter.
- B. All pumps, motors and drives shall be shop primed, with a primer compatible with field painting as specified herein.
- C. Gears, bearing surfaces and other similar surfaces obviously not to be painted shall be given a heavy shop coat of grease or other suitable rust-resisting coating. This coating shall be maintained as necessary to prevent corrosion during periods of storage and erection and shall be satisfactory to the Engineer up to the time of the final acceptance test.

### 3.03 FIELD PAINTING

- A. The primer and paint used in the shop shall be products of the same Manufacturer as the field paint to assure compatibility.
- B. All nameplates shall be properly protected during painting.

### 3.04 INSPECTION AND TESTING

#### A. General:

1. The Engineer shall have the right to inspect and test all materials or equipment to be furnished under these Specifications prior to their shipment from the point of manufacture.
2. The Engineer shall be notified in writing prior to initial shipment in ample time to make arrangements for inspection by the Engineer.
3. The Engineer or his representative shall furnish all facilities, including labor, and shall be allowed proper time for inspection and testing of material and equipment.
4. Materials and equipment shall be tested or inspected as required by the Engineer, and the cost of such work shall be included in the cost of the equipment. The Contractor shall anticipate that delays may be caused because of the necessity of inspection, testing and accepting materials and equipment before their use is approved.
5. Furnish for one (1) day the services of a factory representative who has complete knowledge of proper operation and maintenance, to inspect the final installation and supervise a test run of the equipment. These services may be combined with hands-on training provided under paragraph 1.06.
6. Field tests shall not be conducted until the entire installation is complete and ready for testing.

#### B. Pumps:

1. After all pumps are completely installed and working under the direction of the Manufacturer, conduct in the presence of the Engineer tests necessary to indicate that pump operation conforms to these Specifications. Field tests shall include all pumps under this section. Supply all water, labor, equipment, and incidentals required to complete the field tests.
2. If the pump performance does not meet these Specifications, corrective measures shall be taken or pumps shall be removed and replaced with pumps which satisfy the conditions specified. A 24-hour operating period of the pumps will be required before acceptance.

#### C. Motors:

1. The Contractor shall megger each motor winding before energizing the motor and, if insulation resistance is found to be low, shall notify the Engineer and shall not energize the motor.

2. The Contractor shall check all motors for correct clearances and alignment and for correct lubrication in accordance with Manufacturer's instructions. The Contractor shall check direction of rotation of all motors and reverse connections if necessary.

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TABLE 11311-1  
PUMPING UNIT DESIGN REQUIREMENTS

<u>Item/Design Conditions</u>	Leachate Transfer
Maximum Motor to be Supplied (hp)	20
Rated Pumping Temperature (°F)	80
Minimum Discharge Size (inches)	2
Minimum Suction Size (inches)	2
Primary Capacity (gpm)	150
TDH at Primary Capacity (feet)	83
Minimum Size Solids (inches) Passing	3
Vertiflo Model 1626, Size 2x2x10	

END OF SECTION 11311

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**SECTION 11323**  
**SUBMERSIBLE LEACHATE PUMPS**

**PART 1: GENERAL**

**1.01 SCOPE OF WORK**

- A. The installation shall, at a minimum, consist of submersible pumps and controls, 1 ½-inch discharge piping and all appurtenances as shown on the Drawings and as specified herein. One complete system will be supplied for each of the five landfill sumps. The pumps will pump landfill leachate into a flexible pipe and solid HDPE pipe force main.
  
- B. A 230 volt, 3 phase, 4-wire power supply will be furnished under the Electrical Drawings and/or Division 16, and connected to the Control Panel per Riser Diagram on Electrical Drawings. The control panel shall be furnished under this Section and installed under the Electrical Drawings and/or Division 16. The power and control for the pumps and transducer shall be furnished under this Section and installed under the Electrical Drawings and/or Division 16. All other necessary power and control wiring, equipment and appurtenances are to be furnished and installed under this Section.

**1.02 SUBMITTALS**

- A. The following shall be submitted:
  - 1. Shop and erection drawings showing all important details and dimensions.
  - 2. Descriptive literature, bulletins and/or catalogs of the equipment.
  - 3. Data on the characteristics and performance of each pump. Data shall include guaranteed performance curves, which show that they meet the specified requirement for total head, capacity, efficiency, NPSHR, submergence and horsepower. Curves shall be submitted on 8-2 inch x 11-inch sheets, at an adequate scale. Curves shall be plotted from zero flow at Shut Off Head to Pump Capacity at minimum specified total head.
  - 4. Approximate total weight of the equipment including the weight of the single largest item.
  - 5. Drawings showing the layout of the Control Panels. The layout shall show front and side elevations and shall indicate every device mounted on the inner door and subpanel with complete identification.

6. Complete wiring diagrams and schematics of all power and control systems showing wiring requirements between all system components, motors, sensors, control panels and related systems.
  7. A complete list of the equipment ordered.
  8. Manufacturer/supplier warranty.
  9. Complete motor data.
- B. In the event that it is impossible to conform with certain details of the Specifications due to different manufacturing techniques, the submittal shall describe completely all nonconforming aspects.
- C. Operating and Maintenance Data.
1. Operating and Maintenance Manuals shall be furnished. The manuals shall be prepared specifically for equipment furnished and installed and shall include all required cross sections, drawings, equipment lists, description, etc., that are required to instruct operating and maintenance personnel unfamiliar with such equipment.
  2. A factory representative, who has complete knowledge of proper operation and maintenance, shall be provided for one day to instruct representatives of the Owner on proper operation and maintenance.

### 1.03 QUALITY ASSURANCE

- A. To assure unity of responsibility, the pump, control panel and other auxiliary equipment and materials specified in this Section shall be furnished and coordinated by the pump manufacturer. The Contractor and manufacturer shall assume responsibility for the satisfactory installation and operation of the entire pumping system including pumps and control as specified.
- B. The submersible pump and other equipment covered by these Specifications are intended to be standard design and proven ability. The pump shall be designed for side slope riser leachate removal. The pump shall be equipped with level sensing system and wheels for ease of installation. The pump shall be a SlopeGlider Sloperiser Pump in a HDPE shroud housing manufactured by Integrated Environmental Tech, Inc. (IET) 800-270-6052. The furnished pump shall be designed, constructed and installed in accordance with the Hydraulic Institute Standards and shall operate satisfactorily when installed.
- C. The control system shall have an established record of successful performance for similar service.

- D. All equipment furnished under this Specification shall be new and unused, shall be the standard product of manufacturer having a successful record of manufacturing and serving the equipment and systems specified herein for a minimum of three years.
- E. The pump furnished under this Specification shall be new and unused, shall be the standard product of a manufacturer having a successful record of manufacturing and serving the equipment and system specified herein for a minimum of five years.

#### 1.04 DELIVERY, STORAGE AND HANDLING

- A. All equipment and parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is complete and the units and equipment are ready for operation.
- B. Factory assembled parts and components shall not be dismantled for shipment unless permission is received in writing from the ENGINEER.
- C. Finished surfaces of all exposed pump openings shall be protected by wooden blanks, strongly built and securely bolted thereto.
- D. After hydrostatic or other tests, all entrapped water shall be drained prior to shipment and proper care shall be taken to protect parts from the entrance of water during shipment, storage and handling.
- E. Each box or package shall be properly marked to show its net weight in addition to its contents.

#### 1.05 WARRANTY REQUIREMENTS

- A. All equipment supplied under this section shall be warranted for a period of one year by the CONTRACTOR and the equipment manufacturers. Warranty period shall commence on the date of final acceptance.
- B. The equipment shall be warranted to be free from defects in workmanship, design and materials. If any part of the equipment should fail due to manufacturing defects during the warranty period, it shall be replaced and the unit(s) shall be restored to service at no additional cost to the OWNER.
- D. The manufacturer's warranty period shall run concurrently with the CONTRACTOR'S warranty period. No exception to this provision shall be allowed.

1.06            ADDITIONAL WARRANTY REQUIREMENTS

A. Pumps

1.        The warranty shall cover defects in workmanship and materials and cover all costs for both labor and parts required to inspect and repair pumping equipment delivered to the pump manufacturer's authorized repair and maintenance service center. During the one year warranty period, the CONTRACTOR shall be responsible for removing and reinstalling the pumping equipment. The CONTRACTOR shall be responsible for all transportation and shipping costs for delivery of the pumping equipment to the service center and return to the site.

B. Control Panels

1.        Control panel shall be provided with a warranty covering 100 percent of the cost for repair or replacement of defective equipment concurrent with warranty period for Pump, to include all equipment associated with pumps, level transmitters, and/or flow meters.
2.        Warranty service to inspect defects in the control panel shall be performed at the pump station site by the CONTRACTOR and/or the pump manufacturer/supplier. Repair and/or replacement of defective components to the greatest extent possible shall be performed at the project site; however, no major component, whose removal will render the equipment or pump station inoperable, shall be removed without providing a spare or "loaner" replacement component for use and operation of the pump station while the original component is being repaired.

C. AGREEMENT TO WARRANTY CONDITIONS

1.        The pump manufacturer/supplier shall, as a part of the required shop drawing and product submittal data, deliver a certified statement of agreement and materials to be supplied and installed under this Section.
2.        Operating and Maintenance Data, a type-written or printed copy of the product warranties, including the above provisions and applicable dates of commencement and expiration of each warranty period, shall be supplied with other required product data.

1.12            PATENTS AND LICENSES

- A. The pumping equipment manufacturer shall be responsible for all patents or licenses that exist for the equipment provided.
- B. The manufacturer shall assume all costs of patent fees or licenses for the equipment or process and shall safe-guard and save harmless the OWNER from all damages, judgements, claims and expenses arising from licenses fees, or claimed infringement of any letters, patent or patent rights, or fees for the use of any

equipment of process, structural feature or arrangement of any of the component parts of the installation and the price bid shall be deemed to include payment of all such patent fees, licenses or other costs pertaining thereto.

PART 2: PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. The manufacturer shall submit a data sheet specific to each pump supplied, the data sheet shall have the name of the manufacturer, the rated capacity, total head, speed and all other pertinent data.

2.02 PUMPING SYSTEM - GENERAL

A. The pump shall be a 230 volt, 3 phase, totally submersible multi-stage, centrifugal pump with submersible close coupled motors designed to pump landfill leachate such as IET Slopeglider Model 40S10-3. The pump shall be connected to the discharge connection when lowered into place utilizing a stainless steel camlock adapter type quick connect and shall be easily removed for inspection or service.

B. The pumps for shall be able to pump 30 gallons per minute against a 60-foot total dynamic head. The pump curve shall satisfy the following:

- Primary operating point – 30 gpm at 60-ft. Total Head
- Curve shall be equivalent to pump curve as specified by IET 40S10-3 (1 HP)
- The pump control shall be set as follows:

Inches above level sensor

- |            |      |
|------------|------|
| • Pump On  | 10.0 |
| • Pump Off | 4.0  |

C. Provide 2 pumps as shown on the Drawings:

2.03 PUMP CONSTRUCTION

A. The materials of pump construction shall be as follows:

Impeller	304 Stainless Steel
Impeller Seal Ring	Teflon
Motor Adaptor	304 Stainless Steel
Inlet Screen	304 Stainless Steel
Pump Shaft	304 Stainless Steel
Coupling	304 Stainless Steel
Check Valve Housing	304 Stainless Steel
Check Valve	304 Stainless Steel
Check Valve Seat	304 Stainless Steel
Diffuser Chamber	304 Stainless Steel

Fasteners	304 Stainless Steel
Bearing	Teflon
Suspension Cables	304 Stainless Steel

## 2.04 SUBMERSIBLE MOTORS

- A. Motors shall be high thrust, corrosion-resistant motors as manufactured by Franklin Electric or equal having the following characteristics:
1. Thrust Rating: 300 pounds downthrust continuous, 100 pounds upthrust intermittent.
  2. Temperature and Time Rating: Continuous duty with .25 ft/sec. flow past motor. Temperature 30°C ambient.
  3. Enclosure: Hermetically sealed windings, corrosion-resistant materials. Filtered check valve plugged to prevent interchange with pumped fluids. Stainless steel, splined shaft.
  4. Bearings: Radial sleeve bearings, kingsbury type thrust bearings.
  5. Lubrication: Water based.
  6. Overload Protection: Standard three phase magnetic starter with special ambient compensated quick trip overload relays in all three legs required for positive motor protection.
  7. Motors shall be designed for operation in severe environments.
  8. Motors shall be constructed of 316 stainless steel.
- B. Motors shall comply with all requirements of the Electrical Drawings and/or Division 16 of these specifications.
- C. The pumps shall be supplied with 230 volt, 3 phase, 60 Hertz power and sensor conductors. Pump motor cables shall be sized to meet the NEC (LATEST EDITION) requirements.
- E. Pump electrical cables shall be provided of sufficient length so that the cables will be continuous between the pump and the control panel with no splices being allowed. The motor cable shall be CPE/XLP jacketed to meet industry standards for landfill, oil, gas, and sewerage resistance.

## 2.05 PUMP CONTROL SYSTEM

### A. General

1. One pump controller IET Simplex Pump Controller shall be provided for each submersible leachate pump station location in a NEMA 4X STAINLESS STEEL Enclosure. The controller shall respond to the liquid level sensor to automatically start and stop pumps to remove leachate in response to changes in liquid levels.
2. The pump controller shall be the standard system of the manufacturer as modified for this application.
3. Provide four 20 amp, one pole circuit breaker for miscellaneous 120 volt equipment (i.e. heat trace, flow transmitter, etc.) with CPT sized for all equipment.
4. Provide control panel with lightning and surge protection.
5. Electric power to be furnished to the leachate control panel shall be 480 volts, three phase and shall be furnished by the distribution panel as shown on the drawings and specified in the Electrical Drawings and/or Division 16.

### B. Operation Requirements

1. The control panels shall consist of a main circuit breaker, a motor circuit protector and magnetic starter for the pump motor, pump controller and circuit breakers as required.

A high level alarm and pump shut-off shall be accomplished by the control system with all control components mounted in one common enclosure. Control switches shall provide means to operate the pump manually or automatically.

2. The manufacturer shall provide a complete and fully functional control system to manually or automatically operate the pumps as specified herein and in other applicable sections of these specifications. All manufacturer's recommended safety devices shall be furnished to protect operators. All control devices, unless specified otherwise, shall be mounted in the control panel.
3. Normally open dry contacts shall be provided on high alarm, failure alarm and normal run indicators for remote use.

4. A pressure sensor type liquid level control system shall continuously monitor liquid level and control operation of the pump. The pressure transmitter level sensor shall have a range of 0-138" using a 0-5 PSI transducer with a 4 to 20 MA output signal and shall be accurate to within 0.1-inch. Transducer shall have internal surge suppressor and include an panel mounted external surge suppressor. A digital display located in the control panel shall continuously indicate the liquid level. Controller settings shall be adjustable without use of punch or scroll buttons and shall be accomplished using a setting selection knob and use of screwdriver adjustable potentiometer adjustments.

### C. Control Panel Construction

1. The electrical control equipment shall be mounted within a NEMA 4X dead front enclosure constructed of not less than 14 gauge 316 stainless steel. Access to operator controls shall be using a stainless handle with a three point latching mechanism with locking hasp and stainless sealing clamps. The enclosure shall be equipped with an inner door capable of opening a full 180 degree and shall incorporate a removable back panel on which control components shall be mounted. Back panel shall be secured to enclosure with collar studs.

#### 2. Components

- a. All motor branch circuit breakers, motor starters and control relays shall be of highest industrial quality, securely fastened to the removable back panels with screws and lock washers. Back panels shall be tapped to accept all mounting screws. Self-tapping screws shall not be used to mount any component.
- b. A thermal-magnetic air circuit breaker, Type FH as manufactured by Square D Company, or equal, shall be furnished for each pump motor and main breaker. All circuit breakers shall be sealed by the manufacturer after calibration to prevent tampering. Each circuit breaker shall be adequately sized to meet the pump motor and station operating conditions. A motor circuit protector (MCP) shall be molded case with adjustable magnetic trip only "MagGard" as manufactured by Square D Company or equal. The main breaker shall be equipped with a lockable disconnect operating mechanism with 3" handle to turn off power when the interior door is opened, Square D Type L model or equal.
- c. A mechanical disconnect mechanism shall be installed on each circuit breaker to provide a means of disconnecting power to the pump motors.
- d. An open frame, across-the-line, NEMA rates, magnetic motor starter, Class 8536 as manufactured by Square D Company, or equal, shall be furnished for each pump motor. All motor starters shall be equipped to provide under-voltage release and overload protection on all three phases. Motor starter contacts shall be easily replaceable without removing the motor starter from its mounted position. Overload reset push-buttons shall be located on the exterior of the control compartment door.

- e. Phase monitors shall be Diversified Electronics Model No. SUA-440-ASA with relay socket for 480 volt three phase or equal.
- f. A duplex GFCI utility receptacle providing 120 volts, 60 hertz, 20 AMP single phase current shall be side mounted in a weatherproof box and cover.
- g. The control diagrams and overload tables shall be laminated to the inside of the exterior door.
- h. Print storage pockets shall be provided on the side of each panel. Its size shall be of sufficient size to hold all of the prints required to service the equipment. Reduced drawings shall be provided to be stored in these pockets.
- i. Digital Level Control: The level meter shall be mounted on the inner door. Meter shall have a digital readout to 1/10<sup>th</sup> of an inch to control pump OFF and PUMP ON settings and a HIGH LEVEL ON and HIGH LEVEL OFF. Level control shall be accurate to within 0.1-inch.
- j. Corrosion Inhibitor Emitter: Inclusion of an industrial corrosion inhibitor emitter that shall protect internal components of control panel from corrosion for up to one year. One spare emitter shall be provided for each control panel.
- k. Digital Flow Meter Readout: A digital transmitter with LCD displays, showing both meter flow rate and totalized flow volume, shall be mounted on the inner door as well. The flow totalizer shall be a bi-directional, eight digit (minimum) digital display, resettable, with full capability for front panel programming for ease of field changes and troubleshooting. The system shall operate from a 24vdc power supply, and shall be equal to the flow metering system as manufactured by GUNNCO FT430 Model. The meter shall include a non-volatile memory to retain programming choices, presets and count values when power is discontinued, with menu-driven programming. The sensor and transmitter system shall maintain full function in temperatures between 0<sup>o</sup> and 50<sup>o</sup> C.
- l. A failure alarm with horn and beacon light shall be provided. Silence and reset pushbuttons shall also be furnished. High Level beacon shall be day light visible LED with RED lens.
- m. All exterior mounted equipment shall be NEMA 4X rated. Indicators and HOA switches shall be 30mm with push to test LED bulbs.
- n. Lightning and surge protection shall be as manufactured by Advanced Protection Technologies or equal.

- o. A light fixture (circuit breaker protected) and On/Off switch shall be provided to illuminate the interior of the panel during maintenance.
- p. All control panel wiring shall be numbered at both ends with type written heat shrinkable wire markers.
- q. Wiring shall be stranded copper, minimum size #14 AWG (except for shielded instrumentation cable), with 600 volt, 90 degree C, flame retardant, type MTW thermoplastic insulation.
- r. All foreign voltage control wiring shall be yellow.
- s. The control panel shall be provided with nameplates identifying each component, selector switches, pilot lights, etc. Nameplates shall be permanently affixed using an epoxy process (inner door nameplates shall be fastened with stainless steel screws). Nameplates shall be laminated plastic, engraved white letters with a black background.
- t. All control panels shall be provided with a master nameplate located on the exterior door.
- u. Provide a nameplate which reads as follows: "CAUTION - THIS PANEL CONTAINS A VOLTAGE FROM AN EXTERNAL SOURCE." Letters shall be black on a high visibility yellow background.
- v. The completed control panel assembly shall be U.L. 508/690A certified and manufactured in an ISO9001:2015 certified facility.

### 3. Operating Controls and Instruments

- a. All operating controls and instruments shall be securely mounted on the control compartment door. All controls and instruments shall be clearly labeled to indicate function.
- b. Pump mode selector switches shall be Hand-Off-Auto type to permit over-ride of automatic level control and manual actuation of shutdown of pump motor. Operation of pumps in manual mode shall bypass all safety shutdown circuits except pump motor overload shutdown. Switches shall be NEMA 4X (800 H) as manufactured by Allen Bradley, Square D, or equal, providing three switch positions, each of which shall be clearly labeled according to function.
- c. Indicator lamps shall be LED full voltage type and mounted in NEMA 4X (800 H) modules, as manufactured by Allen Bradley or equal. Lamp modules shall be equipped to operate at 120 volt input. Lamps shall be easily replaceable from the front of the control compartment door without removing lamp module from its mounted position.

- d. A six-digit non-reset elapsed time meter shall be connected to each motor starter to indicate the total running time of each pump in "hours" and "tenth of hours". The elapsed time meters shall be Series T50 as manufactured by ENM Company or equal.
- e. The following spare parts shall be furnished:
  - (1) 1 indicator light.
  - (2) 2 control relays of each type furnished.
  - (3) 5 fuses of each type furnished.
  - (4) 1 set of thermal overloads for each type furnished.
  - (5) 1 selector switch of each type furnished.

## 2.06 SHOP PAINTING

- A. Before exposure to weather and prior to shop painting, all surfaces shall be thoroughly cleaned, dry and free from all mill-scale, rust, grease, dirt and other foreign matter.
- B. Gears, bearing surfaces and other similar surfaces obviously not to be painted shall be given a heavy shop coat of grease or other suitable rust resistant coating. This coating shall be maintained as necessary to prevent corrosion during periods of storage and erection and shall be satisfactory to the Engineer up to the time of the final acceptance test.

## 2.07 DISCHARGE PIPING AND APPURTENANCES

- A.
  - 1. The pump discharge piping inside of the leachate pump riser pipe shall be HDPE SDR 11 compatible with landfill leachate. The diameter shall be 1.5-inch inside diameter and have a working pressure of at least 150 psi at 104°F. The HDPE pipe shall be rated for full vacuum.
  - 2. The HDPE discharge piping shall include a stainless steel camlock fittings All quick couplers and fittings shall be stainless steel. Pump and pipe shall be equipped with stainless steel cam lock fittings with locking pins to allow quick release of the pump from the discharge pipe assembly.
  - 3. The pump discharge piping inside of the leachate pump riser pipe shall be 1 ½” HDPE SDR 11 compatible with landfill leachate. The diameter shall be 1.5-inch inside diameter and have a working pressure of at least 150 psi at 104°F.

## PART 3: EXECUTION

### 3.01 INSTALLATION

- A. Installation shall be in strict accordance with the manufacturer's instructions and recommendations in the locations shown on the Drawings. Installation shall include furnishing oil and grease for initial operation, if required, in accordance with the manufacturer's recommendations.
- B. The Contractor shall submit a certificate from the equipment manufacturer stating that the equipment is ready for operation and that the operating personnel have been suitably instructed in the operation, lubrication and care of each unit.

### 3.02 INSPECTION AND TESTING

#### A. General

- 1. The Engineer shall have the right to inspect, test or witness tests of all materials or equipment to be furnished under these Specifications, prior to their shipment from the point of assembly.
- 2. The Engineer shall be notified in writing prior to the initial shipment or testing, in ample time so that arrangements can be made for inspection by the Engineer.
- 3. The pump manufacturer shall perform the following test on each pump prior to shipment from the factory.
  - a. Megger motor and pump for insulation breaks or moisture.
  - b. Prior to submergence, the pump shall be run and checked for correction rotation.
  - c. Pump shall be run for a minimum of thirty minutes in a submerged condition.
  - d. The pump shall be removed from test tank, meggered immediately for moisture and upper and lower seal unit shall be checked for water intrusion.
  - e. A written certification test report regarding the above test shall be supplied with each pump at the time of shipment.
- 4. The services of a factory representative shall be furnished for a minimum of one-half day per pumping station and shall have complete knowledge of proper operation and maintenance to inspect the final installation and supervise the test run of equipment.
- 5. Field tests shall not be conducted until such time that the entire installation is complete and ready for testing.

6. In the event that the equipment does not meet the Final Acceptance Test, the Contractor shall, at his own expense, make such changes and adjustments in the equipment which he deems necessary and shall conduct further tests until full satisfaction is indicated by the Engineer and written certification is received thereof.
7. The Contractor shall supply an adequate volume of water to each pump station location to meet the requirements of this section.

## B. PUMP

1. After each pump has been completely installed and working under the direction of the manufacturer, conduct in the presence of the Engineer such tests as are necessary to indicate that the pump conforms to the Specifications. Supply all electrical power, water, labor, equipment and incidentals required to complete the field tests.
  2. The Final Acceptance Test shall demonstrate that all items of these Specifications have been met by the equipment as installed and shall include, but not be limited to, the following tests:
    - a. That all units have been properly installed and are in correct alignment.
    - b. That the units operate without overheating or overloading any parts without objectionable vibration.
    - c. That there are no mechanical defects in any of the parts.
    - d. That the pumps can deliver the specified pressure and quantity of landfill leachate.
    - e. That the level sensor and pump control system operates as specified.
    - f. That the flow meter sensor and transmitter system operates and records as specified.
- 3.3 If the pump performance does not meet the Specifications, corrective measures shall be taken or the pump shall be removed and replaced with a pump which satisfies the conditions specified. A 24-hour operating period of the pump will be required before acceptance.

## 3.4 MOTORS

1. The Contractor shall check all motors for correct clearance and alignment in accordance with manufacturer's instructions. The Contractor shall check direction of rotation of all motors and reverse connections if necessary.

END OF SECTION 11323

END OF DIVISION 11

**DIVISION 12 FURNISHING (NOT USED)**

**DIVISION 13 SPECIAL CONSTRUCTION**

**SECTION 13320**

**PROCESS INSTRUMENTATION**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Work included: Provide flow metering and process instrumentation devices, as indicated on the Drawings, as specified herein, and as necessary and needed to provide a complete and proper flow metering ready for operation.
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to the Special Provisions, General Specifications, and Sections in Division 1 of these Specifications.

**1.2 QUALITY ASSURANCE**

- A. It is the intention of these specifications that the complete flow metering and process instrumentation system shall be furnished by a single equipment supplier who shall assume complete responsibility for the satisfactory operation of the systems.
  - 1. These specifications cover the intended function of the equipment, but do not necessarily cover all details necessary for a complete, operable and functional system. The supplier shall supply all devices and appurtenances necessary to provide a complete, operable and satisfactory system as indicated or specified.
- B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- D. Contractor:
  - 1. Contractor is solely responsible for the work of the system suppliers and solely responsible to the Owner for having supplied to the Owner the complete instrumentation and control system.
  - 2. To provide personal superintendence and direction to the work, maintaining and supplying complete supervision over and coordination between all subcontractors employed by him.
  - 3. To be responsible for defining the limits of his subcontractor's work.
    - a. Setting of instruments (including alarms, etc. as provided under other Sections) and final connections to all instruments shall be made by the system supplier.

E. Technical services: Provide a service engineer as required to assist with installation, startup and calibration.

1. Installation:

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01340.

B. Product data: Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

- 1. Materials list of items proposed to be provided under this Section.
- 2. Manufacturer's specifications, other data and shop drawings needed to prove compliance with the specified requirements.

1.4 WARRANTY

A. Comply with pertinent provisions of Section 01740.

PART 2 - PRODUCTS

2.6 ULTRASONIC LEVEL TRANSMITTERS

A. Provide level transmitters at the following locations:

<b>Location</b>	<b>Qty</b>	<b>Head Range</b>	<b>Units</b>
Leachate Tank	1	0 - 22	FT

B. General:

- 1. Level transmitter to consist of 2 basic units: 1) an electronic unit, and 2) an ultrasonic sensing element with connecting cable capable of measuring level material, space, differential level, flow, or volume.
- 2. System accuracy of 0.25% of measurement or .08", whichever is greater.
- 3. Beam angle shall be 6 degrees or less.
- 4. Cable length shall be as required by installation, not to exceed 1,200'.
- 5. System shall have no moving parts.

C. Sensing Element

- 1. Transducer shall be accidental submergence proof with built-in temperature compensation.
- 2. Provide continuous scanning within the frequency range of 40 to 60 kHz to detect and operate at maximum signal amplitude.
- 3. Construct transducer and closure of kynar flex with hypalon face or kynar with Teflon facing as required.
- 4. Operating temperature shall be from -4°F to +149°F
- 5. Provide flange or bracket mounting assembly required for installation of transducer.

D. Interconnecting cable:

- 1. Provide three (3) copper conductors twisted with shield and drain wire.

- a. Cable to be of adequate length to reach from transducer to transmitter without splicing.
- E. Electronic transmitter unit:
1. Zero and span, the value of each totalizer volume increment, volume between samples and Hi-Low flow alarm set points shall be field programmable.
    2. Transmitter shall be field programmable to average the level measurements over a time interval from 1 to 99 seconds in order to smooth output oscillations caused by surface waves and ripples.
  - F. Transmitter enclosure shall be NEMA 4X/IP65 polycarbonate and mounted as shown on the Drawings or directed by the Engineer.
  - G. Operating temperature range shall be from -5°F to 122°F.
  - H. The transmitter flow signal output shall be 4-20 mA<sub>dc</sub> into a 750 ohm maximum load.
  - I. Provide unit with 5 multi-purpose relays (SPDT).
  - J. Provide a four digit LCD level indicator.
    1. Scale in engineering units.
    2. Shall be visible without opening the enclosure.
    3. Provide transmitter with a 4" x 1.5" multi-field bracket LCD display.
    4. Provide two (2) universal programmer or calibrator. The programmer/calibrator shall be used to start-up the ultrasonic level transmitter.
  - K. Acceptable Products: Millitronics HydroRanger 200 with Echomax XPS-15 Transducer or equal of Endress and Hauser.

## PART 3 - EXECUTION

### 3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 LOCATION

- A. Locate all instrumentation, piping, wiring, etc. as indicated.
- B. Securely anchor all equipment to floors or walls.

### 3.3 INSTALLATION

- A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.
- B. Install the work of this Section in strict accordance with the original design and the manufacturer's recommended installation procedures as approved by the Engineer, anchoring all components firmly into position for long life under hard use.

### 3.4 FIELD CALIBRATION

- A. Calibrate all instrumentation in the presence of the Engineer with the range and accuracy specified herein.
- B. Provide written report detailing progress of system start-up.
  - 1. Include specific tabulations of devices on which start-up has been completed.

END OF SECTION

**DIVISION 14 CONVEYING SYSTEMS (NOT USED)**

**DIVISION 15 MECHANICAL (NOT USED)**

**DIVISION 16 (ELECTRICAL (NOT USED)**

**END OF DIVISION 12,13,14,15,AND 16**

**END OF PROJECT MANUAL**

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