



PROJECT MANUAL

for

SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION

**Shelby County
Columbiana, Alabama**

September 11, 2023

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**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
LEGAL ADVERTISEMENT**

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STATE OF ALABAMA

COUNTY OF SHELBY

LEGAL NOTICE

NOTICE TO CONTRACTORS

Sealed bids will be received for the Shelby County Landfill Gas Collection System Expansion Project at the Shelby County Manager's Office at 200 West College St. Room 123, Columbiana, AL 35051 until October 3, 2023 at 2:00 p.m. and at that time publicly opened.

The Project is generally described as follows: the construction of approximately 1 each of a 36" HDPE SDR-32.5 Condensate Pump Station, 1,700 LF of 14" HDPE SDR-17 Pipe, 1,500 LF of 10" HDPE SDR-17 Pipe, 1,200 LF of 6" HDPE SDR-17 Pipe, and other related appurtenances.

The estimated construction cost is \$400,000.00 to \$600,000.00.

The Owner requires the Project to be completed in **forty-five (45)** calendar days from date of Notice to Proceed.

Plans and proposals will be available at the Environmental Services Office at 1281 Highway 70 Columbiana, AL 35051 after 12:00 noon on September 11, 2023. To obtain electronic copies, send request to rlcroy@shelbyal.com.

Please contact rlcroy@shelbyal.com with any questions regarding this project.

September 10
September 17
September 24

End of Section 0102

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**ARTICLE 1
DEFINITIONS**

Whenever the following terms, or pronouns in place of them, are used in the Contract Documents, the intent and meaning shall be interpreted as follows:

ENGINEER OR ARCHITECT: The Engineer or Architect is the person or entity lawfully licensed to practice architecture in the State of Alabama, who is under contract with the Owner as the primary design professional for the Project and identified as the Engineer or Architect in the Construction Contract. The term “Engineer or Architect” means the Engineer or Architect or the Engineer or Architect’s authorized representative. If the employment of the Engineer or Architect is terminated, the Owner shall employ a new Engineer or Architect whose status under the Contract Documents shall be that of the former Engineer or Architect

CONTRACT: The Contract is the embodiment of the Contract Documents. The Contract represents the entire and integrated agreement between the Owner and Contractor and supersedes any prior written or oral negotiations, representations or agreements that are not incorporated into the Contract Documents. The Contract may be amended only by a Contract Change Order or a Modification to the Construction Contract. The contractual relationship which the Contract creates between the Owner and the Contractor extends to no other persons or entities.

DEFECTIVE WORK: The term “Defective Work” shall apply to: **(1)** any product, material, system, equipment, or service, or its installation or performance, which does not conform to the requirements of the Contract Documents, **(2)** in-progress or completed Work the workmanship of which does not conform to the quality specified or, if not specified, to the quality produced by skilled workers performing work of a similar nature on similar projects in the state, **(3)** substitutions and deviations not properly submitted and approved or otherwise authorized, **(4)** temporary supports, structures, or construction which will not produce the results required by the Contract Documents, and **(5)** materials or equipment rendered unsuitable for incorporation into the Work due to improper storage or protection.

DRAWINGS: The Drawings are the portions of the Contract Documents showing graphically the design, location, layout, and dimensions of the Work, in the form of plans, elevations, sections, details, schedules, and diagrams.

NOTICE TO PROCEED: A proceed order issued by the Owner or Director, as applicable, fixing the date on which the Contractor shall begin the prosecution of the Work, which is also the date on which the Contract Time shall begin.

OWNER: The Owner is the entity or entities identified as such in the Construction Contract and is referred to throughout the Contract Documents as if singular in number. The term “Owner” means the Owner or the Owner’s authorized representative. The term “Owner” as used herein shall be synonymous with the term “Awarding Authority” as defined and used in Title 39 - Public Works, Code of Alabama, 1975, as amended.

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GENERAL CONDITIONS**

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THE PROJECT: The Project is the total construction of which the Work required by these Contract Documents may be the entirety or only a part with other portions to be constructed by the Owner or separate contractors.

PROJECT MANUAL: The Project Manual is the volume usually assembled for the Work which may include the Advertisement for Bids, Instructions to Bidders, sample forms, General Conditions of the Contract, Supplementary Conditions, and Specifications of the Work.

SPECIFICATIONS: The Specifications are that portion of the Contract Documents which set forth in writing the standards of quality and performance of products, equipment, materials, systems, and services and workmanship required for acceptable performance of the Work.

SUBCONTRACTOR: A Subcontractor is a person or entity who is undertaking the performance of any part of the Work by virtue of a contract with the Contractor. The term "Subcontractor" means a Subcontractor or its authorized representatives.

THE WORK: The Work is the construction and services required by the Contract Documents and includes all labor, materials, supplies, equipment, and other items and services as are necessary to produce the required construction and to fulfill the Contractor's obligations under the Contract. The Work may constitute the entire Project or only a portion of it.

ARTICLE 2

INTENT and INTERPRETATION of the CONTRACT DOCUMENTS

INTENT

It is the intent of the Contract Documents that the Contractor shall properly execute and complete the Work described by the Contract Documents, and unless otherwise provided in the Contract, the Contractor shall provide all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work, in full accordance with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

COMPLEMENTARY DOCUMENTS

The Contract Documents are complementary. If work is required by one Contract Document, the Contractor shall perform the work as if it were required by all of the Contract Documents. However, the Contractor shall be required to perform work only to the extent that is consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

ORDER of PRECEDENCE

Should any discrepancy arise between the various elements of the Contract Documents, Precedence shall be given to them in the following order unless to do so would contravene the apparent Intent of the Contract Documents stated in preceding Paragraph Titled INTENT:

(1) The Construction Contract.

(2) Addenda, with those of later date having precedence over those of earlier date.

- (3) Supplementary Conditions (or other Conditions which modify the General Conditions of the Contract).
- (4) General Conditions of the Contract.
- (5) The Specifications.
- (6) Details appearing on the Drawings; large scale details shall take precedence over smaller scale details.
- (7) The Drawings; large scale drawings shall take precedence over smaller scale drawings.

INTERPRETATION

(1) The Contract Documents shall be interpreted collectively, each part complementing the others and consistent with the Intent of the Contract Documents stated in preceding Paragraph Titled INTENT. Unless an item shown or described in the Contract Documents is specifically identified to be furnished or installed by the Owner or others or is identified as “Not In Contract” (“N.I.C.”), the Contractor’s obligation relative to that item shall be interpreted to include furnishing, assembling, installing, finishing, and/or connecting the item at the Contractor’s expense to produce a product or system that is complete, appropriately tested, and in operative condition ready for use or subsequent construction or operation of the Owner or separate contractors. The omission of words or phrases for brevity of the Contract Documents, the inadvertent omission of words or phrases, or obvious typographical or written errors shall not defeat such interpretation as long as it is reasonably inferable from the Contract Documents as a whole.

(2) Words or phrases used in the Contract Documents which have well-known technical or construction industry meanings are to be interpreted consistent with such recognized meanings unless otherwise indicated.

(3) Except as noted otherwise, references to standard specifications or publications of associations, bureaus, or organizations shall mean the latest edition of the referenced standard specification or publication as of the date of the Advertisement for Bids.

(4) In the case of inconsistency between Drawings and Specifications or within either document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect’s interpretation.

(5) Generally, portions of the Contract Documents written in longhand take precedence over typed portions, and typed portions take precedence over printed portions.

(6) Any doubt as to the meaning of the Contract Documents or any obscurity as to the wording of them, shall be promptly submitted in writing to the Engineer or Architect for written interpretation, explanation, or clarification.

SEVERABILITY

The partial or complete invalidity of any one or more provision of this Contract shall not affect the validity or continuing force and effect of any other provision.

**ARTICLE 3
CONTRACTOR'S REPRESENTATIONS**

By executing the Construction Contract the Contractor represents to the Owner:

A. The Contractor has visited the site of the Work to become familiar with local conditions under which the Work is to be performed and to evaluate reasonably observable conditions as compared with requirements of the Contract Documents.

B. The Contractor shall use its best skill and attention to perform the Work in an expeditious manner consistent with the Contract Documents.

C. The Contractor is an independent contractor and in performance of the Contract remains and shall act as an independent contractor having no authority to represent or obligate the Owner in any manner unless authorized by the Owner in writing.

**ARTICLE 4
SUPERVISION, SUPERINTENDENT, and EMPLOYEES**

A. SUPERVISION and CONSTRUCTION METHODS

(1) The term "Construction Methods" means the construction means, methods, techniques, sequences, and procedures utilized by the Contractor in performing the Work. The Contractor is solely responsible for supervising and coordinating the performance of the Work, including the selection of Construction Methods, unless the Contract Documents give other specific instructions concerning these matters.

(2) The Contractor is solely and completely responsible for job site safety, including the protection of persons and property.

(3) The Contractor shall be responsible to the Owner for acts and omissions of not only the Contractor and its agents and employees, but all persons and entities, and their agents and employees, who are performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.

(4) The Contractor shall be responsible to inspect the in-progress and completed Work to verify its compliance with the Contract Documents and to insure that any element or portion of the Work upon which subsequent Work is to be applied or performed is in proper condition to receive the subsequent Work.

B.SUPERINTENDENT

(1) The Contractor shall employ and maintain a competent level of supervision for the performance of the Work at the Project site, including a superintendent who shall: **(a)** have full authority to receive instructions from the Engineer or Architect or Owner and to act on those instructions and **(b)** be present at the Project site at all times during which Work is being performed.

(2) Before beginning performance of the Work, the Contractor shall notify the Engineer or Architect in writing of the name and qualifications of its proposed superintendent so that the Owner may review the individual's qualifications. If, for reasonable cause, the Owner refuses to approve the individual, or withdraws its approval after once giving it, the Contractor shall name a different superintendent for the Owner's review and approval. Any disapproved superintendent will not perform in that capacity thereafter at the Project site.

C. EMPLOYEES

The Contractor shall permit only fit and skilled persons to perform the Work. The Contractor shall enforce safety procedures, strict discipline, and good order among persons performing the Work. The Contractor will remove from its employment on the Project any person who deliberately or persistently produces non-conforming Work or who fails or refuses to conform to reasonable rules of personal conduct contained in the Contract Documents or implemented by the Owner and delivered to the Contractor in writing during the course of the Work.

ARTICLE 5

REVIEW of CONTRACT DOCUMENTS and FIELD CONDITIONS by CONTRACTOR

A. In order to facilitate assembly and installation of the Work in accordance with the Contract Documents, before starting each portion of the Work, the Contractor shall examine and compare the relevant Contract Documents, and compare them to relevant field measurements made by the Contractor and any conditions at the site affecting that portion of the Work.

B. If the Contractor discovers any errors, omissions, or inconsistencies in the Contract Documents, the Contractor shall promptly report them to the Engineer or Architect as a written request for information that includes a detailed statement identifying the specific Drawings or Specifications that are in need of clarification and the error, omission, or inconsistency discovered in them.

(1) The Contractor shall not be expected to act as a licensed design professional and ascertain whether the Contract Documents comply with applicable laws, statutes, ordinances, building codes, and rules and regulations, but the Contractor shall be obligated to promptly notify the Engineer or Architect of any such noncompliance discovered by or made known to the Contractor. If the Contractor performs Work without fulfilling this notification obligation, the Contractor shall pay the resulting costs and damages that would have been avoided by such notification.

(2) The Contractor shall not be liable to the Owner for errors, omissions, or inconsistencies that may exist in the Contract Documents, or between the Contract Documents and conditions at the site, unless the Contractor knowingly fails to report a discovered error, omission, or inconsistency to the Architect, in which case the Contractor shall pay the resulting costs and damages that would have been avoided by such notification.

C. If the Contractor considers the Architect's response to a request for information to constitute a change to the Contract Documents involving additional costs and/or time, the Contractor shall follow the procedures prescribed herein.

D. If, with undue frequency, the Contractor requests information that is obtainable through reasonable examination and comparison of the Contract Documents, site conditions, and previous correspondence, interpretations, or clarifications, the Contractor shall be liable to the Owner for reasonable charges from the Engineer or Architect for the additional services required to review, research, and respond to such requests for information.

ARTICLE 6 SUBMITTALS

A. Where required by the Contract Documents, the Contractor shall submit shop drawings, product data, samples and other information (hereinafter referred to as Submittals) to the Engineer or Architect for the purpose of demonstrating the way by which the Contractor proposes to conform to the requirements of the Contract Documents. Submittals which are not required by the Contract Documents may be returned by the Engineer or Architect without action.

B. The Contractor shall be responsible to the Owner for the accuracy of its Submittals and the conformity of its submitted information to the requirements of the Contract Documents. Each Submittal shall bear the Contractor's approval, evidencing that the Contractor has reviewed and found the information to be in compliance with the requirements of the Contract Documents. Submittals which are not marked as reviewed and approved by the Contractor may be returned by the Engineer or Architect without action.

C. The Contractor shall prepare and deliver its submittals to the Engineer or Architect sufficiently in advance of construction requirements and in a sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. In coordinating the Submittal process with its construction schedule, the Contractor shall allow sufficient time to permit adequate review by the Architect.

D. By approving a Submittal the Contractor represents not only that the element of Work presented in the Submittal complies with the requirements of the Contract Documents, but also that the Contractor has:

- (1)** found the layout and/or dimensions in the Submittal to be comparable with those in the Contract Documents and other relevant Submittals and has made field measurements as necessary to verify their accuracy, and
- (2)** determined that products, materials, systems, equipment and/or procedures presented in the Submittal are compatible with those presented, or being presented, in other relevant Submittals and with the Contractor's intended Construction Methods.

E. The Contractor shall not fabricate or perform any portion of the Work for which the Contract Documents require Submittals until the respective Submittals have been approved by the Architect.

F. In the case of a resubmission, the Contractor shall direct specific attention to all revisions in a Submittal. The Architect's approval of a resubmission shall not apply to any revisions that were not brought to the Architect's attention.

G. If the Contract Documents specify that a Submittal is to be prepared and sealed by a registered engineer or architect or licensed engineer retained by the Contractor, all drawings, calculations, specifications, and certifications of the Submittal shall bear the Alabama seal of registration and signature of the registered/licensed design professional who prepared them or under whose supervision they were prepared. The Owner and the Engineer or Architect shall be entitled to rely upon the adequacy, accuracy and completeness of such a Submittal, provided that all performance and design criteria that such Submittal must satisfy are sufficiently specified in the Contract Documents. The Engineer or Architect will review, approve or take other appropriate action on such a Submittal only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance or design criteria specified in the Contract Documents.

H. DEVIATIONS

(1) The Engineer or Architect is authorized by the Owner to approve “minor” deviations from the requirements of the Contract Documents. “Minor” deviations are defined as those which are in the interest of the Owner, do not materially alter the quality or performance of the finished Work, and do not affect the cost or time of performance of the Work. Deviations which are not “minor” may be authorized only by the Owner through the Change Order procedures.

(2) Any deviation from the requirements of the Contract Documents contained in a Submittal shall be clearly identified as a “Deviation from Contract Requirements” (or by similar language) within the Submittal and, in a letter transmitting the Submittal to the Architect, the Contractor shall direct the Architect’s attention to, and request specific approval of, the deviation. Otherwise, the Architect’s approval of a Submittal does not constitute approval of deviations from the requirements of the Contract Documents contained in the Submittal.

(3) The Contractor shall bear all costs and expenses of any changes to the Work, changes to work performed by the Owner or separate contractors, or additional services by the Engineer or Architect required to accommodate an approved deviation unless the Contractor has specifically informed the Engineer or Architect in writing of the required changes and a Change Order has been issued authorizing the deviation and accounting for such resulting changes and costs.

I. ARCHITECT’S REVIEW and APPROVAL

(1) The Engineer or Architect will review the Contractor’s Submittals for conformance with requirements of, and the design concept expressed in, the Contract Documents and will approve or take other appropriate action upon them. This review is not intended to verify the accuracy and completeness of details such as dimensions and quantities nor to substantiate installation instructions or performance of equipment or systems, all of which remain the responsibility of the Contractor. However, the Engineer or Architect shall advise the Contractor of any errors or omissions which the Engineer or Architect may detect during this review. The Architect’s approval of a specific item shall not indicate approval of an assembly of which the item is a component.

(2) The Engineer or Architect will review and respond to all Submittals with reasonable promptness to avoid delay in the Work or in the activities of the Owner, Contractor or separate

contractors, while allowing sufficient time to permit adequate review.

(3) No corrections or changes to Submittals indicated by the Engineer or Architect will be considered as authorizations to perform Extra Work. If the Contractor considers such correction or change of a Submittal to require Work which differs from the requirements of the Contract Documents, the Contractor shall promptly notify the Engineer or Architect in writing in accordance with Article, Claims for Extra Cost or Extra Work.

J. CONFORMANCE with SUBMITTALS

The Work shall be constructed in accordance with approved Submittals.

ARTICLE 7 DOCUMENTS and SAMPLES at the SITE

A. “AS ISSUED” SET

The Contractor shall maintain at the Project site, in good order, at least one copy of all Addenda, Change Orders, supplemental drawings, written directives and clarifications, and approved Submittals intact as issued, and an updated construction schedule.

B. “POSTED” SET

The Contractor shall maintain at the Project site, in good order, at least one set of the Drawings and Project Manual into which the Contractor has “posted”(incorporated) all Addenda, Change Orders, supplemental drawings, clarifications, and other information pertinent to the proper performance of the Work. The Contractor shall assure that all sets of the Drawings and Project Manuals being used by the Contractor, Subcontractors, and suppliers are “posted” with the current information to insure that updated Contract Documents are used for performance of the Work.

C. RECORD SET

One set of the Drawings and Project Manual described in Paragraph B shall be the Contractor’s record set in which the Contractor shall record all field changes, corrections, selections, final locations, and other information as will be duplicated on the “As-built” documents. The Contractor shall record such “as-built” information in its record set as it becomes available through progress of the Work. The Contractor’s performance of this requirement shall be subject to confirmation by the Engineer or Architect at any time as a prerequisite to approval of Progress Payments.

D. The documents and samples required by this Article to be maintained at the Project site shall be readily available to the Architect, Owner, and their representatives.

ARTICLE 8 “AS-BUILT” DOCUMENTS

A. Unless otherwise provided in the Contract Documents, the Contractor shall an electronic set of “As-built” documents, as described herein, to the Engineer or Architect for submission to the Owner upon completion of the Work. Each set of “As-built” documents shall consist of a copy of the Drawings and Project Manual, in like-new condition, into which the Contractor has neatly

incorporated all Addenda, Change Orders, supplemental drawings, clarifications, field changes, corrections, selections, actual locations of underground utilities, and other information as required herein or specified elsewhere in the Contract Documents.

B. The Contractor shall use the following methods for incorporating information into the “As-built” documents:

1. Drawings

(a) To the greatest extent practicable, information shall be carefully drawn and lettered, in ink, on the Drawings in the form of sketches, details, plans, notes, and dimensions as required to provide a fully dimensioned record of the Work. When required for clarity, sketches, details, or partial plans shall be drawn on supplemental sheets and bound into the Drawings and referenced on the drawing being revised.

(b) Where a revised drawing has been furnished by the Architect, the drawing of latest date shall be bound into the Drawings in the place of the superseded drawing.

(c) Where a supplemental drawing has been furnished by the Architect, the supplemental drawing shall be bound into the Drawings in an appropriate location and referred to by note added to the drawing being supplemented.

(d) Where the Engineer or Architect has furnished details, partial plans, or lengthy notes of which it would be impractical for the Contractor to redraw or letter on a drawing, such information may be affixed to the appropriate drawing with transparent tape if space is available on the drawing.

(e) Any entry of information made in the Drawings that is the result of an Addendum or Change Order, shall identify the Addendum or Change Order from which it originated.

2. Project Manual

(a) A copy of all Addenda and Change Orders, excluding drawings thereof, shall be bound in the front of the Project Manual.

(b) Where a document, form, or entire specification section is revised, the latest issue shall be bound into the Project Manual in the place of the superseded issue.

(c) Where information within a specification section is revised, the deleted or revised information shall be drawn through in ink and an adjacent note added identifying the Addendum or Change Order containing the revised information.

C. Within ten days after the Date of Substantial Completion of the Work, or the last completed portion of the Work, the Contractor shall submit the “As-built” documents to the Engineer or Architect for approval. If the Engineer or Architect requires that any corrections be made, the documents will be returned in a reasonable time for correction and resubmission.

**ARTICLE 9
PROGRESS SCHEDULE**

A. The Contractor shall within fifteen days after the date of commencement stated in the Notice to Proceed, or such other time as may be provided in the Contract Documents, prepare and submit to the Engineer or Architect for review and approval a practicable construction schedule informing the Engineer or Architect and Owner of the order in which the Contractor plans to carry on the Work within the Contract Time. The Engineer or Architect’s review and approval of the Contractor’s construction schedule shall be only for compliance with the specified format,

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Contract Time, and suitability for monitoring progress of the Work and shall not be construed as a representation that the Engineer or Architect has analyzed the schedule to form opinions of sequences or durations of time represented in the schedule.

B. At the end of each month the Contractor shall enter the actual percentage of completion on the construction schedule submit two copies to the Architect, and attach one copy to each copy of the monthly Application for Payment. The construction schedule shall be revised to reflect any agreed extensions of the Contract Time or as required by conditions of the Work.

C. The Contractor's construction schedule shall be used by the Contractor, Architect, and Owner to determine the adequacy of the Contractor's progress. The Contractor shall be responsible for maintaining progress in accordance with the currently approved construction schedule and shall increase the number of shifts, and/or overtime operations, days of work, and/or the amount of construction plant and equipment as may be necessary to do so. If the Contractor's progress falls materially behind the currently approved construction schedule and, in the opinion of the Engineer or Architect or Owner, the Contractor is not taking sufficient steps to regain schedule, the Engineer or Architect may, with the Owner's concurrence, issue a Contractor a Notice to Cure. In such a Notice to Cure the Engineer or Architect may require the Contractor to submit such supplementary or revised construction schedules as may be deemed necessary to demonstrate the manner in which schedule will be regained.

**ARTICLE 10
EQUIPMENT, MATERIALS, and SUBSTITUTIONS**

A. Every part of the Work shall be executed in a workmanlike manner in accordance with the Contract Documents and approved Submittals. All materials used in the Work shall be furnished in sufficient quantities to facilitate the proper and expeditious execution of the Work and shall be new except such materials as may be expressly provided or allowed in the Contract Documents to be otherwise.

B. Whenever a product, material, system, item of equipment, or service is identified in the Contract Documents by reference to a trade name, manufacturer's name, model number, etc.(hereinafter referred to as "source"), and only one or two sources are listed, or three or more sources are listed and followed by "or approved equal" or similar wording, it is intended to establish a required standard of performance, design, and quality, and the Contractor may submit, for the Architect's approval, products, materials, systems, equipment, or services of other sources which the Contractor can prove to the Architect's satisfaction are equal to, or exceed, the standard of performance, design and quality specified, unless the provisions of Paragraph D below apply. Such proposed substitutions are not to be purchased or installed without the Architect's written approval of the substitution.

C. If the Contract Documents identify three or more sources for a product, material, system, item of equipment or service to be used and the list of sources is not followed by "or approved equal" or similar wording, the Contractor may make substitution only after evaluation by the Engineer or Architect and execution of an appropriate Contract Change Order.

D. If the Contract Documents identify only one source and expressly provide that it is an approved sole source for the product, material, system, item of equipment, or service, the

Contractor must furnish the identified sole source.

ARTICLE 11

SAFETY and PROTECTION of PERSONS and PROPERTY

A. The Contractor shall be solely and completely responsible for conditions at the Project site, including safety of all persons (including employees) and property. The Contractor shall create, maintain, and supervise conditions and programs to facilitate and promote safe execution of the Work, and shall supervise the Work with the attention and skill required to assure its safe performance. Safety provisions shall conform to OSHA requirements and all other federal, state, county, and local laws, ordinances, codes, and regulations. Where any of these are in conflict, the more stringent requirement shall be followed. Nothing contained in this Contract shall be construed to mean that the Owner has employed the Engineer or Architect nor has the Engineer or Architect employed its consultants to administer, supervise, inspect, or take action regarding safety programs or conditions at the Project site.

B. The Contractor shall employ Construction Methods, safety precautions, and protective measures that will reasonably prevent damage, injury or loss to:

(1) workers and other persons on the Project site and in adjacent and other areas that may be affected by the Contractor's operations;

(2) the Work and materials and equipment to be incorporated into the Work and stored by the Contractor on or off the Project site; and

(3) other property on, or adjacent to, the Project site, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and other improvements not designated in the Contract Documents to be removed, relocated, or replaced.

C. The Contractor shall be responsible for the prompt remedy of damage and loss to property, including the filing of appropriate insurance claims, caused in whole or in part by the fault or negligence of the Contractor, a Subcontractor, or anyone for whose acts they may be liable.

D. The Contractor shall comply with and give notices required by applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety and protection of persons or property, including without limitation notices to adjoining property owners of excavation or other construction activities that potentially could cause damage or injury to adjoining property or persons thereon.

E. The Contractor shall erect and maintain barriers, danger signs, and any other reasonable safeguards and warnings against hazards as may be required for safety and protection during performance of the Contract and shall notify owners and users of adjacent sites and utilities of conditions that may exist or arise which may jeopardize their safety.

F. If use or storage of explosives or other hazardous materials or equipment or unusual Construction Methods are necessary for execution of the Work, the Contractor shall exercise commensurate care and employ supervisors and workers properly qualified to perform such activity.

G. The Contractor shall furnish a qualified safety representative at the Project site whose duties

shall include the prevention of accidents. The safety representative shall be the Contractor's superintendent, unless the Contractor assigns this duty to another responsible member of its on-site staff and notifies the Owner and Engineer or Architect in writing of such assignment.

H. The Contractor shall not permit a load to be applied, or forces introduced, to any part of the construction or site that may cause damage to the construction or site or endanger safety of the construction, site, or persons on or near the site.

I. The Contractor shall have the right to act as it deems appropriate in emergency situations jeopardizing life or property. The Contractor shall be entitled to equitable adjustment of the Contract Sum or Contract Time for its efforts expended for the sole benefit of the Owner in an Emergency.

J. The duty of the Engineer or Architect and the Engineer or Architect's consultants to visit the Project site to conduct periodic inspections of the Work or for other purposes shall not give rise to a duty to review or approve the adequacy of the Contractor's safety program, safety supervisor, or any safety measure which Contractor takes or fails to take in, on, or near the Project site.

ARTICLE 12 HAZARDOUS MATERIALS

A. A Hazardous Material is any substance or material identified as hazardous under any federal, state, or local law or regulation, or any other substance or material which may be considered hazardous or otherwise subject to statutory or regulatory requirements governing its handling, disposal, and/or clean-up. Existing Hazardous Materials are Hazardous Materials discovered at the Project site and not introduced to the Project site by the Contractor, a Subcontractor, or anyone for whose acts they may be liable.

B. If, during the performance of the Work, the Contractor encounters a suspected Existing Hazardous Material, the Contractor shall immediately stop work in the affected area, take measures appropriate to the condition to keep people away from the suspected Existing Hazardous Material, and immediately notify the Engineer or Architect and Owner of the condition in writing.

C. The Owner shall obtain the services of an independent laboratory or professional consultant, appropriately licensed and qualified, to determine whether the suspected material is a Hazardous Material requiring abatement and, if so, to certify after its abatement that it has been rendered harmless. Any abatement of Existing Hazardous Materials will be the responsibility of the Owner. The Owner will advise the Contractor in writing of the persons or entities who will determine the nature of the suspected material and those who will, if necessary, perform the abatement. The Owner will not employ persons or entities to perform these services to whom the Contractor or Engineer or Architect has reasonable objection.

D. After certification by the Owner's independent laboratory or professional consultant that the material is harmless or has been rendered harmless, work in the affected area shall resume upon written agreement between the Owner and Contractor. If the material is found to be an Existing Hazardous Material and the Contractor incurs additional cost or delay due to the

presence and abatement of the material, the Contract Sum and/or Contract Time shall be appropriately adjusted by a Contract Change Order.

E. The Owner shall not be responsible for Hazardous Materials introduced to the Project site by the Contractor, a Subcontractor, or anyone for whose acts they may be liable unless such Hazardous Materials were required by the Contract Documents.

ARTICLE 13 INSPECTION of the WORK

A. GENERAL

(1) The Contractor is solely responsible for the Work's compliance with the Contract Documents; therefore, the Contractor shall be responsible to inspect in-progress and completed Work, and shall verify its compliance with the Contract Documents and that any element or portion of the Work upon which subsequent Work is to be applied or performed is in proper condition to receive the subsequent Work. Neither the presence nor absence of inspections by the Architect, Owner, any public authority having jurisdiction, or their representatives shall relieve the Contractor of responsibility to inspect the Work, for responsibility for Construction Methods and safety precautions and programs in connection with the Work, or from any other requirement of the Contract Documents.

(2) The Architect, Owner, Director, any public authority having jurisdiction, and their representatives shall have access at all times to the Work for inspection whenever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and inspection. All materials, workmanship, processes of manufacture, and methods of construction, if not otherwise stipulated in the Contract Documents, shall be subject to inspection, examination, and test at any and all places where such manufacture and/or construction are being carried on. Such inspections will not unreasonably interfere with the Contractor's operations.

(3) The Engineer or Architect will inspect the Work as a representative of the Owner.

(4) The Contractor may be charged by the Owner for any extra cost of inspection incurred by the Owner or Engineer or Architect on account of material and workmanship not being ready at the time of inspection set by the Contractor.

B. TYPES of INSPECTIONS

(1) SCHEDULED INSPECTIONS and CONFERENCES. Scheduled Inspections and Conferences are conducted by the Architect, scheduled by the Engineer or Architect in coordination with the Contractor and are attended by the Contractor and applicable Subcontractors, suppliers and manufacturers. Scheduled Inspections and Conferences of this Contract include:

(a) Pre-construction Conference.

(b) Pre-roofing Conference (not applicable if the Contract involves no roofing work)

(c) Above Ceiling Inspection(s): An above ceiling inspection of all spaces in the building is required before the ceiling material is installed. Above ceiling inspections are to be conducted at a time when all above ceiling systems are complete and tested to the greatest extent reasonable pending installation of the ceiling material. System identifications and markings are to be complete. All fire-rated construction including fire-stopping of penetrations

and specified identification above the ceiling shall be complete. Ceiling framing and suspension systems shall be complete with lights, grilles and diffusers, access panels, fire protection drops for sprinkler heads, etc., installed in their final locations to the greatest extent reasonable. Above ceiling framing to support ceiling mounted equipment shall be complete. The above ceiling construction shall be complete to the extent that after the inspection the ceiling material can be installed without disturbance.

(d) Final Inspection(s): A Final Inspection shall establish that the Work, or a designated portion of the Work, is Substantially Complete and is accepted by the Architect, and Owner, as being ready for the Owner's occupancy or use. At the conclusion of this inspection, items requiring correction or completion ("punch list" items) shall be minimal and require only a short period of time for accomplishment to establish Final Acceptance of the Work. If the Work, or designated portion of the Work, includes the installation, or modification, of a fire alarm system or other life safety systems essential to occupancy, such systems shall have been tested and appropriately certified before the Final Inspection.

(e) Year-end Inspection(s): An inspection of the Work, or each separately completed portion thereof, is required near the end of the Contractor's one year warranty period(s). The subsequent delivery of the Architect's report of this inspection will serve as confirmation that the Contractor was notified of Defective Work found within the warranty period.

(2) PERIODIC INSPECTIONS. Periodic Inspections are conducted throughout the course of the Work by the Architect, the Architect's consultants, and their representatives, jointly or independently, with or without advance notice to the Contractor.

(3) SPECIFIED INSPECTIONS and TESTS. Specified Inspections and Tests include inspections, tests, demonstrations, and approvals that are either specified in the Contract Documents or required by laws, ordinances, rules, regulations, or orders of public authorities having jurisdiction, to be performed by the Contractor, one of its Subcontractors, or an independent testing laboratory or firm (whether paid for by the Contractor or Owner).

C. INSPECTIONS by the ARCHITECT

(1) The Engineer or Architect is not authorized to revoke, alter, relax, or waive any requirements of the Contract Documents (other than "minor" deviations and "minor" changes) to finally approve or accept any portion of the Work or to issue instructions contrary to the Contract Documents without concurrence of the Owner.

(2) The Engineer or Architect will visit the site at intervals appropriate to the stage of the Contractor's operations and as otherwise necessary to:

(a) become generally familiar with the in-progress and completed Work and the quality of the Work,

(b) determine whether the Work is progressing in general accordance with the Contractor's schedule and is likely to be completed within the Contract Time,

(c) visually compare readily accessible elements of the Work to the requirements of the Contract Documents to determine, in general, if the Contractor's performance of the Work indicates that the Work will conform to the requirements of the Contract Documents when completed,

(d) endeavor to guard the Owner against Defective Work,

(e) review and address with the Contractor any problems in implementing the requirements of the Contract Documents that the Contractor may have encountered, and

(f) keep the Owner fully informed about the Project.

(3) The Engineer or Architect shall have the authority to reject Defective Work or require its correction, but shall not be required to make exhaustive investigations or examinations of the in-progress or completed portions of the Work to expose the presence of Defective Work. However, it shall be an obligation of the Engineer or Architect to report in writing, to the Owner, and Contractor any Defective Work recognized by the Architect.

(4) The Engineer or Architect shall have the authority to require the Contractor to stop work only when, in the Engineer or Architect's reasonable opinion, such stoppage is necessary to avoid Defective Work. The Engineer or Architect shall not be liable to the Contractor or Owner for the consequences of any decisions made by the Engineer or Architect in good faith either to exercise or not to exercise this authority.

(5) "Inspections by the Engineer or Architect" includes appropriate inspections by the Engineer or Architect's consultants as dictated by their respective disciplines of design and the stage of the Contractor's operations.

D. UNCOVERING WORK

(1) If the Contractor covers a portion of the Work before it is examined by the Engineer or Architect and this is contrary to the Architect's request or specific requirements in the Contract Documents, then, upon written request of the Architect, the Work must be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

(2) Without a prior request or specific requirement that Work be examined by the Architect before it is covered, the Engineer or Architect may request that Work be uncovered for examination and the Contractor shall uncover it. If the Work is in accordance with the Contract Documents, the Contract Sum shall be equitably adjusted to compensate the Contractor for the costs of uncovering and replacement. If the Work is not in accordance with the Contract Documents, uncovering, correction, and replacement shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

E. SPECIFIED INSPECTIONS and TESTS

(1) The Contractor shall schedule and coordinate Specified Inspections and Tests to be made at appropriate times so as not to delay the progress of the Work or the work of the Owner or separate contractors. If the Contract Documents require that a Specified Inspection or Test be witnessed or attended by the Engineer or Architect or Architect's consultant, the Contractor shall give the Engineer or Architect timely notice of the time and place of the Specified Inspection or Test. If a Specified Inspection or Test reveals that Work is not in compliance with requirements of the Contract Documents, the Contractor shall bear the costs of correction, repeating the Specified Inspection or Test, and any related costs incurred by the Owner, including reasonable charges, if any, by the Engineer or Architect for additional services. Through appropriate Contract Change Order the Owner shall bear costs of tests, inspections or approvals which become Contract requirements subsequent to the receipt of bids.

(2) If the Architect, Owner, or public authority having jurisdiction determines that inspections, tests, demonstrations, or approvals in addition to Specified Inspections and Tests are required, the Contractor shall, upon written instruction from the Architect, arrange for their performance by an entity acceptable to the Owner, giving timely notice to the engineer or architect of the time and place of their performance. Related costs shall be borne by the Owner unless the procedures reveal that Work is not in compliance with requirements of the Contract Documents, in which case the Contractor shall bear the costs of correction, repeating the procedures, and any related costs incurred by the Owner, including reasonable charges, if any, by the Engineer or Architect for additional services.

(3) Unless otherwise required by the Contract Documents, required certificates of Specified Inspections and Tests shall be secured by the Contractor and promptly delivered to the Architect.

(4) Failure of any materials to pass Specified Inspections and Tests will be sufficient cause for refusal to consider any further samples of the same brand or make of that material for use in the Work.

ARTICLE 14 CORRECTION of DEFECTIVE WORK

A. The Contractor shall, at the Contractor's expense, promptly correct Defective Work rejected by the Engineer or Architect or which otherwise becomes known to the Contractor, removing the rejected or nonconforming materials and construction from the project site.

B. Correction of Defective Work shall be performed in such a timely manner as will avoid delay of completion, use, or occupancy of the Work and the work of the Owner and separate contractors.

C. The Contractor shall bear all expenses related to the correction of Defective Work, including but not limited to: **(1)** additional testing and inspections, including repeating Specified Inspections and Tests, **(2)** reasonable services and expenses of the Architect, and **(3)** the expense of making good all work of the Contractor, Owner, or separate contractors destroyed or damaged by the correction of Defective Work.

ARTICLE 15 DEDUCTIONS for UNCORRECTED WORK

If the Owner deems it advisable and in the Owner's interest to accept Defective Work, the Owner may allow part or all of such Work to remain in place, provided an equitable deduction from the Contract Sum, acceptable to the Owner, is offered by the Contractor.

**ARTICLE 16
CHANGES in the WORK**

A. GENERAL

(1) The Owner may at any time direct the Contractor to make changes in the Work which are within the general scope of the Contract, including changes in the Drawings, Specifications, or other portions of the Contract Documents to add, delete, or otherwise revise portions of the Work. The Engineer or Architect is authorized by the Owner to direct “minor” changes in the Work by written order to the Contractor. “Minor” changes in the Work are defined as those which are in the interest of the Owner, do not materially alter the quality or performance of the finished Work, and do not affect the cost or time of performance of the Work. Changes in the Work which are not “minor” may be authorized only by the Owner.

(2) If the Owner directs a change in the Work, the change shall be incorporated into the Contract by a Contract Change Order prepared by the Engineer or Architect and signed by the Contractor, Owner, and other signatories to the Construction Contract, stating their agreement upon the change or changes in the Work and the adjustments, if any, in the Contract Sum and the Contract Time.

(3) Subject to compliance with Alabama’s Public Works Law, the Owner may, upon agreement by the Contractor, incorporate previously unawarded bid alternates into the Contract.

(4) In the event of a claim or dispute as to the appropriate adjustment to the Contract Sum or Contract Time due to a directive to make changes in the Work, the Work shall proceed as provided in this article subject to subsequent agreement of the parties or final resolution of the dispute.

(5) Consent of surety will be obtained for all Contract Change Orders involving an increase in the Contract Sum.

(6) Changes in the Work shall be performed under applicable provisions of the Contract Documents and the Contractor shall proceed promptly to perform changes in the Work, unless otherwise directed by the Owner through the Architect.

B. DETERMINATION of ADJUSTMENT of the CONTRACT SUM

The adjustment of the Contract Sum resulting from a change in the Work shall be determined by one of the following methods, or a combination thereof, as selected by the Owner:

(1) **Lump Sum.** By mutual agreement to a lump sum based on or negotiated from an itemized cost proposal from the Contractor. Additions to the Contract Sum shall include the Contractor’s direct costs plus a maximum 15% markup for overhead and profit. Where subcontract work is involved the total mark-up for the Contractor and a Subcontractor shall not exceed 25%. No allowance for overhead and profit shall be figured on a change which involves a net credit to the Owner. For the purposes of this method of determining an adjustment of the Contract Sum, “overhead” shall cover the Contractor’s indirect costs of the change, such as the cost of bonds,

superintendent and other job office personnel, watchman, job office, job office supplies and expenses, temporary facilities and utilities, and home office expenses.

(2) Unit Price. By application of Unit Prices included in the Contract or subsequently agreed to by the parties. However, if the character or quantity originally contemplated is materially changed so that application of such unit price to quantities of Work proposed will cause substantial inequity to either party, the applicable unit price shall be equitably adjusted.

(3) Force Account. By directing the Contractor to proceed with the change in the Work on a "force account" basis under which the Contractor shall be reimbursed for reasonable expenditures incurred by the Contractor and its Subcontractors in performing added Work and the Owner shall receive reasonable credit for any deleted Work. The Contractor shall keep and present, in such form as the Owner may prescribe, an itemized accounting of the cost of the change together with sufficient supporting data. Unless otherwise stated in the directive, the adjustment of the Contract Sum shall be limited to the following:

- (a)** costs of labor and supervision, including employee benefits, social security, retirement, unemployment and workers' compensation insurance required by law, agreement, or under Contractor's or Subcontractor's standard personnel policy;
- (b)** cost of materials, supplies and equipment, including cost of delivery, whether incorporated or consumed;
- (c)** rental cost of machinery and equipment, not to exceed prevailing local rates if contractor owned;
- (d)** costs of premiums for insurance required by the Contract Documents, permit fees, and sales, use or similar taxes related to the change in the Work;
- (e)** reasonable credits to the Owner for the value of deleted Work, without Contractor or Subcontractor mark-ups; and
- (f)** for additions to the Contract Sum, mark-up of the Contractor's direct costs for overhead and profit not exceeding 15% on Contractor's work nor exceeding 25% for Contractor and Subcontractor on a Subcontractor's work. No allowance for overhead and profit shall be figured on a change which involves a net credit to the Owner. For the purposes of this method of determining an adjustment of the Contract Sum, "overhead" shall cover the Contractor's indirect costs of the change, such as the cost of insurance other than mentioned above, bonds, superintendent and other job office personnel, watchman, use and rental of small tools, job office, job office supplies and expenses, temporary facilities and utilities, and home office expenses.

C. ADJUSTMENT of the CONTRACT TIME due to CHANGES

(1) Unless otherwise provided in the Contract Documents, the Contract Time shall be equitably adjusted for the performance of a change provided that the Contractor notifies the Engineer or Architect in writing that the change will increase the time required to complete the Work. Such notice shall be provided no later than:

- (a)** with the Contractor's cost proposal stating the number of days of extension requested, or
- (b)** within ten days after the Contractor receives a directive to proceed with a change in advance of submitting a cost proposal, in which case the notice should provide an estimated number of days of extension to be requested, which may be subject to adjustment in the cost proposal.

(2) The Contract Time shall be extended only to the extent that the change affects the time required to complete the entire Work of the Contract, taking into account the concurrent performance of the changed and unchanged Work.

D. CHANGE ORDER PROCEDURES

(1) If the Owner proposes to make a change in the Work, the Engineer or Architect will request that the Contractor provide a cost proposal for making the change to the Work. The request shall be in writing and shall adequately describe the proposed change using drawings, specifications, narrative, or a combination thereof. Within 21 days after receiving such a request, or such other time as may be stated in the request, the Contractor shall prepare and submit to the Engineer or Architect a written proposal, properly itemized and supported by sufficient substantiating data to facilitate evaluation. The stated time within which the Contractor must submit a proposal may be extended if, within that time, the Contractor makes a written request with reasonable justification thereof.

(2) The Contractor may voluntarily offer a change proposal which, in the Contractor's opinion, will reduce the cost of construction, maintenance, or operation or will improve the cost-effective performance of an element of the Project, in which case the Owner, through the Architect, will accept, reject, or respond otherwise within 21 days after receipt of the proposal, or such other reasonable time as the Contractor may state in the proposal.

(3) If the Contractor's proposal is acceptable to the Owner, or is negotiated to the mutual agreement of the Contractor and Owner, the Engineer or Architect will prepare an appropriate Contract Change Order for execution. Upon receipt of the fully executed Contract Change Order, the Contractor shall proceed with the change.

(4) In advance of delivery of a fully executed Contract Change Order, the Engineer or Architect may furnish to the Contractor a written authorization to proceed with an agreed change. However, such an authorization shall be effective only if it:

- (a)** identifies the Contractor's accepted or negotiated proposal for the change,
- (b)** states the agreed adjustments, if any, in Contract Sum and Contract Time,
- (c)** states that funds are available to pay for the change, and
- (d)** is signed by the Owner.

(5) If the Contractor and Owner cannot agree on the amount of the adjustment in the Contract Sum for a change, the Owner, through the Architect, may order the Contractor to proceed with the change on a Force Account basis, but the net cost to the Owner shall not exceed the amount quoted in the Contractor's proposal. Such order shall state that funds are available to pay for the change.

(6) If the Contractor does not promptly respond to a request for a proposal, or the Owner determines that the change is essential to the final product of the Work and that the change must be effected immediately to avoid delay of the Project, the Owner may:

- (a)** determine with the Contractor a sufficient maximum amount to be authorized for the change and
- (b)** direct the Contractor to proceed with the change on a Force Account basis pending

delivery of the Contractor's proposal, stating the maximum increase in the Contract Sum that is authorized for the change.

(7) Pending agreement of the parties or final resolution of any dispute of the total amount due the Contractor for a change in the Work, amounts not in dispute for such changes in the Work may be included in Applications for Payment accompanied by an interim Change Order indicating the parties' agreement with part of all of such costs or time extension. Once a dispute is resolved, it shall be implemented by preparation and execution of an appropriate Change Order.

ARTICLE 17

CLAIMS for EXTRA COST or EXTRA WORK

A. If the Contractor considers any instructions by the Architect, Owner, or public authority having jurisdiction to be contrary to the requirements of the Contract Documents and will involve extra work and/or cost under the Contract, the Contractor shall give the Engineer or Architect written notice thereof within ten days after receipt of such instructions, and in any event before proceeding to execute such work. As used in this Article, "instructions" shall include written or oral clarifications, directions, instructions, interpretations, or determinations.

B. The Contractor's notification pursuant to Paragraph 17A shall state: (1) the date, circumstances, and source of the instructions, (2) that the Contractor considers the instructions to constitute a change to the Contract Documents and why, and (3) an estimate of extra cost and time that may be involved to the extent an estimate may be reasonably made at that time.

C. Except for claims relating to an emergency endangering life or property, no claim for extra cost or extra work shall be considered in the absence of prior notice required under Paragraph 17.A.

D. Within ten days of receipt of a notice pursuant to Paragraph 17.A, the Engineer or Architect will respond in writing to the Contractor, stating one of the following:

(1) The cited instruction is rescinded.

(2) The cited instruction is a change in the Work and in which manner the Contractor is to proceed with procedures for Changes in the Work.

(3) The cited instruction is reconfirmed, is not considered by the Engineer or Architect to be a change in the Contract Documents, and the Contractor is to proceed with Work as instructed.

E. If the Architect's response to the Contractor is as in Paragraph 17.D(3), the Contractor shall proceed with the Work as instructed. If the Contractor continues to consider the instructions to constitute a change in the Contract Documents, the Contractor shall, within ten days after receiving the Architect's response, notify the Engineer or Architect in writing that the Contractor intends to submit a claim pursuant to, Resolution of Claims and Disputes

**ARTICLE 18
DIFFERING SITE CONDITIONS**

A. DEFINITION

“Differing Site Conditions” are:

(1) subsurface or otherwise concealed physical conditions at the Project site which differ materially from those indicated in the Contract Documents, or

(2) unknown physical conditions at the Project site which are of an unusual nature, differing materially from conditions ordinarily encountered and generally recognized as inherent in construction activities of the character required by the Contract Documents.

B. PROCEDURES

If Differing Site Conditions are encountered, then the party discovering the condition shall promptly notify the other party before the condition is disturbed and in no event later than ten days after discovering the condition. Upon such notice and verification that a Differing Site Condition exists, the Engineer or Architect will, with reasonable promptness and with the Owner's concurrence, make changes in the Drawings and/or Specifications as are deemed necessary to conform to the Differing Site Condition. Any increase or decrease in the Contract Sum or Contract Time that is warranted by the changes will be made as provided under Changes in the Work. If the Engineer or Architect determines a Differing Site Condition has not been encountered, the Engineer or Architect shall notify the Owner and Contractor in writing, stating the reason for that determination.

**ARTICLE 19
CLAIMS for DAMAGES**

If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time after the discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

**ARTICLE 20
DELAYS**

A. A delay beyond the Contractor's control at any time in the commencement or progress of Work by an act or omission of the Owner, Architect, or any separate contractor or by labor disputes, unusual delay in deliveries, unavoidable casualties, fires, abnormal floods, tornadoes, or other cataclysmic events of nature, may entitle the Contractor to an extension of the Contract Time provided, however, that the Contractor shall, within ten days after the delay first occurs, give written notice to the Engineer or Architect of the cause of the delay and its probable effect on progress of the entire Work.

B. Adverse weather conditions that are more severe than anticipated for the locality of the Work during any given month may entitle the Contractor to an extension of Contract Time provided, however;

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(1) the weather conditions had an adverse effect on construction scheduled to be performed during the period in which the adverse weather occurred, which in reasonable sequence would have an effect on completion of the entire Work,

(2) the Contractor shall, within twenty-one days after the end of the month in which the delay occurs, give the Engineer or Architect written notice of the delay that occurred during that month and its probable effect on progress of the Work, and

(3) within a reasonable time after giving notice of the delay, the Contractor provides the Engineer or Architect with sufficient data to document that the weather conditions experienced were unusually severe for the locality of the Work during the month in question. Unless otherwise provided in the Contract Documents, data documenting unusually severe weather conditions shall compare actual weather conditions to the average weather conditions for the month in question during the previous five years as recorded by the National Oceanic and Atmospheric Administration (NOAA) or similar record-keeping entities.

C. Adjustments, if any, of the Contract Time pursuant to this Article shall be incorporated into the Contract by a Contract Change Order prepared by the Engineer or Architect and signed by the Contractor, Owner, and other signatories to the Construction Contract or, at closeout of the Contract, by mutual written agreement between the Contractor and Owner. The adjustment of the Contract Time shall not exceed the extent to which the delay extends the time required to complete the entire Work of the Contract.

D. The Contractor shall not be entitled to any adjustment of the Contract Sum for damage due to delays claimed pursuant to this Article.

ARTICLE 21

OWNER'S RIGHT to CORRECT DEFECTIVE WORK

If the Contractor fails or refuses to correct Defective Work in a timely manner that will avoid delay of completion, use, or occupancy of the Work or work by the Owner or separate contractors, the Engineer or Architect may give the Contractor written Notice to Cure the Defective Work within a reasonable, stated time. If within ten days after receipt of the Notice to Cure the Contractor has not proceeded and satisfactorily continued to cure the Defective Work or provided the Engineer or Architect with written verification that satisfactory positive action is in process to cure the Defective Work, the Owner may, without prejudice to any other remedy available to the Owner, correct the Defective Work and deduct the actual cost of the correction from payment then or thereafter due to the Contractor.

ARTICLE 22

PROGRESS PAYMENTS

A. FREQUENCY of PROGRESS PAYMENTS

Unless otherwise provided in the Contract Documents, the Owner will make payments to the Contractor as the Work progresses based on monthly estimates prepared and certified by the Contractor, approved and certified by the Architect, and approved by the Owner and other authorities whose approval is required.

B. SCHEDULE of VALUES

Within ten days after receiving the Notice to Proceed the Contractor shall submit to the Engineer or Architect a Schedule of Values, which is a breakdown of the Contract Sum showing the value of the various parts of the Work for billing purposes. The Schedule of Values shall be prepared on 8 1/2" x 11" paper in a format that is acceptable to the Engineer or Architect and Owner and shall divide the Contract Sum into as many parts ("line items") as the Engineer or Architect and Owner determine necessary to permit evaluation and to show amounts attributable to Subcontractors. The Contractor's overhead and profit are to be proportionately distributed throughout the line items of the Schedule of Values. Upon approval, the Schedule of Values shall be used as a basis for monthly Applications for Payment, unless it is later found to be in error. Approved change order amounts shall be added to or incorporated into the Schedule of Values as mutually agreed by the Contractor and Architect.

C. APPLICATIONS for PAYMENTS

(1) Based on the approved Schedule of Values, each monthly Application for Payment shall show the Contractor's estimate of the value of Work performed in each line item as of the end of the billing period. The Contractor's cost of materials and equipment not yet incorporated into the Work, but delivered and suitably stored on the site, may be considered in monthly Applications for Payment.

(2) The Contractor's estimate of the value of Work performed and stored materials must represent such reasonableness as to warrant certification by the Engineer or Architect to the Owner in accordance with Article 23. Each monthly Application for Payment shall be supported by such data as will substantiate the Contractor's right to payment, including without limitation copies of requisitions from subcontractors and material suppliers.

(3) If no other date is stated in the Contract Documents or agreed upon by the parties, each monthly Application for Payment shall be submitted to the Engineer or Architect on or about the first day of each month and payment shall be issued to the Contractor within thirty days after an Application for Payment is Certified pursuant to Article 23 and delivered to the Owner.

D. MATERIALS STORED OFF SITE

Unless otherwise provided in the Contract Documents, the Contractor's cost of materials and equipment to be incorporated into the Work, which are stored off the site, may also be considered in monthly Applications for Payment under the following conditions:

(1) the contractor has received written approval from the Engineer or Architect and Owner to store the materials or equipment off site in advance of delivering the materials to the off site location;

(2) a Certificate of Insurance is furnished to the Engineer or Architect evidencing that a special insurance policy, or rider to an existing policy, has been obtained by the Contractor providing all-risk property insurance coverage, specifically naming the materials or equipment stored, and naming the Owner as an additionally insured party;

(3) the Engineer or Architect is provided with a detailed inventory of the stored materials

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or equipment and the materials or equipment are clearly marked in correlation to the inventory to facilitate inspection and verification of the presence of the materials or equipment by the Engineer or Architect or Owner;

(4) the materials or equipment are properly and safely stored in a bonded warehouse, or a facility otherwise approved in advance by the Engineer or Architect and Owner; and

(5) compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest.

E. RETAINAGE

(1) "Retainage" is defined as the money earned and, therefore, belonging to the Contractor (subject to final settlement of the Contract) which has been retained by the Owner conditioned on final completion and acceptance of all Work required by the Contract Documents. Retainage shall not be relied upon by Contractor (or Surety) to cover or off-set unearned monies attributable to uncompleted or uncorrected Work.

(2) In making progress payments the Owner shall retain five percent of the estimated value of Work performed and the value of the materials stored for the Work; but after retainage has been held upon fifty percent of the Contract Sum, no additional retainage will be withheld.

F. CONTRACTOR'S CERTIFICATION

(1) Each Application for Payment shall bear the Contractor's notarized certification that, to the best of the Contractor's knowledge, information, and belief, the Work covered by the Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payments were issued and payments received from the Owner and that the current payment shown in the Application for Payment has not yet been received.

(2) By making this certification the Contractor represents to the Engineer or Architect and Owner that, upon receipt of previous progress payments from the Owner, the Contractor has promptly paid each Subcontractor, in accordance with the terms of its agreement with the Subcontractor, the amount due the Subcontractor from the amount included in the progress payment on account of the Subcontractor's Work and stored materials. The Engineer or Architect and Owner may advise Subcontractors and suppliers regarding percentages of completion or amounts requested and/or approved in an Application for Payment on account of the Subcontractor's Work and stored materials.

G. PAYMENT ESTABLISHES OWNERSHIP

All material and Work covered by progress payments shall become the sole property of the Owner, but the Contractor shall not be relieved from the sole responsibility for the care and protection of material and Work upon which payments have been made and for the restoration of any damaged material and Work.

**ARTICLE 23
CERTIFICATION and APPROVALS for PAYMENT**

A. The Engineer or Architect's review, approval, and certification of Applications for Payment shall be based on the Architect's general knowledge of the Work obtained through site visits and the information provided by the Contractor with the Application. The Engineer or Architect shall not be required to perform exhaustive examinations, evaluations, or estimates of the cost of completed or uncompleted Work or stored materials to verify the accuracy of amounts requested by the Contractor, but the Engineer or Architect shall have the authority to adjust the Contractor's estimate when, in the Engineer or Architect's reasonable opinion, such estimates are overstated or understated.

B. Within seven days after receiving the Contractor's monthly Application for Payment, or such other time as may be stated in the Contract Documents, the Engineer or Architect will take one of the following actions:

(1) The Engineer or Architect will approve and certify the Application as submitted and forward it as a Certification for Payment for approval by the Owner (and other approving authorities, if any) and payment.

(2) If the Engineer or Architect takes exception to any amounts claimed by the Contractor and the Contractor and Engineer or Architect cannot agree on revised amounts, the Engineer or Architect will promptly issue a Certificate for Payment for the amount for which the Engineer or Architect is able to certify to the Owner, transmitting a copy of same to the Contractor.

(3) To the extent the Engineer or Architect determines may be necessary to protect the Owner from loss on account of any of the causes stated in Article 24, the Engineer or Architect may subtract from the Contractor's estimates and will issue a Certificate for Payment to the Owner, with a copy to the Contractor, for such amount as the Engineer or Architect determines is properly due and notify the Contractor and Owner in writing of the Architect's reasons for withholding payment in whole or in part.

C. Neither the Architect's issuance of a Certificate for Payment nor the Owner's resulting progress payment shall be a representation to the Contractor that the Work in progress or completed at that time is accepted or deemed to be in conformance with the Contract Documents.

D. The Engineer or Architect shall not be required to determine that the Contractor has promptly or fully paid Subcontractors and suppliers or how or for what purpose the Contractor has used monies paid under the Construction Contract. However, the Engineer or Architect may, upon request and if practical, inform any Subcontractor or supplier of the amount, or percentage of completion, approved or paid to the Contractor on account of the materials supplied or the Work performed by the Subcontractor.

**ARTICLE 24
PAYMENTS WITHHELD**

A. The Engineer or Architect may nullify or revise a previously issued Certificate for Payment prior to Owner's payment thereunder to the extent as may be necessary in the Architect's opinion to protect the Owner from loss on account of any of the following causes not discovered or fully accounted for at the time of the certification or approval of the Application for Payment:

- (1) Defective Work;
- (2) filed, or reasonable evidence indicating probable filing of, claims arising out of the Contract by other parties against the Contractor;
- (3) the Contractor's failure to pay for labor, materials or equipment or to pay Subcontractors;
- (4) reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- (5) damage suffered by the Owner or another contractor caused by the Contractor, a Subcontractor, or anyone for whose acts they may be liable;
- (6) reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance is insufficient to cover applicable liquidated damages; or
- (7) the Contractor's persistent failure to conform to the requirements of the Contract Documents.

B. If the Owner deems it necessary to withhold payment pursuant to preceding Paragraph A, the Owner will notify the Contractor and Engineer or Architect in writing of the amount to be withheld and the reason for same.

C. The Engineer or Architect shall not be required to withhold payment for completed or partially completed Work for which compliance with the Contract Documents remains to be determined by Specified Inspections or Final Inspections to be performed in their proper sequence. However, if Work for which payment has been approved, certified, or made under an Application for Payment is subsequently determined to be Defective Work, the Engineer or Architect shall determine an appropriate amount that will protect the Owner's interest against the Defective Work.

(1) If payment has not been made against the Application for Payment first including the Defective Work, the Engineer or Architect will notify the Owner and Contractor of the amount to be withheld from the payment until the Defective Work is brought into compliance with the Contract Documents.

(2) If payment has been made against the Application for Payment first including the Defective Work, the Engineer or Architect will withhold the appropriate amount from the next Application for Payment submitted after the determination of noncompliance, such amount to then be withheld until the Defective Work is brought into compliance with the Contract Documents.

D. The amount withheld will be paid with the next Application for Payment certified and approved after the condition for which the Owner has withheld payment is removed or otherwise resolved to the Owner's satisfaction.

E. The Owner shall have the right to withhold from payments due the Contractor under this Contract an amount equal to any amount which the Contractor owes the Owner under another contract.

ARTICLE 25 SUBSTANTIAL COMPLETION

A. Substantial Completion is the stage in the progress of the Work when the Work or designated portion of the Work is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use without disruption or interference by the Contractor in completing or correcting any remaining unfinished Work ("punch list" items). Substantial Completion of the Work, or a designated portion of the Work, is not achieved until so agreed in a Certificate of Substantial Completion signed by the Contractor, Architect, and Owner.

B. The Contractor shall notify the Engineer or Architect in writing when it considers the Work, or a portion of the Work which the Owner has agreed to accept separately, to be substantially complete and ready for a Final Inspection. In this notification the Contractor shall identify any items remaining to be completed or corrected for Final Acceptance prior to final payment.

C. Substantial Completion is achieved and a Final Inspection is appropriate only when a minimal number of punch list items exists and only a short period of time will be required to correct or complete them. Upon receipt of the Contractor's notice for a Final Inspection, the Engineer or Architect will advise the Contractor in writing of any conditions of the Work which the Engineer or Architect or Owner is aware do not constitute Substantial Completion, otherwise, a Final Inspection will proceed within a reasonable time after the Contractor's notice is given. However, the Engineer or Architect will not be required to prepare lengthy listings of punch list items; therefore, if the Final Inspection discloses that Substantial Completion has not been achieved, the Engineer or Architect may discontinue or suspend the inspection until the Contractor does achieve Substantial Completion.

D. CERTIFICATE of SUBSTANTIAL COMPLETION

(1) When the Work or a designated portion of the Work is substantially complete, the Engineer or Architect will prepare and sign a Certificate of Substantial Completion to be signed in order by the Contractor, and Owner.

(2) When signed by all parties, the Certificate of Substantial Completion shall establish the Date of Substantial Completion which is the date upon which:

(a) the Work, or designated portion of the Work, is accepted by the Architect, and Owner as being ready for occupancy,

(b) the Contractor's one-year and special warranties for the Work covered by the Certificate commence, unless stated otherwise in the Certificate (the one-year warranty for punch list items completed or corrected after the period allowed in the Certificate shall commence on the date of their Final Acceptance) , and

(c) Owner becomes responsible for building security, maintenance, utility services, and insurance, unless stated otherwise in the Certificate.

(3) The Certificate of Substantial Completion shall set the time within which the Contractor shall finish all items on the “punch list” accompanying the Certificate. The completion of punch list items shall be a condition precedent to Final Payment.

(4) If the Work or designated portion covered by a Certificate of Substantial Completion includes roofing work, the General Contractor’s (5-year) Roofing Guarantee, ABC Form C-9, must be executed by the Contractor and attached to the Certificate of Substantial Completion. If the Contract Documents specify any other roofing warranties to be provided by the roofing manufacturer, Subcontractor, or Contractor, they must also be attached to the Certificate of Substantial Completion.

E. The Date of Substantial Completion of the Work, as set in the Certificate of Substantial Completion of the Work or of the last completed portion of the Work, establishes the extent to which the Contractor is liable for Liquidated Damages, if any; however, should the Contractor fail to complete all punch list items within thirty days, or such other time as may be stated in the respective Certificate of Substantial Completion, the Contractor shall bear any expenses, including additional Architectural services and expenses, incurred by the Owner as a result of such failure to complete punch list items in a timely manner.

ARTICLE 26

OCCUPANCY or USE PRIOR to COMPLETION

A. UPON SUBSTANTIAL COMPLETION

Prior to completion of the entire Work, the Owner may occupy or begin utilizing any designated portion of the Work on the agreed Date of Substantial Completion of that portion of the Work.

B. BEFORE SUBSTANTIAL COMPLETION

(1) The Owner shall not occupy or utilize any portion of the Work before Substantial Completion of that portion has been achieved.

(2) The Owner may deliver furniture and equipment and store, or install it in place ready for occupancy and use, in any designated portion of the Work before it is substantially completed under the following conditions:

(a) The Owner’s storage or installation of furniture and equipment will not unreasonably disrupt or interfere with the Contractor’s completion of the designated portion of the Work.

(b) The Contractor consents to the Owner’s planned action (such consent shall not be unreasonably withheld).

(c) The Owner shall be responsible for insurance coverage of the Owner’s furniture and equipment, and the Contractor’s liability shall not be increased.

(d) The Contractor, Architect, and Owner will jointly inspect and record the condition of the Work in the area before the Owner delivers and stores or installs furniture and equipment; the Owner will equitably compensate the Contractor for making any repairs to the Work that may subsequently be required due to the Owner’s delivery and storage or installation of furniture and equipment.

(e) The Owner’s delivery and storage or installation of furniture and equipment shall not be deemed an acceptance of any Work not completed in accordance with the requirements of the Contract Documents.

**ARTICLE 27
FINAL PAYMENT**

A. PREREQUISITES to FINAL PAYMENT

The following conditions are prerequisites to Final Payment becoming due the Contractor:

- (1) Full execution of a Certificate of Substantial Completion for the Work, or each designated portion of the Work
- (2) Final Acceptance of the Work.
- (3) The Contractor's completion, to the satisfaction of the Engineer or Architect and Owner, of all documentary requirements of the Contract Documents; such as delivery of "as-built" documents, operating and maintenance manuals, warranties, etc.
- (4) Delivery to the Owner of a final Application for Payment, prepared by the Contractor and approved and certified by the Architect.
- (5) Completion of an Advertisement for Completion pursuant to Paragraph C below.
- (6) Delivery by the Contractor to the Owner through the Engineer or Architect of a Release of Claims and such other documents as may be required by Owner, satisfactory in form to the Owner pursuant to Paragraph D below.
- (7) Consent of Surety, if any, to Final Payment to Contractor.
- (8) Delivery by the Contractor to the Engineer or Architect and Owner of other documents, if any, required by the Contract Documents as prerequisites to Final Payment.

B. FINAL ACCEPTANCE of the WORK

"Final Acceptance of the Work" shall be achieved when all "punch list" items recorded with the Certificate(s) of Substantial Completion are accounted for by their completion or correction by the Contractor and acceptance by the Architect, and Owner

C. ADVERTISEMENT for COMPLETION

(1) If the Contract Sum is less than \$50,000: The Owner, immediately after being notified by the Engineer or Architect that all other requirements of the Contract have been completed, shall give public notice of completion of the Contract by having an Advertisement for Completion published one time in a newspaper of general circulation, published in the county in which the Owner is located and shall post notice of completion of the Contract on the Owner's bulletin board for one week, and shall require the Contractor to certify under oath that all bills have been paid in full. Final payment may be made at any time after the notice has been posted for one entire week.

(2) If the Contract Sum is more than \$50,000: The Contractor, immediately after being notified by the Engineer or Architect that all other requirements of the Contract have been completed, shall give public notice of completion of the Contract by having an Advertisement for Completion, similar to the sample contained in the Project Manual, published for a period of four successive weeks in some newspaper of general circulation published within the city or county where the Work was performed. Proof of publication of the Advertisement for Completion, in duplicate, shall be made by the Contractor to the Engineer or Architect by affidavit of the publisher and a printed copy of the Advertisement for Completion published, in duplicate. If no newspaper is published in the county where the work was done, the notice may be given by posting at the Court House for thirty days and proof of same made by Probate Judge or Sheriff and the Contractor. Final payment shall not be due until thirty days after this public notice is completed.

D. RELEASE of CLAIMS

The Release of Claims and other documents referenced in Paragraph A(6) above are as follows:

(1) A release executed by Contractor of all claims and claims of lien against the Owner arising under and by virtue of the Contract, other than such claims of the Contractor, if any, as may have been previously made in writing and as may be specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein

(2) An affidavit under oath, if required, stating that so far as the Contractor has knowledge or information, there are no claims or claims of lien which have been or will be filed by any Subcontractor, Supplier or other party for labor or material for which a claim or claim of lien could be filed.

(3) A release, if required, of all claims and claims of lien made by any Subcontractor, Supplier or other party against the Owner or unpaid Contract funds held by the Owner arising under or related to the Work on the Project; provided, however, that if any Subcontractor, Supplier or others refuse to furnish a release of such claims or claims of lien, the Contractor may furnish a bond executed by Contractor and its Surety to the Owner to provide an unconditional obligation to defend, indemnify and hold harmless the Owner against any loss, cost or expense, including attorney's fees, arising out of or as a result of such claims, or claims of lien, in which event Owner may make Final Payment notwithstanding such claims or claims of lien. If Contractor and Surety fail to fulfill their obligations to Owner under the bond, the Owner shall be entitled to recover damages as a result of such failure, including all costs and reasonable attorney's fees incurred to recover such damages.

E. EFFECT of FINAL PAYMENT

(1) The making of Final Payment shall constitute a waiver of Claims by the Owner except those arising from:

(a) liens, claims, security interests or encumbrances arising out of the Contract and

- unsettled;
- (b)** failure of the Work to comply with the requirements of the Contract Documents;
- (c)** terms of warranties or indemnities required by the Contract Documents, or
- (d)** latent defects.

(2) Acceptance of Final Payment by the Contractor shall constitute a waiver of claims by Contractor except those previously made in writing, identified by Contractor as unsettled at the time of final Application for Payment, and specifically excepted from the release provided for in Paragraph D(1), above.

ARTICLE 28 CONTRACTOR'S WARRANTY

A. GENERAL WARRANTY

The Contractor warrants to the Owner and Engineer or Architect that all materials and equipment furnished under the Contract will be of good quality and new, except such materials as may be expressly provided or allowed in the Contract Documents to be otherwise, and that none of the Work will be Defective Work.

B. ONE-YEAR WARRANTY

- (1)** If, within one year after the date of Substantial Completion of the Work or each designated portion of the Work (or otherwise as agreed upon in a mutually-executed Certificate of Substantial Completion), any of the Work is found to be Defective Work, the Contractor shall promptly upon receipt of written notice from the Owner or Architect, and without expense to either, replace or correct the Defective Work to conform to the requirements of the Contract Documents, and repair all damage to the site, the building and its contents which is the result of Defective Work or its replacement or correction.
- (2)** The one-year warranty for punch list items shall begin on the Date of Substantial Completion if they are completed or corrected within the time period allowed in the Certificate of Substantial Completion in which they are recorded. The one-year warranty for punch list items that are not completed or corrected within the time period allowed in the Certificate of Substantial Completion, and other Work performed after Substantial Completion, shall begin on the date of Final Acceptance of the Work. The Contractor's correction of Work pursuant to this warranty does not extend the period of the warranty. The Contractor's one-year warranty does not apply to defects or damages due to improper or insufficient maintenance, improper operation, or wear and tear during normal usage.
- (3)** Upon recognizing a condition of Defective Work, the Owner shall promptly notify the Contractor of the condition. If the condition is causing damage to the building, its contents, equipment, or site, the Owner shall take reasonable actions to mitigate the damage or its continuation, if practical. If the Contractor fails to proceed promptly to comply with the terms of the warranty, or to provide the Owner with satisfactory written

verification that positive action is in process, the Owner may have the Defective Work replaced or corrected and the Contractor and the Contractor's Surety shall be liable for all expense incurred.

(4) Year-end Inspection(s): An inspection of the Work, or each separately completed portion thereof, is required near the end of the Contractor's one-year warranty period(s). The subsequent delivery of the Architect's report of a Year-end Inspection will serve as confirmation that the Contractor was notified of Defective Work found within the warranty period.

(5) The Contractor's warranty of one year is in addition to, and not a limitation of, any other remedy stated herein or available to the Owner under applicable law.

C. GENERAL CONTRACTOR'S ROOFING GUARANTEE

(1) In addition to any other roof related warranties or guarantees that may be specified in the Contract Documents, the roof and associated work shall be guaranteed by the General Contractor against leaks and defects of materials and workmanship for a period of five (5) years, starting on the Date of Substantial Completion of the Project as stated in the Certificate of Substantial Completion. This guarantee for punch list items shall begin on the Date of Substantial Completion if they are completed or corrected within the time period allowed in the Certificate of Substantial Completion in which they are recorded. The guarantee for punch list items that are not completed or corrected within the time period allowed in the Certificate of Substantial Completion shall begin on the date of Final Acceptance of the Work.

(2) The "General Contractor's Roofing Guarantee" (ABC Form C-9), included in the Project Manual, shall be executed in triplicate, signed by the appropriate party and submitted to the Engineer or Architect for submission with the Certificate of Substantial Completion to the Owner.

(3) This guarantee does not include costs which might be incurred by the General Contractor in making visits to the site requested by the Owner regarding roof problems that are due to lack of proper maintenance (keeping roof drains and/or gutters clear of debris that cause a stoppage of drainage which results in water ponding, overflowing of flashing, etc.), or damages caused by vandalism or misuse of roof areas. Should the contractor be required to return to the job to correct problems of this nature that are determined not to be related to faulty workmanship and materials in the installation of the roof, payment for actions taken by the Contractor in response to such request will be the responsibility of the Owner. A detailed written report shall be made by the General Contractor on each of these 'Service Calls' with copies to the Engineer or Architect, and Owner

D. SPECIAL WARRANTIES

(1) The Contractor shall deliver to the Owner through the Engineer or Architect all special or extended warranties required by the Contract Documents from the Contractor, Subcontractors, and suppliers.

(2) The Contractor and the Contractor's Surety shall be liable to the Owner for such special warranties during the Contractor's one-year warranty; thereafter, the Contractor's obligations relative to such special warranties shall be to provide reasonable assistance to the Owner in their enforcement.

E. ASSUMPTION of GUARANTEES of OTHERS

If the Contractor disturbs, alters, or damages any work guaranteed under a separate contract, thereby voiding the guarantee of that work, the Contractor shall restore the work to a condition satisfactory to the Owner and shall also guarantee it to the same extent that it was guaranteed under the separate contract.

ARTICLE 29

CONTRACTOR'S and SUBCONTRACTORS' INSURANCE

A. GENERAL

(1) RESPONSIBILITY. The Contractor shall be responsible to the Owner from the time of the signing of the Construction Contract or from the beginning of the first work, whichever shall be earlier, for all injury or damage of any kind resulting from any negligent act or omission or breach, failure or other default regarding the work by the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of who may be the owner of the property.

(2) INSURANCE PROVIDERS. Each of the insurance coverages required below shall be issued by an insurer licensed by the Insurance Commissioner to transact the business of insurance in the State of Alabama for the applicable line of insurance, and such insurer (or, for qualified selfinsureds or group self-insureds, a specific excess insurer providing statutory limits) must have a Best Policyholders Rating of "A-" or better and a financial size rating of Class V or larger.

(3) NOTIFICATION ENDORSEMENT. Each policy shall be endorsed to provide that the insurance company agrees that the policy shall not be canceled, changed, allowed to lapse or allowed to expire for any reason until thirty days after the Owner has received written notice by certified mail as evidenced by return receipt or until such time as other insurance coverage providing protection equal to protection called for in the Contract Documents shall have been received, accepted and acknowledged by the Owner. Such notice shall be valid only as to the Project as shall have been designated by Project Name and Number in said notice.

(4) INSURANCE CERTIFICATES. The Contractor shall procure the insurance coverages identified below, or as otherwise required in the Contract Documents, at the Contractor's own expense, and to evidence that such insurance coverages are in effect, the Contractor shall furnish the Owner an insurance certificate(s) acceptable to the Owner and listing the Owner as the certificate holder. The insurance certificate(s) must be delivered to the Owner with the Construction Contract and Bonds for final approval and execution of the Construction Contract.

The insurance certificate must provide the following:

(a) Name and address of authorized agent of the insurance company

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- (b) Name and address of insured
- (c) Name of insurance company or companies
- (d) Description of policies
- (e) Policy Number(s)
- (f) Policy Period(s)
- (g) Limits of liability
- (h) Name and address of Owner as certificate holder
- (i) Project Name and Number, if any
- (j) Signature of authorized agent of the insurance company
- (k) Telephone number of authorized agent of the insurance company
- (l) Mandatory thirty day notice of cancellation / non-renewal / change

B. INSURANCE COVERAGES

Unless otherwise provided in the Contract Documents, the Contractor shall purchase the types of insurance coverages with liability limits not less than as follows:

(1) WORKERS' COMPENSATION and EMPLOYER'S LIABILITY INSURANCE

- (a) Workers' Compensation coverage shall be provided in accordance with the statutory coverage required in Alabama. A group insurer must submit a certificate of authority from the Alabama Department of Industrial Relations approving the group insurance plan. A selfinsurer must submit a certificate from the Alabama Department of Industrial Relations stating the Contractor qualifies to pay its own workers' compensation claims.
- (b) Employer's Liability Insurance limits shall be at least:
 - .1 Bodily Injury by Accident - \$1,000,000 each accident
 - .2 Bodily Injury by Disease - \$1,000,000 each employee

(2) COMMERCIAL GENERAL LIABILITY INSURANCE

- (a) Commercial General Liability Insurance, written on an ISO Occurrence Form (current edition as of the date of Advertisement for Bids) or equivalent, shall include, but need not be limited to, coverage for bodily injury and property damage arising from premises and operations liability, products and completed operations liability, blasting and explosion, collapse of structures, underground damage, personal injury liability and contractual liability. The Commercial General Liability Insurance shall provide at minimum the following limits:

Coverage	Limit
.1 General Aggregate	\$ 2,000,000.00 per Project
.2 Products, Completed Operations Aggregate	\$ 2,000,000.00 per Project
.3 Personal and Advertising Injury	\$ 1,000,000.00 per Occurrence
.4 Each Occurrence	\$ 1,000,000.00

- (b) Additional Requirements for Commercial General Liability Insurance:
 - .1 The policy shall name the Owner, Architect, and their agents, consultants and employees as additional insureds, state that this coverage shall be primary insurance for the additional insureds; and contain no exclusions of the additional insureds relative to job accidents.
 - .2 The policy must include separate per project aggregate limits.

(3) COMMERCIAL BUSINESS AUTOMOBILE LIABILITY INSURANCE

- (a) Commercial Business Automobile Liability Insurance which shall include coverage for bodily injury and property damage arising from the operation of any owned, non-owned or hired automobile. The Commercial Business Automobile Liability Insurance Policy shall provide not less than \$1,000,000 Combined Single Limits for each occurrence.
- (b) The policy shall name the Owner, Architect, and their agents, consultants, and employees as additional insureds.

(4) COMMERCIAL UMBRELLA LIABILITY INSURANCE

- (a) Commercial Umbrella Liability Insurance to provide excess coverage above the Commercial General Liability, Commercial Business Automobile Liability and the Workers' Compensation and Employer's Liability to satisfy the minimum limits set forth herein.
- (b) Minimum Combined Primary Commercial General Liability and Commercial/Excess Umbrella Limits of:
 - .1 \$ 5,000,000 per Occurrence
 - .2 \$ 5,000,000 Aggregate
- (c) Additional Requirements for Commercial Umbrella Liability Insurance:
 - .1 The policy shall name the Owner, Architect, and their agents, consultants, and employees as additional insureds.
 - .2 The policy must be on an "occurrence" basis.

(5) BUILDER'S RISK INSURANCE

- (a) The Builder's Risk Policy shall be made payable to the Owner and Contractor, as their interests may appear. The policy amount shall be equal to 100% of the Contract Sum, written on a Causes of Loss - Special Form (current edition as of the date of Advertisement for Bids), or its equivalent. All deductibles shall be the sole responsibility of the Contractor.
- (b) The policy shall be endorsed as follows:
 - "The following may occur without diminishing, changing, altering or otherwise affecting the coverage and protection afforded the insured under this policy:
 - (i) Furniture and equipment may be delivered to the insured premises and installed in place ready for use; or
 - (ii) Partial or complete occupancy by Owner; or
 - (iii) Performance of work in connection with construction operations insured by the Owner, by agents or lessees or other contractors of the Owner, or by contractors of the lessee of the Owner."

C. SUBCONTRACTORS' INSURANCE

- (1) WORKERS' COMPENSATION and EMPLOYER'S LIABILITY INSURANCE.** The Contractor shall require each Subcontractor to obtain and maintain Workers' Compensation and Employer's Liability Insurance coverages as described in preceding Paragraph B, or to be covered by the Contractor's Workers' Compensation and Employer's Liability Insurance while performing Work under the Contract.

(2) LIABILITY INSURANCE. The Contractor shall require each Subcontractor to obtain and maintain adequate General Liability, Automobile Liability, and Umbrella Liability Insurance coverages similar to those described in preceding Paragraph B. Such coverage shall be in effect at all times that a Subcontractor is performing Work under the Contract.

(3) ENFORCEMENT RESPONSIBILITY. The Contractor shall have responsibility to enforce its Subcontractors' compliance with these or similar insurance requirements; however, the Contractor shall, upon request, provide the Engineer or Architect or Owner acceptable evidence of insurance for any Subcontractor.

D. TERMINATION of OBLIGATION to INSURE

Unless otherwise expressly provided in the Contract Documents, the obligation to insure as provided herein shall continue as follows:

(1) BUILDER'S RISK INSURANCE. The obligation to insure under Subparagraph B (5) shall remain in effect until the Date of Substantial Completion as shall be established in the Certificate of Substantial Completion. In the event that multiple Certificates of Substantial Completion covering designated portions of the Work are issued, Builder's Risk coverage shall remain in effect until the Date of Substantial Completion as shall be established in the last issued Certificate of Substantial Completion.

(2) PRODUCTS and COMPLETED OPERATIONS. The obligation to carry Products and Completed Operations coverage specified under Subparagraph B(2) shall remain in effect for two years after the Date(s) of Substantial Completion.

(3) ALL OTHER INSURANCE. The obligation to carry other insurance coverages specified under Subparagraphs B(1) through B(4) and Paragraph C shall remain in effect after the Date(s) of Substantial Completion until such time as all Work required by the Contract Documents is completed. Equal or similar insurance coverages shall remain in effect if, after completion of the Work, the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, returns to the Project to perform warranty or maintenance work pursuant to the terms of the Contract Documents.

E. WAIVERS of SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors performing construction or operations related to the Project, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by builder's risk insurance or other property insurance applicable to the Work or to other property located within or adjacent to the Project, except such rights as they may have to proceeds of such insurance held by the Owner or Contractor as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors, if any, and the subcontractor,

sub-subcontractors, suppliers, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The Policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to the person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged. The waivers provided for in this paragraph shall survive final acceptance and continue to apply to insured losses to the Work or other property on or adjacent to the Project.

**ARTICLE 30
PERFORMANCE and PAYMENT BONDS**

A. GENERAL

Upon signing and returning the Construction Contract to the Owner for final approval and execution, the Contractor shall, at the Contractor's expense, furnish to the Owner a Performance Bond and a Payment Bond, each in a penal sum equal to 100% of the Contract Sum. Each bond shall be on the form contained in the Project Manual, shall be executed by a surety company (Surety) acceptable to the Owner and duly authorized and qualified to make such bonds in the State of Alabama in the required amounts, shall be countersigned by an authorized, Alabama resident agent of the Surety who is qualified to execute such instruments, and shall have attached thereto a power of attorney of the signing official. The provisions of this Article are not applicable to this Contract if the Contract Sum is less than \$50,000, unless bonds are required for this Contract in the Supplemental General Conditions.

B. PERFORMANCE BOND

Through the Performance Bond, the Surety's obligation to the Owner shall be to assure the prompt and faithful performance of the Contract and Contract Change Orders. The Penal Sum shall remain equal to the Contract Sum as the Contract Sum is adjusted by Contract Change Orders. In case of default on the part of the Contractor, the Surety shall take charge of and complete the Work in accordance with the terms of the Performance Bond. Any reasonable expenses incurred by the Owner as a result of default on the part of the Contractor, including architectural, engineering, administrative, and legal services, shall be recoverable under the Performance Bond.

C. PAYMENT BOND

Through the Payment Bond the Surety's obligation to the Owner shall be to guarantee that the contractor and its Subcontractors shall promptly make payment to all persons supplying labor, materials, or supplies for, or in, the prosecution of the Work, including the payment of reasonable attorneys fees incurred by successful claimants or plaintiffs in civil actions on the Bond. Any person or entity indicating that they have a claim of nonpayment under the Bond shall, upon written request, be promptly furnished a certified copy of the Bond and Construction Contract by the Contractor, Architect, Owner or whomever is recipient of the request.

D. CHANGE ORDERS

The Penal Sum shall remain equal to the Contract Sum as the Contract Sum is adjusted by Contract Change Orders. All Contract Change Orders involving an increase in the Contract Sum will require consent of Surety by endorsement of the Contract Change Order form. The Surety waives notification of any Contract Change Orders involving only

extension of the Contract Time.

E. EXPIRATION

The obligations of the Contractor's performance bond surety shall be coextensive with the contractor's performance obligations under the Contract Documents; provided.

**ARTICLE 31
ASSIGNMENT**

The Contractor shall not assign the Contract or sublet it as a whole nor assign any moneys due or to become due to the Contractor thereunder without the previous written consent of the Owner (and of the Surety, in the case of a bonded Construction Contract). As prescribed by the Public Works Law, the Contract shall in no event be assigned to an unsuccessful bidder for the Contract whose bid was rejected because the bidder was not a responsible or responsive bidder.

**ARTICLE 32
CONSTRUCTION by OWNER or SEPARATE CONTRACTORS**

A. OWNER'S RESERVATION of RIGHT

(1) The Owner reserves the right to self-perform, or to award separate contracts for, other portions of the Project and other Project related construction and operations on the site. The contractual conditions of such separate contracts shall be substantially similar to those of this Contract, including insurance requirements and the provisions of this Article

(2) When separate contracts are awarded, the term "Contractor" in the separate Contract Documents shall mean the Contractor who executes the respective Construction Contract.

B. COORDINATION

Unless otherwise provided in the Contract Documents, the Owner shall be responsible for coordinating the activities of the Owner's forces and separate contractors with the Work of the Contractor. The Contractor shall cooperate with the Owner and separate contractors, shall participate in reviewing and comparing their construction schedules relative to that of the Contractor when directed to do so, and shall make and adhere to any revisions to the construction schedule resulting from a joint review and mutual agreement.

C. CONDITIONS APPLICABLE to WORK PERFORMED by OWNER

Unless otherwise provided in the Contract Documents, when the Owner self-performs construction or operations related to the Project, the Owner shall be subject to the same obligations to Contractor as Contractor would have to a separate contractor under the provision of this Article 32.

D. MUTUAL RESPONSIBILITY

(1) The Contractor shall reasonably accommodate the required introduction and storage of materials and equipment and performance of activities by the Owner and separate contractors and shall connect and coordinate the Contractor's Work with theirs as required by the Contract Documents.

(2) By proceeding with an element or portion of the Work that is applied to or performed on construction by the Owner or a separate contractor, or which relies upon their operations, the Contractor accepts the condition of such construction or operations as being suitable for the Contractor's Work, except for conditions that are not reasonably

discoverable by the Contractor. If the Contractor discovers any condition in such construction or operations that is not suitable for the proper performance of the Work, the Contractor shall not proceed, but shall instead promptly notify the Engineer or Architect in writing of the condition discovered.

(3) The Contractor shall reimburse the Owner for any costs incurred by a separate contractor and payable by the Owner because of acts or omissions of the Contractor. Likewise, the Owner shall be responsible to the Contractor for any costs incurred by the Contractor because of the acts or omissions of a separate contractor.

(4) The Contractor shall not cut or otherwise alter construction by the Owner or a separate contractor without the written consent of the Owner and separate contractor; such consent shall not be unreasonably withheld. Likewise, the Contractor shall not unreasonably withhold its consent allowing the Owner or a separate contractor to cut or otherwise alter the Work.

(5) The Contractor shall promptly remedy any damage caused by the Contractor to the construction or property of the Owner or separate contractors.

ARTICLE 33 SUBCONTRACTS

A. AWARD of SUBCONTRACTS and OTHER CONTRACTS for PORTIONS of the WORK

(1) Unless otherwise provided in the Contract Documents, when delivering the executed Construction Contract, bonds, and evidence of insurance to the Architect, the Contractor shall also submit a listing of Subcontractors proposed for each principal portion of the Work and fabricators or suppliers proposed for furnishing materials or equipment fabricated to the design of the Contract Documents. This listing shall be in addition to any naming of Subcontractors, fabricators, or suppliers that may have been required in the bid process. The Engineer or Architect will promptly reply to the Contractor in writing stating whether or not the Owner, after due investigation, has reasonable objection to any Subcontractor, fabricator, or supplier proposed by the Contractor. The issuance of the Notice to Proceed in the absence of such objection by the Owner shall constitute notice that no reasonable objection to them is made.

(2) The Contractor shall not contract with a proposed Subcontractor, fabricator, or supplier to whom the Owner has made reasonable and timely objection. Except in accordance with prequalification procedures as may be contained in the Contract Documents, through specified qualifications, or on the grounds of reasonable objection, the Owner may not restrict the Contractor's selection of Subcontractors, fabricators, or suppliers.

(3) Upon the Owner's reasonable objection to a proposed Subcontractor, fabricator, or supplier, the Contractor shall promptly propose another to whom the Owner has no reasonable objection. If the proposed Subcontractor, fabricator, or supplier to whom the Owner made reasonable objection was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be equitably adjusted by Contract Change Order for any resulting difference if the Contractor has acted promptly and responsively in this procedure.

(4) The Contractor shall not change previously selected Subcontractors, fabricators, or suppliers without notifying the Engineer or Architect and Owner in writing of proposed substitute Subcontractors, fabricators, or suppliers. If the Owner does not make a

reasonable objection to a proposed substitute within three working days, the substitute shall be deemed approved.

B. SUBCONTRACTUAL RELATIONS

(1) The Contractor agrees to bind every Subcontractor and material supplier (and require every Subcontractor to so bind its subcontractors and material suppliers) to all the provisions of the Contract Documents as they apply to the Subcontractor's and material supplier's portion of the Work.

(2) Nothing contained in the Contract Documents shall be construed as creating any contractual relationship between any Subcontractor and the Owner, nor to create a duty of the Architect, or Owner, to resolve disputes between or among the Contractor or its Subcontractors and suppliers or any other duty to such Subcontractors or suppliers.

ARTICLE 34

ARCHITECT'S STATUS

A. The Engineer or Architect is an independent contractor performing, with respect to this Contract, pursuant to an agreement executed between the Owner and the Engineer or Architect. The Engineer or Architect has prepared the Drawings and Specifications and assembled the Contract Document and is, therefore, charged with their interpretation and clarification as described in the Contract Documents. As a representative of the Owner, the Engineer or Architect will endeavor to guard the Owner against variances from the requirements of the Contract Documents by the Contractor. On behalf of the Owner, the Engineer or Architect will administer the Contract as described in the Contract Documents during construction and the Contractor's one-year warranty.

B. So as to maintain continuity in administration of the Contract and performance of the Work, and to facilitate complete documentation of the project record, all communications between the Contractor and Owner regarding matters of or related to the Contract shall be directed through the Architect, unless direct communication is otherwise required to provide a legal notification. Unless otherwise authorized by the Architect, communications by and with the Architect's consultants shall be through the Architect. Unless otherwise authorized by the Contractor, communications by and with Subcontractors and material suppliers shall be through the Contractor.

C. ARCHITECT'S AUTHORITY

Subject to other provisions of the Contract Documents, the following summarizes some of the authority vested in the Engineer or Architect by the Owner with respect to the Construction Contract and as further described or conditioned in other Articles of these General Conditions of the Contract.

(1) The Engineer or Architect is authorized to:

- (a) approve "minor" deviations as defined in Article 9, Submittals,
- (b) make "minor" changes in the Work as defined in Article 19, Changes in the Work,
- (c) reject or require the correction of Defective Work,
- (d) require the Contractor to stop the performance of Defective Work,
- (e) adjust an Application for Payment by the Contractor pursuant to Article 30, Certification and Approval of payments, and
- (f) issue Notices to Cure.

(2) The Engineer or Architect is not authorized to:

- (a)** revoke, alter, relax, or waive any requirements of the Contract Documents (other than “minor” deviations and changes) without concurrence of the Owner,
- (b)** finally approve or accept any portion of the Work without concurrence of the Owner,
- (c)** issue instructions contrary to the Contract Documents,
- (d)** issue Notice of Termination or otherwise terminate the Contract, or
- (e)** require the Contractor to stop the Work except only to avoid the performance of Defective Work.

D. LIMITATIONS of RESPONSIBILITIES

- (1)** The Engineer or Architect shall not be responsible to Contractors or to others for supervising or coordinating the performance of the Work or for the Construction Methods or safety of the Work, unless the Contract Documents give other specific instructions concerning these matters.
- (2)** The Engineer or Architect will not be responsible to the Contractor (nor the Owner) for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents or for acts or omissions of the Contractor, a Subcontractor, or anyone for whose acts they may be liable. However, the Engineer or Architect will report to the Owner and Contractor any Defective Work recognized by the Architect.
- (3)** The Engineer or Architect will endeavor to secure faithful performance by Owner and Contractor, and the Engineer or Architect will not show partiality to either or be liable to either for results of interpretations or decisions rendered in good faith.

E. ARCHITECT'S DECISIONS

Decisions by the Engineer or Architect shall be in writing. The Architect's decisions on matters relating to aesthetic effect will be final and binding if consistent with the intent expressed in the Contract Documents. The Architect's decisions regarding disputes arising between the Contractor and Owner shall be advisory.

ARTICLE 35

CASH ALLOWANCES

A. All allowances stated in the Contract Documents shall be included in the Contract Sum. Items covered by allowances shall be supplied by the Contractor as directed by the Engineer or Architect or Owner and the Contractor shall afford the Owner the economy of obtaining competitive pricing from responsible bidders for allowance items unless other purchasing procedures are specified in the Contract Documents.

B. Unless otherwise provided in the Contract Documents:

- (1)** allowances shall cover the cost to the Contractor of materials and equipment delivered to the Project site and all applicable taxes, less applicable trade discounts;
- (2)** the Contractor's costs for unloading, storing, protecting, and handling at the site, labor, installation, overhead, profit and other expenses related to materials or equipment covered by an allowance shall be included in the Contract Sum but not in the allowances;
- (3)** if required, the Contract Sum shall be adjusted by Change Order to reflect the actual costs of an allowance.

C. Any selections of materials or equipment required of the Engineer or Architect or Owner under an allowance shall be made in sufficient time to avoid delay of the Work.

ARTICLE 36

PERMITS, LAWS, and REGULATIONS

A. PERMITS, FEES AND NOTICES

(1) Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work which are customarily secured after award of the Construction Contract and which are in effect on the date of receipt of bids.

(2) The Contractor shall comply with and give notices required by all laws, ordinances, rules, regulations, and lawful orders of public authorities applicable to performance of the Work.

B. TAXES

Unless stated otherwise in the Contract Documents, materials incorporated into the Work are exempt from sales and use tax pursuant to Section 40-9-33, Code of Alabama, 1975 as amended. The Contractor and its subcontractors shall be responsible for complying with rules and regulations of the Sales, Use, & Business Tax Division of the Alabama Department of Revenue regarding certificates and other qualifications necessary to claim such exemption when making qualifying purchases from vendors. The Contractor shall pay all applicable taxes that are not covered by the exemption of Section 40-9-33 and which are imposed as of the date of receipt of bids, including those imposed as of the date of receipt of bids but scheduled to go into effect after that date.

C. COMPENSATION for INCREASES

The Contractor shall be compensated for additional costs incurred because of increases in tax rates imposed after the date of receipt of bids.

ARTICLE 37

ROYALTIES, PATENTS, and COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend, indemnify and hold harmless the Owner, Architect, Architect's consultants and their agents, employees, and consultants from and against all claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of, related to, or resulting from all suits or claims for infringement of any patent rights or copyrights arising out of the inclusion of any patented or copyrighted materials, methods, or systems selected by the Contractor and used during the execution of or incorporated into the Work. This indemnification does not apply to any suits or claims of infringement of any patent rights or copyrights arising out of any patented or copyrighted materials, methods, or systems specified in the Contract Documents. However, if the Contractor has information that a specified material, method, or system is or may constitute an infringement of a patent or copyright, the Contractor shall be responsible for any resulting loss unless such information is promptly furnished to the Architect.

**ARTICLE 38
USE of the SITE**

A. The Contractor shall confine its operations at the Project site to areas permitted by the Owner and by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials, equipment, employees' vehicles, or debris. The Contractor's operations at the site shall be restricted to the sole purpose of constructing the Work, use of the site as a staging, assembly, or storage area for other business which the Contractor may undertake shall not be permitted.

B. Unless otherwise provided in the Contract Documents, temporary facilities, such as storage sheds, shops, and offices may be erected on the Project site with the approval of the Engineer or Architect and Owner. Such temporary buildings and/or utilities shall remain the property of the Contractor, and be removed at the Contractor's expense upon completion of the Work, unless the Owner authorizes their abandonment without removal.

**ARTICLE 39
CUTTING and PATCHING**

A. The Contractor shall be responsible for all cutting, fitting, or patching that may be required to execute the Work to the results indicated in the Contract Documents or to make its parts fit together properly.

B. Any cutting, patching, or excavation by the Contractor shall be supervised and performed in a manner that will not endanger persons nor damage or endanger the Work or any fully or partially completed construction of the Owner or separate contractors.

**ARTICLE 40
IN-PROGRESS and FINAL CLEANUP**

A. IN-PROGRESS CLEAN-UP

(1) The Contractor shall at all times during the progress of the Work keep the premises and surrounding area free from rubbish, scrap materials and debris resulting from the Work. Trash and combustible materials shall not be allowed to accumulate inside buildings or elsewhere on the premises. At no time shall any rubbish be thrown from window openings. Burning of trash and debris on site is not permitted.

(2) The Contractor shall make provisions to minimize and confine dust and debris resulting from construction activities.

B. FINAL CLEAN-UP

(1) Before Substantial Completion or Final Acceptance is achieved, the Contractor shall have removed from the Owner's property all construction equipment, tools, and machinery; temporary structures and/or utilities including the foundations thereof (except such as the Owner permits in writing to remain); rubbish, debris, and waste materials; and all surplus materials, leaving the site clean and true to line and grade, and the Work in a safe and clean condition, ready for use and operation.

(2) In addition to the above, and unless otherwise provided in the Contract Documents, the Contractor shall be responsible for the following special cleaning for all trades as the Work is completed:

(a) Cleaning of all painted, enameled, stained, or baked enamel work: Removal of all marks, stains, finger prints and splatters from such surfaces.

(b) Cleaning of all glass: Cleaning and removing of all stickers, labels, stains, and paint from all glass, and the washing and polishing of same on interior and exterior.

(c) Cleaning or polishing of all hardware: Cleaning and polishing of all hardware.

(d) Cleaning all tile, floor finish of all kinds: Removal of all splatters, stains, paint, dirt, and dust, the washing and polishing of all floors as recommended by the manufacturer or required by the Architect.

(e) Cleaning of all manufactured articles, materials, fixtures, appliances, and equipment: Removal of all stickers, rust stains, labels, and temporary covers, and cleaning and conditioning of all manufactured articles, material, fixtures, appliances, and electrical, heating, and air conditioning equipment as recommended or directed by the manufacturers, unless otherwise required by the Architect; blowing out or flushing out of all foreign matter from all equipment, piping, tanks, pumps, fans, motors, devices, switches, panels, fixtures, boilers, sanitizing potable water systems; and freeing identification plates on all equipment of excess paint and the polishing thereof.

C. OWNER'S RIGHT to CLEAN-UP

If the Contractor fails to comply with these clean-up requirements and then fails to comply with a written directive by the Engineer or Architect to clean-up the premises within a specified time, the Engineer or Architect or Owner may implement appropriate clean-up measures and the cost thereof shall be deducted from any amounts due or to become due the Contractor

ARTICLE 41

LIQUIDATED DAMAGES

A. Time is the essence of the Contract. Any delay in the completion of the Work required by the Contract Documents may cause inconvenience to the public and loss and damage to the Owner including but not limited to interest and additional administrative, architectural, inspection and supervision charges. By executing the Construction Contract, the Contractor agrees that the Contract Time is sufficient for the achievement of Substantial Completion.

B. The Contract Documents may provide in the Construction Contract or elsewhere for a certain dollar amount for which the Contractor and its Surety (if any) will be liable to the Owner as liquidated damages for each calendar day after expiration of the Contract Time that the Contractor fails to achieve Substantial Completion of the Work. If such daily liquidated damages are provided for, Owner and Contractor, and its Surety, agree that such amount is reasonable and agree to be bound thereby.

C. The amount of liquidated damages due under either paragraph B or C, above, may be deducted by the Owner from the moneys otherwise due the Contractor in the Final Payment, not as a penalty, but as liquidated damages sustained, or the amount may be recovered from Contractor or its Surety. If part of the Work is substantially completed within the Contract Time and part is not, the stated charge for liquidated damages shall be equitably prorated to that portion of the Work that the Contractor fails to substantially complete within the Contract Time. It is mutually understood and agreed between the parties hereto that such amount is reasonable as liquidated damages.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
INVITATION TO BID**

Section 00200 - Page 1 of 2

INVITATION TO BID

Project: Shelby County Landfill Gas Collection System Expansion Project

Owner: Shelby County Commission

Engineer: CDG, Inc.

Sealed bids will be received from pre-qualified bidders, opened, and publicly read by the Shelby County Commission for the **SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION at the Shelby County Administration Building, located at 200 West College Street, Columbiana, Alabama, 35051. The owner will receive Bids until 2:00 p.m. October 3, 2023.**

The Project is generally described as follows: the construction of approximately 1 each of a 36" HDPE SDR-32.5 Condensate Pump Station, 1,700 LF of 14" HDPE SDR-17 Pipe, 1,500 LF of 10" HDPE SDR-17 Pipe, 1,200 LF of 6" HDPE SDR-17 Pipe, and other related appurtenances.

The estimated construction cost is \$400,000.00 to \$600,000.00.

The Owner requires the Project to be completed in **forty-five (45)** calendar days from date of Notice to Proceed.

Electronic copies of the bidding documents are available via email at no cost to the bidder.

All bids must be submitted in a sealed envelope bearing on the outside the name of the bidder, bidder's license number, address and name of the project.

Refer to other bidding requirements described in Document 00200 – Instructions to Bidders.

Submit your Bid on the Bid Form provided. Bidders are required to complete Bid Form 00412.

Your Bid will be required to be submitted under a condition of irrevocability for a period of sixty (60) days after submission.

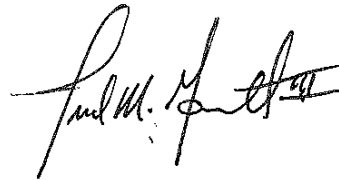
The attention of bidders is called to the provisions of State Law Governing General Contractors, as set forth in Sections 34-8-1 to 43-8-24, inclusive, Code of Alabama of 1975, as amended; and the provisions of said law shall govern bidders insofar as it is applicable. The above-mentioned provisions of the Code make it illegal for the Owner to consider a bid from anyone who is not properly licensed under such code provisions. In addition, bidders must carry the Specialty Construction-Environmental classification as listed in the latest edition of the Roster of the State Licensing Board for General Contractors, Montgomery, Alabama. The Owner, therefore will not consider any bid unless the bidder produces evidence that he is licensed. Neither will the Owner enter into a Contract with a foreign corporation which is not qualified under State Law to do business in the State of Alabama.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
INVITATION TO BID**

Section 00200 - Page 2 of 2

The attention of non-resident bidders is called to the provisions of Alabama Law, Section 39-3-5, Code of Alabama 1975, as amended, relating to preference to be given to resident contractors in Alabama over non-resident contractors in the award of contracts in the same manner and to the same extent as provided by the laws of the state of domicile of the non-resident contractor, and to the requirements that the bid documents tendered by any non-resident contractor must be accompanied by "a written opinion of an attorney-at-law licensed to practice law in such non-resident contractor's state of domicile as to the preference, if any or none, granted by the law of the state to its own business entities whose principal places of business are in that state in the letting of any or all public contracts."

The Owner reserves the right to accept or reject any or all Bids.

A handwritten signature in black ink, appearing to read "Fred M. Gauntt, III", is positioned above a horizontal line.

Fred M. Gauntt, III, PE
Chief Engineer, Shelby County

END OF DOCUMENT

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
INSTRUCTIONS TO BIDDERS**

Section 00201 - Page 1 of 7

1.01 SECURITY DOCUMENTS

Approved bidders may obtain Bid Documents from the Department of Environmental Services office located at 1281 Highway 70 Columbiana, AL 35051. Electronic copies of bid documents may be obtained at no cost by sending a request to rlcroy@shelbyal.com.

1.02 BID FORM

- A. In order to receive consideration, make all bids in strict accordance with the following:
1. Make bids upon the forms provided therefore, properly executed and with all items filled out.
 2. Do not change the wording of the Bid Form, and do not alter the Bid Form.
 3. Unauthorized conditions, limitations, or provisions attached to the proposal shall be cause for rejection of the proposal.
 4. Telegraphic bid or telegraphic modification of bid will not be considered.
 5. Bids received after the time specified for receiving them will not be considered.
 6. Late bids will be returned to the sender unopened.
 7. Each bid shall be addressed to the Owner, and shall be delivered to the Owner at the address given in the Invitation to Bid on or before the day and hour set for receiving bids.
 8. Each bid shall be enclosed in a sealed envelope bearing the title of the Work, the name of the Bidder and address, Bidder's license number, classification of license, limits of classification, expiration date, and the date and hour of the bid opening.
 9. It is the sole responsibility of the bidder to see that his bid is received on time.

Bidders are cautioned that, in order to be considered responsive, a complete bid for the project, including unit prices and any specified allowances, must be submitted. A bid for less or with exceptions or clarifications will not be considered responsive.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
INSTRUCTIONS TO BIDDERS**

Section 00201 - Page 2 of 7

1.03 BONDS

A. BID BONDS

1. A Certified Check or Bid Bond for the lesser of five percent (5%) of the proposed Contract Amount or \$10,000 made payable to Shelby County Commission must accompany each bid as evidence of good faith.
2. All Bid Bonds shall be on standard AIA forms.
3. The Successful Bidder's bond will be retained until he has signed the Contract and furnished the required Labor and Materials Payment and Performance Bond.
4. The Owner reserves the right to retain the bond of the two next lowest Bidders until the lowest Bidder enters into contract or until 60 days after the Bid Opening, whichever is shorter.
5. All other Bid Bonds will be returned as soon as practicable, and in accordance with Alabama State Law.
6. If any bidder refuses to enter into a Contract, the Owner will retain his Bid Bond as liquidated damages, but not as a penalty.

B. OTHER BONDS

1. Prior to signing the Contract, the Owner will require the successful bidder to secure and post a Performance Bond in the amount of 100 percent of the Contract Sum, Labor and Materials Payment Bond in the amount of 50 percent of the Contract Sum.
2. All such bonds shall be issued by Surety acceptable to the Owner. Include the costs of all such bonds in the proposed Contract Sum.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
INSTRUCTIONS TO BIDDERS**

Section 00201 - Page 3 of 7

1.04 PRIOR TO BID

A. Examination of Drawings, Project Manual and Site of Work:

1. **Before submitting a Bid, each Bidder shall carefully examine the Drawings, read the Bid Documents, and visit the site of the Work.**
2. Each Bidder shall fully inform himself prior to bidding as to all existing conditions and limitations under which the Work is to be performed, and he shall include in his Bid a sum to cover all costs of all items necessary to perform the Work as set forth in the proposed Bid Documents.
3. Allowance will not be made to any Bidder because of lack of such examination or knowledge of the existing conditions.
4. The submission of a Bid will be construed as conclusive evidence that the Bidder has made such examination.

B. Interpretation of Bid Documents Prior to Bidding

1. If any person contemplating submitting a Bid for construction of the Work is in doubt as to the true meaning of any part of the proposed Bid Documents, or finds discrepancies in or omissions from any part of the proposed Bid Documents, he may **submit to the Owner a written request** via email to rlecroy@shelbyal.com for interpretation thereof not later than three days before Bids are specified to be received.
 - a) The person submitting the request shall be responsible for its prompt delivery.
 - b) Interpretation or correction of proposed Bid Documents will be made only by Addendum and will be mailed, faxed, or delivered to each bidder of record. Each Addendum will have a location for acknowledgement of receipt and understanding of its contents. **Bids will not be considered complete if a signature of an officer of the bidding party does not appear thereon.**
 - c) The Owner will not be responsible for any other explanations or interpretations of the proposed Bid Documents.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
INSTRUCTIONS TO BIDDERS**

Section 00201 - Page 4 of 7

1.05 BIDS

A. Withdrawal of Bids

1. Any Bidder may withdraw his Bid, either personally or by written request, if received by the Owner at any time prior to scheduled time for opening bids.
2. Bidder cannot withdraw his Bid for a period of 60 days after the date set for receiving thereof.
3. Each Bid shall be subject to acceptance by the Owner during this period.

B. Award or Rejection of Bids

1. **The Contract, if awarded will be awarded to the responsive low Bidder who proposes the lowest Contract Sum on the basis of the Base Bid plus approved alternates**, subject to the Owner's right to reject any or all Bids and waive informality and irregularity in the Bids and in the bidding.

C. Proof of Competency of Bidder

1. Any Bidder may be required to furnish additional evidence satisfactory to the Owner that he and his proposed Subcontractors have sufficient experience in the types of work called for to assure completion of the Contract in a satisfactory manner and that their current project workload will not limit their capability. Successful Bidder shall submit a list of subcontractors to be employed on the project within 24 hours of bid time.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
INSTRUCTIONS TO BIDDERS**

Section 00201 - Page 5 of 7

1.06 EXECUTION OF AGREEMENT

- A. Public Works Contract.
- B. The Bidder to whom the Contract is awarded by the Owner shall, within 10 days after Notice of Award and receipt of Agreement forms from the Owner, sign and deliver to the Owner all required copies of the Contract.
- C. The Bidder to whom the Contract is awarded by the Owner shall receive five (5) sets of Construction documents. Any sets needed beyond the initial five sets may be purchased from the Owner.
- D. At or prior to the delivery of the signed Agreement, the Contractor shall deliver to the Owner the Labor and Materials Payment Bond, the Performance Bond, and the policies of insurance or Insurance Certificates as required by the Bid Documents.
- E. All bonds and policies of insurance must be approved by the Owner before the successful Bidder can proceed with the Work.
- F. Failure or refusal to furnish bonds or insurance policies or certificates in a form satisfactory to the Owner and in a timely manner, shall subject the Bidder to loss of time from the allowable construction period equal to the time of delay in furnishing the required material.

1.07 CONTRACT TIMES

- A. Notice to Proceed will be issued after the contract is executed. Fourteen (14) calendar days will be allowed for procurement of materials. Contractor agrees that the work will be substantially complete within 45 calendar days after Notice to Proceed.
- B. If the Contractor is delayed, hindered or impeded at any time in the progress of the Work for any reason or by any alleged act or neglect of the Owner, or the Architect, or by any employee of any of them or by a separate Contractor employed by the Owner, or by changes ordered in the scope of the Work, or by other causes beyond the Contractor's control, then the Contract Time may be extended by Change Order for such reasonable time as is agreed to by the Owner. However, to the fullest extent permitted by law, and notwithstanding any

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
INSTRUCTIONS TO BIDDERS**

Section 00201 - Page 6 of 7

other provisions in the Contract Documents, and whether contemplated or not, and whether or not arising by active interference by the Owner and his agents and employees shall not be liable for any damages for delay whether for direct or indirect costs, extended home office overhead, idle or inefficient labor or equipment, cost escalations, or monetary claims of any nature arising from or attributable to delay by any cause whatsoever. The Contractor's sole and exclusive right and remedy for delay by any cause whatsoever is an extension of the Contract Time but no increase in the Contract Sum.

- C. No delay, interference, hindrance or disruption, from whatever source or cause, in the progress of the Contractor's Work shall be a basis for an extension of time unless the delay, interference, hindrance or disruption is (1) without the fault and not the responsibility of the Contractor, its subcontractors and suppliers and (2) directly affects the overall completion of the Work as reflected on the critical path of the updated Construction Schedule. The Contractor expressly agrees that the Owner shall have the benefit of any float in the construction schedule and delay to construction activities which do not affect the overall completion of the Work does not entitle the Contractor to any extension in the Contract Time.

D. Time Extension for Unusually Severe Weather:

This provision specifies the procedure for determination of time extensions for unusually severe weather. In order for the Owner to award a time extension under this clause, the following conditions must be satisfied.

1. The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.
2. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
INSTRUCTIONS TO BIDDERS**

Section 00201 - Page 7 of 7

1.08 LIQUIDATED DAMAGES

Should the Contractor fail to substantially complete the work within the specified time, an assessment of \$500.00 per day shall be applied as damages and not as a penalty.

1.09 COORDINATION

It is the responsibility of the Contractor to schedule and coordinate any required testing.

END OF SECTION 00100

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PROPOSAL FORM**

Section 00300 - Page 1 of 4

Bids shall be submitted in triplicate.

DATE: October 3, 2023
2:00 p.m. Local Time

TO: Mr. Chad Scroggins
Shelby County Commission
200 West College Street
Columbiana, AL 35051

Bidding Contractor

1. Pursuant to and in compliance with the Invitation to Bid and the proposed Bid Documents relating to the:

**Shelby County Landfill Gas Collection System Expansion Project
for Shelby County Landfill Columbiana, Alabama**

Including Addenda _____

The undersigned, having become thoroughly familiar with the terms and conditions of the proposed Bid Documents and with local conditions affecting the performance and costs of the Work at the place where the Work is to be completed, and having fully inspected the site in all particulars, hereby proposes and agrees to fully perform the Work within the time stated and in strict accordance with the proposed Bid Documents, including furnishing any and all labor and materials, and to do all work required to construct and complete said Work in accordance with the Bid Documents, for the following sum of money:

- _____
2. I understand that the Owner reserves the right to reject this Bid, but that this Bid shall remain open and not be withdrawn for a period of sixty (60) days from the date prescribed for its receiving.
 3. The Bidder, if awarded the contract, hereby agrees to commence work under this contract on or before a date to be specified in a written Notice to Proceed from the Owner and to fully complete work as specified. The Bidder also acknowledges and agrees to the Owner's right to assess liquidated damages as specified.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PROPOSAL FORM**

Section 00300 - Page 2 of 4

4. If written notice of the acceptance of this Bid is mailed or delivered to the undersigned within sixty (60) days after the date set for the receiving of this Bid, or at any other time thereafter before it is withdrawn, the undersigned shall execute and deliver the Bid Documents to the Owner in accordance with this Bid as accepted, and will also furnish and deliver to the Owner the Performance Bond, Labor and Material Payment Bond, and proof of insurance coverage, all within ten (10) days after personal delivery or any deposit in the mails of the notification of acceptance of this Bid.
5. Notice of Acceptance or request for additional information may be addressed to the undersigned at the address set forth in Item 6 below.
6. The names of all persons interested in foregoing Bid as principals are:

(IMPORTANT NOTICE: If Bidder or other interested person is a corporation, give legal name of corporation, state where incorporated, and names of president and secretary; if a partnership, give name of firm and names of all individual co-partners composing the firm; if Bidder or interested person is an individual, give first and last names in full.)

NOTE: If Bidder is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If Bidder is a partnership, set forth the name of the firm together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership.

The Bidder acknowledges by his signature that he agrees to requirements contained in the Invitation to Bid and the Instructions to Bidders, and that should he fail to execute a Contract with the Owner, should the Owner award said Contract to him, that the Owner may rightfully collect the sum of the Bid Bond. The required Bid Bond is attached to this Bid.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PROPOSAL FORM**

Section 00300 - Page 3 of 4

CONTRACTOR'S BID SCHEDULE					
SHELBY COUNTY LANDFILL					
GAS SYSTEM EXPANSION					
COLUMBIANA, ALABAMA					
<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>DESCRIPTION</u>	<u>UNIT PRICE</u>	<u>EXTENSION</u>
1.	1	LS	Mobilization		
2.	2,700	LF	2" HDPE SDR-11 Force Main		
3.	2,700	LF	2" HDPE SDR-11 Air Line		
4.	2	EA	Air/Vacuum Release Assembly		
5.	1,700	LF	14" HDPE SDR-17 Pipe		
6.	1,100	LF	6" HDPE SDR-17 Pipe		
7.	1	EA	36" HDPE SDR-32.5 Condensate Pump Station		
8.	1	EA	2" PVC Force Main Valve		
9.	1	EA	2" Steel Air Valve		
10.	3	EA	Access Riser		
11.	1	EA	14" Butterfly Valve		
12.	1	EA	14" Blind Flange Assembly		
13.	3	EA	Remote Well Assembly		
14.	7	EA	Dual Extraction Wellhead Assembly		
15.	10	EA	QED AP4 Auto Pump Condensate Removal Assembly (Wells Only)		
16.	50	LF	Well Abandonment (Drilling)		
17.	1	LS	Hydroseeding		
18.	1	LS	As-Built Survey		
19.	705	LF	Gas Extraction Well Construction In Refuse		
20.	1	LS	Engineering Controls		
			TOTAL AMOUNT OF BID		

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PROPOSAL FORM**

Section 00300 - Page 4 of 4

NAME OF FIRM: _____

ADDRESS: _____

LICENSE # _____ Date of License: _____

CLASSIFICATION: _____ Monetary Limit: _____

SIGNED BY: _____ TITLE: _____

PRINTED NAME: _____

Note: If a corporation, Bid must be signed by person authorized by corporation by-laws to bind it to a contract.

The entirety of this project shall be bid using the Bid Schedule below. The Bidder agrees to perform all necessary work described in the **BID DOCUMENTS** for the following unit price bid.

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

WITNESSES:

Name (Print)

BY (Legal Signature)

Name (Print)

BY (Legal Signature)

The full names and residences of persons and firms interested in foregoing Bid as Principals are as follows:

Legal Name of Bidder(s)

Name / Title (Print)

BY (Legal Signature)

Address

Name / Title (Print)

BY (Legal Signature)

Address

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PROJECT SUMMARY**

SECTION 00-1010 – Page 1 of 1

Part 1 – General

Project Description:

Contractor shall provide materials and construction services for Shelby County Landfill Gas Collection System Expansion Project as shown on the project drawings and specifications. The work shall comply with the following specifications; see attached exhibits.

Requirements for Contractor:

Contractor and contractors on site staff shall have experience in the construction of similar projects. Contractor shall provide documentation satisfactory to Owner of compliance with these experience requirements and that contractor's operator is competent to construct the proposed project.

Construction Timeframe:

Project to be complete within **forty-five (45)** calendar days from date of indicated on the Notice to Proceed. Fourteen calendar days will be allowed for materials procurement.

Construction Scope and Site Conditions:

Operator(s) to construct the project per the project specifications and layout.

Contractor is expected to execute a Public Works Contract, Bonds and provide other required documents as required by the contract and Local and State laws. (Sample Attached)

Building permit and other permits required are the responsibility of the Contractor.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PROJECT NOTES**

SECTION 00-1020 – Page 1 of 2

1. The successful bidder, upon notification by the Owner, shall have ten (10) days to execute a contract pertaining to the scope of work as identified within this bid proposal package. Failure to do so shall result in forfeiture of the bidder's bond subject to stipulations as provided herein.
2. After the contract is signed and executed by both parties, the Owner shall issue a "Notice to Proceed" to the successful bidder.
3. Upon failure of the Contractor to complete the contract work within forty-five (45) calendar days, the Contractor shall be assessed liquidated damages of the amount specified of \$500 per day.
4. The contractor shall locate all utilities prior to commencing construction. Prior to the start of construction, the contractor shall field verify the locations of all pipes, power lines, and utilities to check for conflicts with the construction project. The Contractor shall notify the Owner immediately if a conflict is found prior to commencement of construction. It shall be the responsibility of the Contractor to determine the exact location of all existing utilities, whether shown on the plans or not. In the event of a conflict it shall be the responsibility of the contractor to cooperate with the applicable utility company.
5. It is the responsibility of the contractor to verify all quantities and site conditions prior to bidding. The Contractor shall notify the Owner prior to bidding of any discrepancies in the plans.
6. The contractor shall be responsible for obtaining all required construction permits.
7. Any erosion control devices required will be the responsibility of the contractor and shall be installed and maintained by the contractor per ADEM BMP specifications.
8. The project limits will be closed during construction
9. The Contractor will be responsible for any and all aspects of job safety. The Owner will not supervise or inspect any safety feature.
10. It shall be the duty and the responsibility of the Contractor to give notification to the Owner 24 hours prior to commencement of any construction activity. Failure to notify as required may be grounds for non-acceptance.
11. The Owner reserves the right to omit and self-perform any individual item of work partially or in whole.
12. Proof of Competency of Bidder – At the time of bid, bidder must furnish a list of previous similar projects successfully completed. The list provided must include specific contacts and telephone numbers for each project. Upon request prior to award of bid the Owner may request any bidder to furnish additional evidence satisfactory to the Owner that he and his proposed Subcontractors have sufficient experience in the types of work called for to assure completion of the Contract in a satisfactory manner and that their current project workload will not limit their capability. Successful Bidder shall submit a list of subcontractors to

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PROJECT NOTES**

SECTION 00-1020 – Page 2 of 2

- be employed on the project.
13. Prior to installation or request for associated field inspections, shop drawings shall be submitted for review and approval, designed in accordance with the project plans and specifications.
 14. After completion of any excavating, the contractor is responsible for backfilling, compacting and stabilizing all disturbed areas.
 15. Indemnity: The Contractor shall assume all liability for and shall indemnify and save harmless the Shelby County Commission, its officers, agents, and employees, and their successors and assigns, and their consultants and employees from all damages and liability for injury to any person or persons, and injury to or destruction of property, including the loss of use thereof, by reason of an accident or occurrence arising from operations under the Contract, whether such operations be by himself or by any Subcontractor or by anyone directly or indirectly employed by either of them, occurring on or about the premises or the ways and means immediately adjacent, during the term of the Contract, or any extension thereof, and shall also assume the liability for injury and/or damages to adjacent or neighboring property by reason of work done under this Contract.
The insurance shall extend to and include all of the Contractor's operations, regardless of whether they may be in connection with work that is temporary, permanent, or classified as "extra work".
 16. Immediately after completion of the Contract, the Contractor shall publish an Advertisement of Completion (see sample form within this document) in a newspaper of general circulation in Shelby County, Alabama, once a week for four consecutive weeks. Proof of publication of said notice shall be submitted by the Contractor to the Shelby County Commission by affidavit of the publisher and a printed copy of the notice. In no instance shall a final settlement be made upon the Contract until the expiration of thirty (30) days from the completion of the Contract.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
COST REPORTING AND PAYMENTS**

SECTION 00-1025 – Page 1 of 2

Part 1 – General

1.1 SECTION INCLUDES

- A. Procedural requirements for processing the following:
 - 1. Schedule of Values
 - 2. Cash flow projections for the project
 - 3. Lump Sum and Unit prices (if any)
 - 4. Payment applications
 - 5. Payments at substantial completion
 - 6. Payment at final completion
 - 7. Identification of substitutions and alternatives in payment requests
 - 8. Accounting of Change Order amounts and allowances, and similar cost and pay-out related requirements

1.2 UNIT PRICE SCHEDULE

- A. General:
 - a. It is recognized that this project is a unit bid as listed in the Bid Form, and that the Owner-Contractor Agreement records acceptance or rejection of the bid price, either as bid or as otherwise agreed upon by the date of the Agreement.
 - b. It is recognized that the utilization of unit price contain total costs as defined therein, and include each entity's total cost to include margins for overhead and profit.

1.3 PAYMENT REQUESTS

- A. General:
 - a. Except as otherwise indicated in the Contract Documents, comply with the procedures and requirements of the General Conditions, including the submittal of supporting documentation and waivers or releases of lien.
 - b. Refer to the Supplementary Conditions for requirements concerning "retainage" by Owner on payment.
 - c. Except as otherwise indicated, sequence of progress payments shall be made on a regular basis, and each must be consistent with previous applications and payments.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
COST REPORTING AND PAYMENTS**

SECTION 00-1025 – Page 2 of 2

B. Payment Application Times:

The period of construction work covered by each payment request is the period indicated in the General Conditions.

C. Final Payment Application:

- a. The administrative actions and submittals which must precede or coincide with submittal of the final payment application can be summarized as follows but not necessarily limited to these:
 - i. Completion of project closeout requirements
 - ii. Completion of items specified for payment application at time of substantial completion (regardless of whether such application was made).
 - iii. Written assurance, satisfactory to Owner, that unsettled claims will be settled and that work not actually completed and accepted will be completed without undue delay.
 - iv. Transmittal of required project construction records to Owner.
 - v. Proof, satisfactory to Owner, that taxes, fees and similar obligations of the Contractor have been paid.
 - vi. Removal of temporary facilities, services, surplus materials, rubbish and similar provisions.
 - vii. Final payment for the work to be performed under this project shall be in accordance with the advertisement of completion requirements as set forth in the State of Alabama Public Works Bid Law.

Part 2 – Products

Not Used

Part 3 –Execution

Not Used

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
MEASUREMENT AND PAYMENT**

SECTION 00-1026 – Page 1 of 1

Part 1 – General

1.1 SECTION INCLUDES

- A. The entirety of the Project shall be on a unit price basis. The Bidder agrees to perform all necessary work described in the Contract Documents. Alterations to the Construction Contract will be based on the unit prices established in the Bid Schedule, and the Bidder will receive no additional compensation for items covered under this scope. All materials and services provided for construction on this project shall meet or exceed the requirement of the project specifications outlined herein.
- B. Even though an item of work is included in the technical specifications, if it is not both covered herein and specifically itemized in the Bid Form, payment for it shall not be separately made. Such work shall be considered a necessary part of or incidental to its related work and shall be subsidiary obligation to the items of work being performed.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
CHANGE ORDER PROCEDURES**

SECTION 00-1028 – Page 1 of 3

Part 1 – General

1.1 SECTION INCLUDES

- A. Procedural requirements for considering and processing Change Orders.
- B. Related Requirements:
 - a) Agreement: The amounts of established unit prices
 - b) Conditions of the Contract:
 - 1. Methods of determining cost or credit to Owner resulting from changes in Work made on a time and material basis.
 - 2. Contractor's claims for additional costs
 - c) Section 01025: Cost Reporting and Payments

1.2 PRELIMINARY PROCEDURES

- A. Owner or Engineer may initiate a potential change by submitting a Proposal Request to Contractor. Request will include the following:
 - a) Detailed description of the change, products, and location of the change in the Project.
 - b) Supplementary or revised drawings and specifications.
 - c) The Projected time span for making the change, and a specific statement as to whether overtime work is, or is not, authorized.
 - d) A specific period of time during which the requested price will be considered valid.
 - e) Such request is for information only, and is not an instruction to execute the changes, nor is it a mandate to stop work in progress.
- B. Provide full written data required to evaluate changes.
 - a) Maintain detailed records of work performed on a time-and-material/force account basis.
 - b) Provide full documentation to Owner upon request.
- C. Designate in writing the member of Contractor's organization:
 - a) Who is authorized to accept changes in the work
 - b) Who is responsible for informing others in the Contractor's organization of the authorization of changes in the work.
- D. Owner will designate in writing the person who is authorized to execute Change Orders.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
CHANGE ORDER PROCEDURES**

SECTION 00-1028 – Page 2 of 3

1.3 CONSTRUCTION CHANGE DIRECTIVES

- A. In absence of total agreement on the terms of a Change Order, the Owner may prepare and issue a Construction Change Directive directing a change in the work, for subsequent inclusion in a Change order.
 - a) Construction Change Directive will describe changes in the Work, and describe the method of determining any change in the Contract Sum or Contract Time, or both
 - b) The Owner will sign construction Change Directive
- B. Upon receipt of a Construction Change Directive, Contractor shall do the following:
 - a) Promptly proceed with the change in the work involved
 - b) Promptly advise the Owner of the Contractor's agreement or disagreement with the method, if any provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.
- C. A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them.
 - a) Such agreement shall be effective immediately and shall be recorded as a Change Order
 - b) If Contractor does not respond promptly or if he disagrees with the Construction Change Directive, he shall comply with General Conditions.
- D. A Construction Change Directive shall be processed in compliance with requirements of the General Conditions.

1.4 DOCUMENTATION OF PROPOSALS AND CLAIMS

- A. Support each quotation for a lump-sum proposal, and for each unit price that has not previously been established, with sufficient substantiating data to allow Owner to evaluate the quotation.
- B. On request provide additional data to support time and cost computations:
 - a. Labor required
 - b. Equipment required:
 - i. Recommended source of purchase and unit cost
 - ii. Quantities required
 - c. Taxes, insurance and bonds
 - d. Credit for work deleted from Contract, similarly documented
 - e. Overhead and profit, for subcontractor and General Contractor separately
 - f. Justification for any change in Contract Time

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
CHANGE ORDER PROCEDURES**

SECTION 00-1028 – Page 3 of 3

- 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 the following additional information:
 - a. Name of the Owner's authorized agent who ordered the Work, and date of the order
 - b. Dates and hours work was performed, and by whom
 - c. Time record, summary of hours worked, and hourly rates paid
 - d. Receipts and invoices for:
 - e. Equipment used, listing dates and times of use
 - f. Products used, listing of quantities
 - g. Subcontracts
 - h. Overhead and Profit, taxes, insurance
- D. Document requests for substitutions for Products as specified elsewhere in Division One

1.5 PREPARATION OF CHANGE ORDERS

- A. Contractor will prepare each Change Order.
- B. Change Order will describe change in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
- C. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

1.6 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. 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

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PROJECT MEETINGS**

SECTION 00-1200 – Page 1 of 2

Part 1 – General

1.1 PRE-CONSTRUCTION MEETING

- A. Schedule meeting within the early stages of Construction as determined by the owner.
- B. Suggested Agenda: Contractor shall prepare written material, distribute lists, and discuss the following:
 - a. Identification of major Subcontractors and Suppliers
 - b. Projected construction schedule (To be supplied in bar chart format by the Contractor prior to beginning work)
 - c. Critical work sequencing
 - d. Major Equipment deliveries and priorities
 - e. Project coordination, including designation of responsible persons
 - f. Procedures for, and processing of:
 - i. Field decisions
 - ii. Proposal requests
 - iii. Submittals
 - iv. Change orders
 - v. Applications for payments
 - g. Adequacy of distribution of Contract Documents
 - h. Procedures for maintaining Record Documents
 - i. Use of premises
 - i. Work and storage areas
 - ii. Owner's requirements
 - j. Construction facilities, construction aids, and controls
 - k. Temporary utilities
 - l. Safety and first aid procedures
 - m. Security procedures
 - n. Housekeeping procedures
 - o. Working days/hours
 - p. Erosion control and stormwater management

1.2 PROGRESS MEETINGS

- A. Schedule progress meetings as determined by the owner when they are necessary.
- B. Suggested Agenda:
 - a. Review and approval of minutes of previous meeting
 - b. Review of work progress since previous meeting
 - c. Field observations, problems, conflicts.
 - d. Problems which impede construction schedule

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PROJECT MEETINGS**

SECTION 00-1200 – Page 2 of 2

- e. Corrective measures and procedures required to regain projected schedule
- f. Revisions to construction schedule
- g. Plan progress and schedule for succeeding work period
- h. Coordination of schedules
- i. Review submittal schedules; expedite as required
- j. Review proposed changes for:
 - i. Effect on construction schedule and on completion date
 - ii. Effect on other contracts of the Project
- k. Other Business

Part 2 – Products

Not Used

Part 3 – Execution

Not Used

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
CONSTRUCTION SCHEDULES**

SECTION 00-1310 – Page 1 of 2

Part 1 – General

1.1 SECTION INCLUDES

Procedures for preparation, submission and review of “Horizontal Bar Type” Progress or Construction Schedules for the entire project, and bi-weekly updating.

1.2 FORM OF SCHEDULES

Prepare Construction Schedules in the form of a horizontal bar chart prior to commencing the work. Work shall not commence until the Contractor submits the project schedule for review.

1.3 CONTENT OF SCHEDULES

- A. Construction Schedules shall include the following:
 - a. Complete sequence of construction by activity.

1.4 SUBMITTALS

- A. Submit Design and Construction Schedule within five (5) calendar days after date of a contract award
 - a. Owner will review design and schedule and return a copy marked approved or with comments.
 - b. If required, resubmit for final review.

1.5 DISTRIBUTION

- A. Distribute copies of approved Design and Construction Schedule to job file and other concerned parties.
- B. Instruct all recipients to report any inability to comply and provide detailed explanation with suggested remedies.

1.6 DURATION AND MILESTONES

- A. The Contract Time shall commence to run on the date of issuance of the Notice to Proceed. The project shall be substantially completed within 45 calendar days after the Contract Time commences to Run. Upon reaching substantial completion, the successful contractor will be issued a letter stating the project has reached substantial completion, the work will be inspected, and a punch list will be generated and forwarded.
- B. The Contractor shall prosecute the work diligently and will avoid interfering with or delaying any progress of any other Contractors or the Owner’s own forces on other project related work.
- C. The Contractor shall be allowed 14 calendar days from the date of award to

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
CONSTRUCTION SCHEDULES**

SECTION 00-1310 – Page 2 of 2

procure all required materials after such period, contract time charges shall commence. Contract time in the amount of 45 calendar days will be allowed.

Part 2 - Products

Not used

Part 3 - Execution

Not used

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
SHOP DRAWINGS, PRODUCT DATA, SAMPLES**

SECTION 00-1340 – Page 1 of 1

Part 1 – General

1.01 SECTION INCLUDES

Procedures for processing Shop Drawings, Product Data, Office Samples, and Certificate of Compliance

1.02 GENERAL PROCEDURES

- A. The approval of submittals does not constitute a Change Order.
- B. All items shall be submitted under Contractor's transmittal letter. The Contractor shall stamp each submittal with his submittal stamp, and shall include the following information:
 - 1. Project by title and Owner's project number
 - 2. Work and products by Specifications Section and Article number
 - 3. Contractor shall submit one copy of every submittal or sample to Owner for review.
- C. Resubmittals: When Owner requires that a submittal be "resubmitted," comply with the requirements of this Section and identify changes made since the previous submittal.
- D. Notify Owner in writing at time of submittal of any deviations from the requirements of Contract Documents.
- E. Make all submittals far enough in advance of scheduled dates for installation to provide sufficient time for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing deliver.
 - 1. Review Time: In scheduling work activities, allow at least seven (7) working days from Owner's receipt for his review. The seventh day shall be defined as the first day of return to the Contractor.
 - 2. Delays caused by the tardiness of the Contractor in preparing and in forwarding of submittals will not be an acceptable basis for extension of the Contract completion date nor for consideration of alternate products that do not meet the specified requirements of this Project Manual.
- F. Starting work which requires submittals to be approved by Owner before Owner approves and returns the submittals to Contractor shall be at Contractor's risk.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
STORAGE AND PROTECTION**

SECTION 00-1620 – Page 1 of 2

Part 1 – General

1.01 GENERAL STORAGE

- A. Store products immediately on delivery in accordance with the manufacturer's printed instructions, with seals and labels intact and legible, and protect until installed in the work.
- B. Arrange storage in a manner to provide easy access for inspection.
- C. Provide protection and restrict access to project site, in-place work, and stored materials from vandalism.

1.02 EXTERIOR STORAGE

- A. Provide substantial platforms, blocking or skids to support fabricated products above the ground to prevent soiling or staining.
- B. Cover products that are subject to discoloration, deterioration, or oxidation from exposure to the elements with impervious sheet coverings or sheds constructed of lumber. Provide adequate ventilation to avoid condensation.
- C. Any mechanical or electrical equipment that is to be stored at the Project site shall be protected and periodically maintained in accordance with these Specifications (all applicable sections) and the manufacturer's recommendations. If warehousing of any products to be used in the work is required as a result of inclement weather conditions or other special product needs, all costs shall be borne by the Contractor.
- D. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
- E. Provide surface drainage to prevent flow or ponding of rainwater.
- F. Prevent mixing of refuse or chemically injurious materials or liquids.
- G. Maintain a periodic system of inspections of stored products on a scheduled basis to assure that:
 - a. Condition of storage facilities is adequate to provide required conditions.
 - b. Required environmental conditions are maintained on a continuing basis

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
STORAGE AND PROTECTION**

SECTION 00-1620 – Page 2 of 2

- c. Surfaces of products exposed to elements are not adversely affected. NOTE: any weathering of products, coatings and finishes is not acceptable under requirements of the Contract Documents.

1.03 PROTECTION AFTER INSTALLATION

- A. Provide substantial coverings to protect installed products from damage from subsequent operations and vandalism. Remove when no longer needed, prior to completion of work.
- B. Control traffic to prevent damage to equipment and surfaces.
- C. Provide coverings to protect finished surfaces from damage.
- D. In other areas subject to foot traffic, secure heavy paper, sheet goods or other materials in place.
- E. For movement of heavy products, lay planking or similar materials in place.
- F. Prohibit traffic of any kind across grassed, seeded, or landscaped areas.

Part 2 – Products

Not Used

Part 3 – Execution

Not Used

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
CONTRACT CLOSEOUT**

SECTION 00-1700 – Page 1 of 3

I. Part 1 – General

1.01 SUBSTANTIAL COMPLETION

- A. When the project is considered to be substantially complete, submit written notice to the Owner that the project or designated portion is substantially complete. Include a list of items to be completed.
- B. Within a reasonable time, Owner will inspect to determine status of completion, and compile a punch list of items to be completed and corrected. If Owner determines that Work is not substantially complete, he will immediately notify Contractor in writing. The Owner will generally point out his reasons; he will not be obligated to give an exhaustive list of discrepancies.
- C. Contractor's Duties are to remedy the deficiencies and send the Owner another written Notice of Substantial Completion.
- D. Owners Actions will be to re-inspect the work and issue a Certificate of Substantial Completion when he considers it to be warranted.

1.02 OWNER OCCUPANCY

- A. Owner's Action: Occupy the Project, or designated portion of the Project, in accordance with provisions of the Certificate of Substantial Completion.
- B. Contractor's Duties:
 - a. Obtain Certificate of Occupancy if required by local building codes authority.
 - b. Obtain consent of insurance company or companies to keep insurance in force during partial occupancy by the Owner.
 - c. Make corrections listed on punch list attached to Certificate of Substantial Completion.
 - d. Perform final clean up.

1.03 FINAL COMPLETION

- A. When this Project is considered to be complete, Contractor shall submit certification indicating the following:
 - a. Contact Documents have been reviewed and Work has been inspected for compliance with those Documents.
 - b. Work has been completed in accordance with Contract Documents.
 - c. All punch list items have been corrected
 - d. Work is complete and ready for final inspection.
 - e. Appropriate notifications have been filed with Governmental Agencies (attach copies.)

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
CONTRACT CLOSEOUT**

SECTION 00-1700 – Page 2 of 3

B. Owner's actions during final inspection:

- a. Inspect to verify the status of completion with reasonable promptness
- b. Notify Contractor in writing about any Work considered to be incomplete or defective.

C. Contractor's Duties: take immediate action to correct deficiencies, and send certification to Owner that Work is complete.

D. Owner's duties: determine when Work is acceptable then request Contractor to make closeout submittals.

1.04 RE-INSPECTION FEES

Should status of completion of work require re-inspection by Engineer due to failure of work to comply with Contractor's claims on initial inspection, Owner will deduct the amount of Engineer's compensation for re-inspection services from final payment to Contractor.

1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS REQUIRED

- A. Documents required by State Licensure inspectors and other authorities having jurisdiction.
- B. Project Record Documents: Comply with Section 01720
- C. Operation and Maintenance Data: Comply with Section 01730
- D. Warranties and Bonds: Comply with Section 01740
- E. Evidence of Payment and Release of Liens: Comply with requirements and Conditions of the Contract
- F. Consent of Surety to Final Payment
- G. Certificates of Insurance for Products and Completed Operations: Comply with Supplementary Conditions
- H. Test Results: Complete, dated test results of various systems signed by persons authorized to sign for the qualified testing agencies that conducted tests.
- I. Closeout documents shall require written acceptance by the governing agency.

1.06 STATEMENT OF ADJUSTMENT OF ACCOUNTS

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
CONTRACT CLOSEOUT**

SECTION 00-1700 – Page 3 of 3

- A. Submit a final statement to Owner indicating all adjustments to the Contract Sum. Include the following:
- a. Original Contract Sum
 - b. Previous change orders
 - c. Changes under allowances
 - d. Changes under unit prices.
 - e. Deductions for uncorrected work
 - f. Penalties and bonuses
 - g. Deductions for liquidated damages.
 - h. Deductions for re-inspection fees
 - i. Other adjustments to Contract Sum
 - j. Total Contract Sum, as adjusted.
 - k. Previous payments.
 - l. Sum remaining due
- B. If required, a final Change Order will be prepared reflecting approved adjustments to Contract Sum that were not previously made on Change Orders.

1.07 FINAL APPLICATION FOR PAYMENT

Submit final Application for Payment in accordance with procedures and requirements of the Conditions of the Contract and Alabama State Law.

1.08 FINAL PAYMENT

Owner will make final payment.

1.09 POST-CONSTRUCTION INSPECTION

Prior to expiration of one year from the Date of Substantial Completion, the Owner will make a visual inspection of the Project to determine whether correction of Work is required, in accordance with the Conditions of the Contract.

The Owner will promptly notify the Contractor, in writing, of any observed deficiencies. Contractor shall then correct deficiencies promptly.

II. Part 2 – Products

Not Used

III. Part 3 – Execution

Not Used

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PROJECT RECORD DOCUMENTS**

SECTION 00-1720 – Page 1 of 2

Part 1 – General

1.01 SECTION INCLUDES

- A. Procedural requirements for maintaining documents and samples at the site as required in the General Conditions.
- B. The General Conditions require the Contractor to maintain a record copy of the following for Owner's review:
 - a. Drawings
 - b. Specifications and Schedules (Project Manual)
 - c. Addenda
 - d. Change Orders and other documents which modify original document
 - e. Approved shop drawings, product data and samples
 - f. Records of all changes made during construction
- C. In addition to the above, the Contractor shall maintain at the site a record copy of the following where applicable:
 - a. Field test records
 - b. Manufacturer's certificates
 - c. Inspection certificates

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Maintain Record Documents on site, apart from the documents used for construction.
- B. Label and file Record Documents in sequence with section number listings in Table of Contents of this Project Manual. Label each document "Project Record" in the lower right hand corner in neat, large printed letters.
- C. Maintain Record Documents in clean, dry, legible condition. Do not use Record Documents for construction purposes.
- D. Keep Record Document and samples available for inspection by Owner.

1.03 RECORDING

- A. Record information concurrently with construction progress. DO NOT conceal work until required information has been recorded.
- B. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction, including the following:
 - a. Depth of footings in relation to finish first floor level

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PROJECT RECORD DOCUMENTS**

SECTION 00-1720 – Page 2 of 2

- b. Measured horizontal and vertical locations of underground utilities, valves, etc. referenced to the original survey line. Show direction of flow of pipe and depth of piping underground.
- c. Field changes of dimensions and details
- d. Changes made by Contract Modifications
- e. Details not on original Contract Drawings

C. Project Manual: Legibly mark to record actual construction , including the following:

- a. On appropriate pages, record changes made by Addenda, Change Orders and other modifications
- b. On appropriate pages, enter trade name, manufacturer, catalog number, and name of supplier of each product and item actually installed, if different from that specified
- c. Other items installed but not originally specified

1.04 RECORD DRAWINGS

- A. Record Drawings that are required for Owner's records, shall be recorded on blueprints (other than the construction drawings) kept on the job by the Contractor. Do not use Record Drawings for construction purposes.
- B. The Contractor shall transfer all changes recorded on construction drawings to the Record Drawings. All information shall be recorded neatly and legibly.

1.05 SUBMITTALS

- A. At Contract Closeout, deliver Record Documents and samples, including Record Drawings, to Owner.
- B. Submit Record Documents under cover of a transmittal letter containing:
 - a. Date
 - b. Project title and number
 - c. Contractor's and subcontractor's names and addresses
 - d. Title and number of each Record Document
 - e. Certification that each document submitted is complete and accurate
 - f. Signature of Contractor or his authorized representative

Part 2 – Products

Not Used

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
WARRANTIES AND BONDS**

SECTION 00-1740 – Page 1 of 2

Part 1 – General

1.01 SECTION INCLUDES

Provide warranties and bonds required for specific products: **All materials that will become a permanent part of this project shall require a written manufacturer's warranty.**

1.02 FORM OF SUBMITTALS

- A. Electronic submittals are required.

1.03 PREPARATION OF SUBMITTALS

- A. Obtain warranties and bonds, executed in duplicate by responsible subcontractors, suppliers, and manufacturers, after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Completion is determined.
- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.

1.04 TIME OF SUBMITTALS

- A. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents to Owner after acceptance.
- B. Make other submittals to Owner after date of Substantial Completion, prior to final Application for Payment.
- C. For items of work when acceptance is delayed beyond date of Substantial Completion, submit documents to owner after acceptance, listing the date of acceptance as the beginning of the warranty period.

1.05 WARRANTY PERIOD

- A. The warranty period shall continue for a period of one (1) year from final acceptance of the work. All materials of construction, installation, and workmanship shall be covered under this warranty.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
WARRANTIES AND BONDS**

SECTION 00-1740 – Page 2 of 2

Part 2 – Products

Not Used

Part 3 –Execution

Not Used

END OF SECTION



SHELBY COUNTY, ALABAMA
PUBLIC WORKS CONTRACT
For Projects Over \$50,000
Act 97-225

SHELBY COUNTY AND _____

THIS AGREEMENT, entered into as of this _____ day of _____ by and between SHELBY COUNTY, ALABAMA, a political subdivision of the State of Alabama (hereinafter called the COUNTY) and _____ (hereinafter called the CONTRACTOR). This agreement concerns: _____ as described in the noted attached plans index, specifications index, project issued addenda, and the contractor's bid (herein called the PROJECT).

WITNESSETH THAT:

WHEREAS, the COUNTY is currently involved in the planned construction of the PROJECT as specified in design and bid specifications dated _____, which said design and bid specifications are incorporated into this Contract by reference and made part and parcel hereof as fully as if set out herein. (See also attached bid by CONTRACTOR on the _____) and

WHEREAS, CONTRACTOR submitted the lowest responsive and responsible bid for the construction of the PROJECT; and

WHEREAS, the COUNTY desires to engage and contract with the CONTRACTOR to provide technical, professional, and construction services and to construct and complete the PROJECT herein described; and

WHEREAS, the CONTRACTOR desires to contract to provide technical, professional, and construction services and to complete the construction of the PROJECT herein described:

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained herein, the COUNTY and the CONTRACTOR do hereby mutually agree, covenant, and contract as follows:

Section 1. CONTRACTOR

The COUNTY agrees to engage the CONTRACTOR, and the CONTRACTOR hereby agrees, to perform the construction services hereinabove and hereinafter set forth, and to construct the PROJECT described within this Contract in accord with the accompanying plans and specifications in a good, competent, and workmanlike manner as requested and determined by the COUNTY and in strict compliance with the design and bid specifications for such PROJECT as referenced in other portions of this Contract.

The CONTRACTOR will supply to the COUNTY prior to the commencing of work the following documents, together with any other documents as are required by Alabama law:

- A) Certificate of Insurance (with unconditional cancellation clause), said insurance in the amounts as specified in the contract documents and as approved by the COUNTY.
- B) Section 84 Business License, Applicable City Business License and all other licenses required by law to complete this project
- C) The CONTRACTOR will furnish to the COUNTY a performance bond equaling the total bid amount of the PROJECT payable to the COUNTY, which said bond shall be in form and substance as approved by the COUNTY. The CONTRACTOR shall also execute and furnish to the COUNTY a payment bond securing the CONTRACTOR'S obligation to pay for all labor, materials, or supplies for work done pursuant to this contract, which said payment bond shall be in an amount equal to fifty percent (50%) of the total contract price and shall be in form and substance as approved by the COUNTY. Said payment bond shall also provide bonded coverage to cover and to compensate for reasonable attorney fees incurred by a successful party in civil actions brought on the bond and ordered to be paid by a court of competent jurisdiction.
- D) The CONTRACTOR shall comply with all applicable laws, ordinances, and codes of the U. S. Government, the State of Alabama, any relevant municipality, and the COUNTY, and, specifically and without limitation, shall comply with all provisions of the Beason-Hammond Alabama Taxpayer and Citizen Protection Act, commonly referred to as the Immigration Act, and amendments thereto adopted from time to time during the performance of this Contract, and shall document CONTRACTOR'S compliance with said law and submit to the COUNTY or at the direction of COUNTY any and all affidavits and proof as are from time to time required by law or required by COUNTY.

The CONTRACTOR, by the execution of this Contract, certifies and confirms that it is, at the time of the signing of this document, in full compliance with the aforesaid Beason-Hammond Alabama Taxpayer and Citizen Protection Act, and further agrees that upon request from the

COUNTY it will execute and file and take such action as is deemed by the COUNTY to be necessary to verify the CONTRACTOR's continuing compliance therewith.

Section 2. Scope of Services

The CONTRACTOR shall provide all construction services, work and labor, and other professional and technical services to complete the PROJECT herein described, which shall include, but not necessarily be limited to, the activities, plans, and specifications described in the construction drawings, specifications, bid and related documents.

Section 3. Time of Performance

The CONTRACTOR shall begin work on the PROJECT upon the execution of this contract and will continue, uninterrupted, for a period of time not to exceed _____ (____) calendar days beginning after receiving Notice to Proceed from the COUNTY. Said work to be completed in a good and workmanlike manner by the CONTRACTOR within the period of time specified.

Section 4. General Provisions

- (a) *Personnel.* The CONTRACTOR warrants that it has the expertise, professional personnel, and adequate work force capable of performing this Contract, as called for herein, in a satisfactory and proper manner, in accord with highest industry standards, or will secure the services of such personnel as may be required to perform such services, construct said PROJECT, and perform its obligations pursuant to this Contract.
- (b) *Office Space.* The CONTRACTOR agrees to provide and maintain the office space and facilities required to perform all services as called for under this Contract, at no expense to the COUNTY.
- (c) *Subcontracts.* None of the work or services covered by this contract shall be subcontracted without the prior approval of the COUNTY. Any work or services subcontracted hereunder shall be specified by written contract or agreement and shall be subject to each provision of this contract.
- (d) *Access to Materials.* The COUNTY agrees to make available to the CONTRACTOR, upon request, any maps, documents, and planning materials or any other information in its possession or otherwise readily available, which has a direct bearing on the PROJECT, at no expense to the CONTRACTOR.

(e) *Communications.* The representatives of the COUNTY and the CONTRACTOR to whom communications regarding the PROJECT which is the subject of this contract should be directed are as follows:

(1) COUNTY: Brandon Hamilton, Manager
Shelby County Department Environmental Services
1281 Highway 70
Columbiana, Alabama 35051
(205) 670-6862
Email: bhamilton@shelbyal.com

(2) CONTRACTOR: _____

(f) The CONTRACTOR shall perform the work and complete the PROJECT in accord with all laws of the State of Alabama, all laws of the United States of America, relevant municipal laws, and to the satisfaction of the COUNTY. Work will be performed by the CONTRACTOR under the direct supervision of the representative of the COUNTY, who will have sole authority of deciding if work conditions, such as weather, temperature, roadway conditions, and other details of construction are complied with by the CONTRACTOR. At the discretion of the COUNTY, work may be stopped or delayed at any time until conditions are appropriate, in the opinion of the COUNTY, in order that optimum results and work quality may be obtained from the PROJECT in the best interest of the COUNTY. The decision of the COUNTY upon any questions connected with the performance of this Contract or any failure or delay in the prosecution of the work by the CONTRACTOR shall be final and conclusive.

(g) Attachment A - Supplemental Conditions is hereby incorporated as part of this contract.

Section 5. Compensation and Method of Payment

(a) For services satisfactorily rendered under this Contract and approved by COUNTY, the COUNTY agrees to pay the CONTRACTOR for fulfillment of the terms and conditions of this Contract as specified in the specifications and bid documents. The total amount to be paid under this section for services shall not exceed _____ (\$_____). Such payment shall, if due, be made monthly at the end of each calendar month, but in no case later than forty-five (45) days after the acceptance by COUNTY that the estimate and terms of the contract providing for partial payment have been fulfilled. In preparing estimates, the material delivered on the site, materials suitably store, and insured off-site, and

preparatory work done may be taken into consideration by COUNTY. If the amount due by COUNTY is not in dispute and the amount payable is not paid within the forty-five (45) day period, the CONTRACTOR shall be entitled to interest from COUNTY at the rate assessed for underpayment of taxes under Section 40-1-44(a), Code of Alabama 1975, on the unpaid balance due. Interest payments shall not be due on payments made after the forty-five (45) day period because of administrative or processing delays at the close of the fiscal year. In making the partial payments, there shall be retained not more than five percent (5%) of the estimated amount of work done and the value of materials stored on the site or suitably stored and insured off-site, and after fifty percent (50%) completion has been accomplished and approved by COUNTY, no further retainage shall be withheld. The retainage as set out herein shall be held until final completion and acceptance of all work covered by the contract. Retainage shall be held until all work has been completed to COUNTY's satisfaction. The CONTRACTOR, upon completion and acceptance by COUNTY of the work, shall give notice of completion of PROJECT by advertising in the Shelby County Reporter. The advertisement must run four consecutive weeks. After receiving the affidavit from the newspaper publisher and a copy of the notice published and acceptance by the COUNTY, final settlement will be made as the same is due.

(b) PROVISIONS OUTLINING THE SOURCE OF SUFFICIENT FUNDS TO BE UTILIZED BY COUNTY TO FULFILL COUNTY'S OBLIGATIONS UNDER THIS CONTRACT (indicate which applies by entering an appropriate mark opposite the following):

 X The funds to be utilized by COUNTY to fulfill its obligation under this contract are funds which are held by COUNTY at the time of the execution of this contract or will become available at a date following the execution of the contract.

 The source of funds to be utilized by COUNTY in fulfilling its obligation under this contract is a grant, award, or direct reimbursement from the State, federal government, or other source which will not become available until after the execution of this contract, and the provision of this contract requiring prompt payment shall not apply until COUNTY is in receipt of the funds as provided in the contract. Upon receipt of such funds, the forty-five (45) day requirement specified in this contract shall commence and shall be enforceable as provided herein.

Section 6. Terms and Conditions

(a) *Termination of Contract for Cause/Breach of Contract.* If through any cause the CONTRACTOR shall fail to fulfill in a timely and proper manner its obligations under this Contract, or if the CONTRACTOR shall violate any of the covenants, agreements, or stipulations of this Contract, the COUNTY shall thereupon have the right to terminate this Contract by giving written notice to the CONTRACTOR of such termination and specifying the effective date of such termination. In such event, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs, and reports, or other materials prepared by the CONTRACTOR under this Contract or during the construction performance, shall, at the option of the COUNTY, become its property.

Notwithstanding the above, the CONTRACTOR shall not be relieved of liability to the COUNTY for damages sustained by the COUNTY by virtue of any breach of the Contract by the CONTRACTOR, and the COUNTY may withhold any payments to the CONTRACTOR for the purpose of set-off until such time as the exact amount of damages due the COUNTY from the CONTRACTOR is determined.

(b) *Termination for Convenience of the COUNTY.* The COUNTY may terminate this Contract at any time, with or without just cause, by giving written notice to the CONTRACTOR of such termination and specifying the effective date thereof, at least thirty (30) days prior to the effective date of such termination. In such event, all finished or unfinished documents and other materials, as described in the above clause, shall, at the option of the COUNTY, become its property. If the Contract is terminated by the COUNTY as provided in this subparagraph (b), the CONTRACTOR shall be entitled to receive just and equitable compensation for any work satisfactorily completed on said PROJECT.

(c) *Changes.* The COUNTY may, from time to time, request changes of the CONTRACTOR in the scope of services to be performed hereunder. Such changes, or renegotiation, including any increase or decrease in the amount of the CONTRACTOR's compensation, which is mutually agreed upon by and between the COUNTY and the CONTRACTOR, shall be incorporated in written amendments to this Contract. The Contract can be extended under mutually agreed provisions through a written amendment to this document.

(d) *Assignability.* The CONTRACTOR shall not assign any interest in this Contract, and shall not transfer any interest in the same whether by assignment or novation, without the prior written consent of the COUNTY provided, however, that claims for money by the CONTRACTOR from the COUNTY under this Contract may be assigned to a bank, trust company, or other financial institution without such approval. Written notice of any such assignment or transfer shall be promptly furnished to the COUNTY.

This Contract shall be binding upon and inure to the benefit of any successor to the COUNTY and such successor shall be deemed substituted for the COUNTY under the terms of this Contract. As used in this Contract, the term "successor" shall include any person, firm, employer, or other business entity which at any time, whether by merger, purchase, or otherwise, which assumes or is assigned responsibility of the COUNTY for the covered PROJECT. This Contract shall also be binding upon and inure to the benefit of the CONTRACTOR, his successors, executors, and administrators.

(e) *Reports and Information.* The CONTRACTOR, at such times and in such forms as the COUNTY may require, shall furnish to the COUNTY such periodic reports as it may request pertaining to the work or services undertaken pursuant to this Contract, the costs and obligations incurred or to be incurred in connection therewith, and any other matters covered by this Contract.

(f) *Findings Confidential.* All of the reports, information, data, etc., given to or prepared or assembled by the CONTRACTOR under this Contract are confidential, and the CONTRACTOR

agrees that they shall not be made available to any individual or organization without the prior written approval of the COUNTY.

(g) *Waiver of Trial by Jury.* The parties to this Contract desire to avoid the additional time and expense related to a jury trial of any disputes arising hereunder. Therefore, it is mutually agreed by and between the parties hereto, and for their successors and assigns, that they shall and hereby waive trial by jury of any claim, counterclaim, or third-party claim, including any and all claims of injury or damages, brought by either party against the other arising out of or in any way connected with this Contract and the relationship which arises herefrom. The parties acknowledge and agree that this waiver is knowingly, freely, and voluntarily given, is desired by both parties, and is in the best interest of both parties.

(h) *Compliance with Local Laws.* The CONTRACTOR shall, throughout the performance of this Contract, comply with all applicable laws, ordinances, and codes of the U. S. Government, the State of Alabama, any relevant municipality, and the COUNTY, and, specifically and without limitation, shall comply with all provisions of the Beason-Hammond Alabama Taxpayer and Citizen Protection Act, commonly referred to as the Immigration Act, as amended from time to time during the performance of this Contract, and shall document CONTRACTOR's compliance with said law and submit to the COUNTY or at the direction of COUNTY any and all affidavits and proof as are from time to time required by law or required by COUNTY .

(i) *Audits and Inspection/Access to Records/Record Retention.* At any time during normal business hours, with prior arrangement and as often as the COUNTY may deem necessary, the CONTRACTOR shall make available to the COUNTY for examination all of its records with respect to matters covered by this Contract and will permit the COUNTY to audit, examine, and make excerpts or transcripts from such records, and to make audits of all contracts, invoices, materials, payrolls, records of personnel, conditions of employment, and other data relating to all matters covered by this Contract.

The CONTRACTOR shall retain all books, documents, papers, and records which are directly pertinent to this contract for a period of six (6) years following completion of the contracted work and expiration of the Contract, unless written permission to destroy them is granted by the COUNTY.

(j) *Interest of Members of the COUNTY and Other Local Public Officials.* No officer, member, or employee of the COUNTY and no member of its governing body, and no other public official of the governing body of the locality or localities in which the PROJECT is situated or being carried out, who exercises any functions or responsibilities in the review or approval of the undertaking or carrying out of this PROJECT, shall participate in any decision relating to this Contract which affects his personal interest or the interest of any corporation, partnership, or association in which he is directly or indirectly interested or has any personal or pecuniary interest, direct or indirect, in this Contract or the proceeds thereof. The CONTRACTOR shall take appropriate steps to assure compliance.

(k) *Interest of the CONTRACTOR.* The CONTRACTOR covenants that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this Contract. The CONTRACTOR further covenants that, in the performance of this Contract, no person having any such interest shall be employed.

Section 7. Additional Services of CONTRACTOR

If authorized in writing by the COUNTY, the CONTRACTOR shall furnish additional services that are not considered as an integral part of the PROJECT plans and specifications. Under this Contract, all costs for additional services will be negotiated as to activities and compensation. Upon mutual written agreement between the COUNTY and the CONTRACTOR, and written authorization from the COUNTY to proceed, the CONTRACTOR will provide the additional service.

Section 8. Tax Responsibilities of CONTRACTOR

The parties to this Contract agree that the CONTRACTOR is an independent firm or person and that the relationship created by this Contract is that of an independent contractor. Further, the parties agree that the CONTRACTOR is not an employee of the COUNTY, and will not be treated as such for federal income tax purposes. In this regard, the CONTRACTOR acknowledges and accepts all tax responsibilities imposed by federal income tax laws, and any applicable state income tax laws, on self-employed persons, including, but not limited to, the responsibility of withholding from income the required amounts for federal income taxes, Social Security taxes, federal unemployment tax, and applicable state and local income taxes.

Section 9. Non-Exclusive Contract

The CONTRACTOR shall devote its time, attention, and energies to the fulfillment of this Contract. If, after satisfying its responsibilities to the COUNTY, the CONTRACTOR desires to render similar services to any other persons, or on behalf of any other firms, associations, or corporations, then the CONTRACTOR may contract for such services; provided, however, that in the event that the rendering of such additional services by the CONTRACTOR interferes, in the opinion of the COUNTY, with the quality of services rendered to the COUNTY, then the COUNTY shall have the option of either requesting the CONTRACTOR to cease performing such additional services or canceling this Contract.

Section 10. Independent CONTRACTOR Relationship

In the performance of the work, duties, and obligations evolving under this Contract, it is mutually understood and agreed that the CONTRACTOR is at all times serving as an independent contractor providing the COUNTY with services as a contractor and/or independent contractor. Amounts paid to the CONTRACTOR by the COUNTY as compensation for providing said services and for the performance of this Contract are for services purchased, and amounts paid to the CONTRACTOR shall be deemed to be compensation to an independent

contractor and shall not be subject to any tax withholding. It is expressly understood that the COUNTY is interested only in the results to be achieved, and the conduct and control of the work will be the sole responsibility of the CONTRACTOR. The CONTRACTOR is not considered to be an agent or employee of the COUNTY for any purpose, and the CONTRACTOR will not be eligible to participate in any benefits the COUNTY provides for its own employees. It is further understood and agreed that the COUNTY does not agree to use the CONTRACTOR exclusively. It is further understood and agreed that, except as provided herein, the CONTRACTOR is free to contract for similar services to be performed for others during the term of this Contract.

Section 11. Indemnification and Liability

The COUNTY shall not be liable for any injury to the person or property of any person, firm, or corporation resulting directly or indirectly from CONTRACTOR's performance of this Contract, and the CONTRACTOR assumes full and complete responsibility therefore. The CONTRACTOR shall remain insured under terms of a public liability insurance policy as described in the "Certificate of Insurance" attached hereto as Attachment "A" during the entire term of this Contract and for the performance of all work herein provided. The CONTRACTOR shall further indemnify the COUNTY and hold the COUNTY safe and harmless from any and all liability, lawsuits, judgments, attorney fees, and other costs incurred by the COUNTY in defending any claim or lawsuit made against the COUNTY by any person, firm, or corporation arising directly or indirectly out of any work performed by the CONTRACTOR pursuant hereto or any breach or alleged breach of duty or responsibility of the CONTRACTOR related thereto. IN WITNESS WHEREOF, the COUNTY and the CONTRACTOR have caused this Contract to be executed by their duly authorized officers on the day and year first above written.

ATTEST:

SHELBY COUNTY

By: Chad Scroggins
County Manager

Date

ATTEST:

CONTRACTOR

By (print): _____

Title: _____

Date

ATTACHMENT "A"
SUPPLEMENTAL CONDITIONS

- 1) Work must be coordinated with the COUNTY.
- 2) Construction documents, including the attached Project Plans and Specifications, are included as part of this Contract.
- 3) The CONTRACTOR must maintain work space clean and free of debris.
- 4) The CONTRACTOR's price quote dated _____, 202__ is hereby incorporated as a part of this Contract. Construction documents, including the Project Plans and Specifications, are included as part of this Contract.
- 5) By signing this contract, CONTRACTOR represents and agrees that it is not currently engaged in, nor will it engage in, any boycott of a person or entity based in or doing business with a jurisdiction with which the State of Alabama can enjoy open trade.
- 6) The CONTRACTOR shall procure and maintain public liability insurance with a minimum of One Million Dollars (\$1,000,000.00) coverage in form and substance as approved by COUNTY. A "Certificate of Insurance" shall be furnished to COUNTY and shall specify that such insurance is not subject to cancellation without prior written notice to COUNTY of at least thirty (30) days. Please request the additional insured to read: Shelby County, its officers, agents, and employees, successors or assigns.
- 7) When required by law the CONTRACTOR shall also provide to COUNTY a Certificate or Proof of Workmen's Compensation Insurance in form and substance acceptable to COUNTY.
- 8) Contractor agrees that it will fully comply with the Immigration Reform and Control Act of 1986, as amended by the Immigration Act of 1990, and the Beason-Hammon Alabama Taxpayer and Citizen Protection Act, which makes it unlawful for an employer in Alabama to knowingly hire or continue to employ an alien who is or has become unauthorized with respect to such employment or to fail to comply with the I-9 requirements or fails to use E-Verify to verify the eligibility to legally work in the United States for all of its new hires who are employed to work in the State of Alabama. Without limiting the foregoing, Contractor shall not knowingly employ, hire for employment, or continue to employ an unauthorized alien, and shall have an officer or other managerial employee who is personally familiar with the Contractor's hiring practices to execute an affidavit to this effect on the form supplies by Shelby County and return the same to Shelby County. Contractor shall also enroll in the E-Verify Program prior to performing any work, or continuing to perform any ongoing work, and shall remain enrolled throughout the entire course of its performance hereunder, and shall attach to its affidavit the E-Verify Program for Employment

Verification and Memorandum of Understanding and such other documentation as Shelby County may require to confirm Contractor's enrollment in the E-Verify Program. Contractor agrees not to knowingly allow any of its subcontractors, or any other party with whom it has a contract, to employ in the State of Alabama any illegal or undocumented aliens to perform any work in connection with the Project, and shall include in all of its contracts a provision substantially similar to the paragraph. If Contractor receives actual knowledge of the unauthorized status of one of its employees in the State of Alabama, it will remove that employee from the project, jobsite or premises of Shelby County and shall comply with the Immigration Reform and Control Act of 1986, as amended by the Immigration Act of 1990, and the Beason-Hammon Alabama Taxpayer and Citizen Protection Act. Contractor shall require each of its subcontractors, or other parties with whom it has a contract, to act in a similar fashion. If Contractor violates any term of this provision, this Agreement will be subject to immediate termination by Shelby County. To the fullest extent permitted by law, Contractor shall defend, indemnify and hold harmless Shelby County from any and all losses, consequential damages, expenses included but not limited to, attorney's fees, claims, suits, liabilities, fines, penalties, and any other costs arising out of or in any way related to Contractor's failure to fulfill its obligations contained in this paragraph. Additionally, contractor shall provide County proof that you are in compliance with the immigration law by including a notarized E-Verify Memorandum of Understanding and provide your subcontractors notice of their compliance obligations and obtain from each a notarized Affidavit of Immigration Law Compliance-Subcontractor.

- 9) The contractor, person, firm, or corporation undertaking or contracting to undertake the herein described public works project agrees to use in the execution of the contract materials, supplies, and products manufactured, mined, processed, or otherwise produced in the United States or its territories, if the same are available at reasonable and competitive prices and are not contrary to any sole source specification implemented under subsection (f) of Section 39-2-2, Code of Alabama(1975), as amended. In the event the contractor breaches the agreement to use domestic products, and domestic products are not used, there shall be a downward adjustment in the contract price equal to any realized savings or benefits to the contractor.
- 10) If work being performed interferes with normal operations of the facility, the work shall be scheduled after hours as necessary.

Debarment, Suspension and Other Responsibility Matters

As required by Executive Order 12549, Debarment and Suspensions, and implemented at 2 CFR Part 2867, for the prospective participants in primary covered transactions, as defined at 2 CFR Part 2867.20(a), the applicant certifies that it and its principals:

- A. Are not presently debarred, suspended, proposal for debarment, declared ineligible, sentenced to a denial of federal benefits by a state or federal court, or voluntarily excluded from covered transactions by any federal department or agency:
- B. Have not within a three year period preceding this covered transaction been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) or private agreement or transaction, violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion or receiving stolen property, making false claims, or obstruction of justice, or commission of any offense indicating a lack of business integrity or business honesty that seriously and directly affects your present responsibility;
- C. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state or local) with commission of any of the offenses enumerated in paragraph B. of this certification; and
- D. Have not within a three year period preceding this transaction had one of more public transactions (federal, state or local) terminated for cause or default.

I/we hereby certify that I/we are in complete compliance with all of the provisions noted above as of this date _____, 20__ .

Print: _____

Print: _____

Print: _____

Print: _____

Print: _____

Print: _____

**BOND
FOR PERFORMANCE OF THE WORK**

STATE OF ALABAMA
SHELBY COUNTY

KNOW ALL MEN BY THESE PRESENTS: That we, _____,
as Principal, _____ and
_____ and
_____ as Surety, are held and
firmly bound unto the County of Shelby, in the penal sum of
_____ and /100 Dollars (\$ _____), for
the payment of which sum, well and truly to be made, we hereby bind ourselves, our heirs,
executors, administrators, successors and assigns.

IN WITNESS WHEREOF, we have hereunto set our hands and affixed our seals, this _____
day of _____, 20____.

PROVIDED, HOWEVER, that the condition of this obligation is such that whereas the above bound
_____ have this day entered into a Contract with the said Shelby County
Commission for the completing the project described in the attached plans and specifications on CR
83 in Vincent in Shelby County, to-wit: known as Buck Creek Greenway Project, located within the
said County, a copy of which said Contract is hereto attached.

NOW, THEREFORE, in the event that said _____, as such Contractor,
shall faithfully and promptly perform said Contract and all the conditions and requirements thereof,
then this obligation shall be null and void and to no effect, otherwise to remain and be in full force
and effect.

PROVIDED, FURTHER, THAT upon failure of the said _____, to
promptly and efficiently prosecute said work, in any respect, in accordance with the Contract, the
above bound _____

_____,
as Surety, shall take charge of said work and complete the Contract at their expense, pursuant to its
terms, receiving however, any balance of the funds in the hands of said County due under said
Contract. Said Surety may, if they so elect, by written direction given to the Shelby County
Commission authorize the Commission to advertise for bids to complete the said Contract at the
expense of said Surety, and such Surety hereby agree and bind themselves to pay the expense of
the completion of such work, less any funds in the hands of the County remaining due to the above
bound Contractor.

PROVIDED, further, that said Contractor and Surety hereby agree and bind themselves to the
mode of service described in Section 39-1-1, Code of Alabama 1975, as amended, and consent
that such service shall be the same as personal service on said Contractor or Surety.

Upon completion of said Contract pursuant to its terms, if any funds remain due on said
Contract, the same shall be paid to said Principal or Surety.

The decision of said County Engineer upon any question connected with the execution of
said Contract, or any failure or delay in the prosecution of the work by said Principal or Surety, shall
be final and conclusive.

The Proposal, Specifications, and the Contract hereinbefore referred to, and the Bond for Performance of the Work executed under the provisions of Section 39-1-1, Code of Alabama 1975, as amended, are made a part of this obligation and instrument is to be construed in connection therewith.

WITNESS our hands and seals this _____ day of _____ 20__.

(L.S)

(L.S.)
Contractor

Surety

By _____

Address _____

**BOND FOR
PAYMENT OF
LABOR, MATERIAL, FEED-STUFFS OR SUPPLIES**

STATE OF ALABAMA
SHELBY COUNTY

KNOW ALL MEN BY THESE PRESENTS: That we _____, as
Principal, _____ and
and _____

_____ as Sureties, are held and firmly
bound unto the County of Shelby, in the penal sum of
_____ and /100 Dollars (\$ _____), for the payment
of which sum, well and truly to be made, we hereby bind ourselves, our heirs, executors,
administrators, successors and assigns.

IN WITNESS WHEREOF, we have hereunto set our hands and affixed our seals, this
_____ day of _____, 20____.

PROVIDED, HOWEVER, that the condition of this obligation is such that whereas the above
bound _____ have this day entered into a Contract with the said
County of Shelby for the for the completing the project described in the attached plans and
specifications, to-wit: known as Buck Creek Greenway Project, located within the said County, a
copy of which said Contract is hereto attached.

NOW, THEREFORE, in the event that said _____ as such
Contractor shall promptly make payment to all persons supplying him or them with labor, material,
feed-stuffs, or supplies for or in the prosecution of the work provided for in said Contract, then this
obligation shall be null and void and of no effect, otherwise to remain and be in full force and effect.

PROVIDED, FURTHER, in the event that the said _____ as such
contractor shall fail to make prompt payment to all persons supplying him or them with labor,
materials, feed-stuffs, or supplies for or in the prosecution of the work provided in such contract, the
above bound _____ as
Surety shall be liable for the payment of such labor, materials, feed-stuffs or supplies and for the
payment of reasonable attorney's fees incurred by the successful claimants of plaintiffs in suits on
said bond as provided in Section 39-1-1, Code of Alabama 1975, as amended, are made a part of
this obligation, and this instrument is to be construed in connection therewith.

In the event said Principal shall fail or delay the prosecution and completion of said work and
said Surety shall also fail to act promptly as hereinbefore provided, then said County Engineer may
cause ten days notice of such failure to be given, either to said Principal or Surety, and at the
expiration of said ten days, if said Principal or Surety do not proceed promptly to execute said
contract, the Shelby County Commission shall have the authority to cause said work to be done,
and when the same is completed and the cost thereof estimated, the said principal and sureties
shall and hereby agree to pay any excess in the cost of said work above the agreed price to be paid
under said Contract.

Upon completion of said Contract pursuant to its terms, if any funds remain due on said
Contract, the same shall be paid to said Principal or Surety.

The said Principal and Surety further agree as part of this obligation to pay all such damages of any kind to person or property that may result from a failure in any respect to perform and complete said Contract.

The decision of said County Engineer upon any question connected with the execution of said Contract, or any failure or delay in the prosecution of the work by said Principal or Surety, shall be final and conclusive.

The Proposal, Specifications and the Contract hereinbefore referred to, and the Bond for Payment of Labor, Materials, Feed-stuffs or Supplies executed under the provisions of Section 39-1-1, Code of Alabama 1975, as amended, are made a part of this obligation, and this instrument is to be construed in connection therewith.

WITNESS our hands and seals this _____ day of _____ 20____.

_____ (L.S)	_____ (L.S.)
	Contractor
_____	_____
_____	_____

Surety	
By _____	
Address _____	

CERTIFICATE OF NON-SEGREGATED FACILITIES

The federally assisted construction contractor certifies that he does not maintain or provide for his employee 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 are maintained. The federally assisted construction contractor certifies further that he will not maintain or provide for his employees any 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 washroom, 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 by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin, because of habit, local custom, or 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.

NOTICE TO PROSPECTIVE CONTRACTORS OF REQUIREMENT FOR CERTIFICATION OF NONSEGREGATED FACILITIES:

A Certification of Non-segregated Facilities must be submitted prior to the award of a contract or subcontract exceeding \$10,000, which is not exempt from the provisions of the Equal Opportunity Clause.

Certification - The information above is true and complete to the best of my knowledge and belief.

(Please Print) Name and Title of Signer

Signature Date

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

NOTICE OF AWARD

To: _____

Date: _____

Project: Shelby County Landfill Gas Collection
System Expansion Project

The OWNER has considered the BID submitted by you for the above described PROJECT in the bid received _____.

You are hereby notified that your BID has been accepted for items in the amount of
\$_____.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Shelby County, AL
Owner

By: Fred M. Gauntt III, PE
Title: Chief Facilities Management
Officer

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by _____ this the
_____ day of _____, 2023.

Contractor

By _____

Title

NOTICE TO PROCEED

To: _____ Date: _____, 2023

Project: Shelby County Landfill Gas Collection System Expansion Project

You are hereby notified to commence WORK in accordance with the Agreement dated _____ on or before _____ and you are to complete the WORK within _____ calendar days thereafter. The date of completion of all WORK is therefore approximately _____.

Shelby County, AL
Owner

By: Fred M. Gauntt, III, PE
Title: Chief Facilities Management
Officer

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by _____
this the _____ day of _____, 2023.

Contractor

By (Print): _____

Title: _____

PUBLIC WORKS CONTRACT
SHELBY COUNTY COMMISSION

CHANGE ORDER

DATE:

CHANGE ORDER NO:

PROJECT:

CONTRACTOR:

CONTRACT DATE: _____

YOU ARE DIRECTED TO MAKE THE FOLLOWING CHANGES IN YOUR CONTRACT:

IN STRICT ACCORDANCE WITH THE CONTRACT DOCUMENTS YOU ARE INSTRUCTED TO FURNISH:

AMOUNT OF ORIGINAL CONTRACT	\$	\$0.00
AMOUNT OF PREVIOUS CHANGES	\$	\$0.00
AMOUNT OF THIS CHANGE	\$	\$0.00
TOTAL AMOUNT OF ADJUSTED CONTRACT	\$	\$0.00

NOTE: IT IS HEREBY UNDERSTOOD AND AGREED THAT THE ABOVE IS COMPENSATION IN FULL FOR CHANGES AS INDICATED. IT IS FURTHER UNDERSTOOD AND AGREED THAT ALL RIGHTS FOR ANY ADDITIONAL COMPENSATION ARE WAIVED CONCERNING THE CHANGES CONTAINED HEREIN.

Shelby County Commission

BY: _____
TITLE: Owner
DATE: _____

BY: _____
TITLE: _____
DATE: _____

FORM OF ADVERTISEMENT FOR COMPLETION

LEGAL NOTICE

In Accordance with Chapter 1, Title 39, Code of Alabama, 1975, notice is hereby given that _____ (Contractor), has completed the Contract for (Construction / Renovation / Alternation / Equipment / Improvement) of the "Insert Project Name"

at "Insert Address"

for the State of Alabama and the County of Shelby, Owner(s), and have made request for final settlement of said Contract. All persons having any claim for labor, materials, or otherwise in connection with this project should immediately notify:

(Architect)

(Contractor)

(Business Address)

NOTE: This notice must be run once a week for four successive weeks for projects exceeding \$50,000.00 for project less than \$50,000.00, run one time only. Proof of publication is required.

Shelby County

Affidavit for Payment of Debts Incurred on Construction Projects

Project No. _____
County _____
Contractor _____
Description and Location of Project _____

This is to certify that all known debts for labor and materials used on the project and all approved sub-contractual obligations associated with the construction of Project _____, _____ County, have been paid or will be paid within five (5) days after final payment.

Sworn to this the _____ day of _____, _____.
(Month) (Year)

(Name)

(Title)

(Contractor)

Sworn to and subscribed before me on the _____ day of _____, _____.
(Month) (Year)

(Notary)

For _____ County _____ State

My commission expires _____
(Date)



JULIE P. MAGEE
Commissioner

State of Alabama Department of Revenue

(www.revenue.alabama.gov)
50 North Ripley Street
Montgomery, Alabama 36132

MICHAEL E. MASON
Assistant Commissioner

JOE W. GARRETT, JR.
Deputy Commissioner

CURTIS E. STEWART
Deputy Commissioner

Alabama Department of Revenue NOTICE

Tax Guidance for Contractors, Subcontractors and Alabama Governmental Entities Regarding Construction-related Contracts

Legislative Act 2013-205 requires the Department of Revenue to issue Form STC-1, *Sales and Use Tax Certificate of Exemption for Government Entity Projects*, to all contractors and subcontractors working on qualifying governmental entity projects once the Form ST: EXC-01 is approved.

Each exempt entity, contractor and subcontractor must make application for qualification of the exemption using Form ST: EXC-01 for each tax-exempt project. The application is available on the department's website at <http://revenue.alabama.gov/salestax/ST-EXC-01.pdf>. Applications should be submitted directly to the Sales and Use Tax Division Central Office, P.O. Box 327710, Montgomery, AL 36132-7710.

The sales and use tax exemption provided for in Act 2013-205 applies to the purchase of building materials, construction materials and supplies, and other tangible personal property that become part of the structure pursuant to a qualifying contract entered into on or after January 1, 2014. Qualifying projects and contracts are those generally entered into with the following governmental entities, unless otherwise noted: the State of Alabama, a county or incorporated municipality of Alabama, an Alabama public school, or an Alabama industrial or economic development board or authority already exempt from sales and use taxes. **Please note that contracts entered into with the federal government and contracts pertaining to highway, road, or bridge construction or repair do not qualify for the exemption provided for in Act 2013-205.** [Reference: Sales and Use Tax Division Administrative Rule 810-6-3-.77 *Exemption for Certain Purchases by Contractors and Subcontractors in Conjunction with Construction Contracts with Certain Governmental Entities*.]

The Alabama Department of Revenue will assign each contractor and sub-contractor a consumers use tax account, if one is currently not in place, at the time the Form STC-1, *Sales and Use Tax Certificate of Exemption for Government Entity Projects*, is issued.

Contractors and sub-contractors for qualifying projects will be required to file monthly consumers use tax returns and report all exempt purchases for ongoing projects, as well as all taxable purchases on one return. These returns are required to be filed through the department's online tax return filing and payment portal, My Alabama Taxes (<https://myalabamataxes.alabama.gov>).

As another option for these types of contracts, as well as with other contracts entered into with other types of exempt entities, the Form ST:PAA1, *Purchasing Agent Appointment*, may be used. However, please be advised that the use of the Form ST:PAA1 option will require the exempt entity to be invoiced directly and pay for directly from their funds any construction and building material and supply purchases.

For additional information concerning this guidance, taxpayers should contact Sales and Use Tax Division representative Thomas Sims at 334-242-1574 or by email at Thomas.Sims@revenue.alabama.gov.

WHAT'S NEW?

TOPIC: Tax Guidance for Contractors, Subcontractors and Alabama Governmental Entities Regarding Construction-related Contracts

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Contractors and sub-contractors for qualifying projects will be required to file monthly consumers use tax returns and report all exempt purchases for ongoing projects, as well as all taxable purchases on one return. These returns are required to be filed through the department's online tax return filing and payment portal, My Alabama Taxes (<https://myalabamataxes.alabama.gov>).

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contract description.
- B. Work by Owner.
- C. Owner supplied products.
- D. Contractor's use of site and premises.
- E. Future work.
- F. Work sequence.
- G. Owner occupancy.
- H. Specification Conventions.

1.2 CONTRACT DESCRIPTION

- A. Work of the Project is as described in Contract Drawings and Documents.
- B. Perform Work of each Contract under separate contract with Owner in accordance with Conditions of Contract.

1.3 WORK BY OWNER OR OTHERS

- A. Items to be furnished and installed by Owner and/or Others are as noted in the Drawings.

1.4 OWNER SUPPLIED PRODUCTS

- A. Owner's Responsibilities:
 - 1. Arrange for and deliver Engineer-reviewed Shop Drawings, Product Data, and Samples, to Contractor.
 - 2. Arrange and pay for delivery to site.
 - 3. On delivery, inspect products jointly with Contractor.
 - 4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
 - 5. Arrange for manufacturers' warranties, inspections, and service.
- B. Contractor's Responsibilities:
 - 1. Review Owner-reviewed Shop Drawings, Product Data, and Samples.
 - 2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
 - 3. Handle, store, install and finish products.
 - 4. Repair or replace items damaged after receipt.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
SUMMARY OF WORK**

SECTION 01-1100 – Page 2 of 2

- C. Products furnished to site and installed by Owner:
 - 1. As noted on Drawings or Special Provisions
- D. Items furnished by Owner for installation by Contractor:
 - 1. As noted on Drawings or Special Provisions

1.5 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Limit use of site and premises to allow:
 - 1. Owner occupancy.
 - 2. Work by Others and Work by Owner.
- B. Access to Site: Limited to construction activities
- C. Construction Operations: Limited to work described in the Technical Specifications.
- D. Time Restrictions for Performing Work: Limits of the Agreement.

1.6 WORK SEQUENCE

- A. Construct Work in stages to accommodate Owner's occupancy requirements during construction period. Coordinate construction schedule and operations with Owner and Engineer. Additional sequences may be indicated in the Drawings.

1.7 OWNER OCCUPANCY

- A. The Owner will occupy the site during the entire period of construction for the conduct of normal operations.
- B. Cooperate with Owner to minimize conflict, and to facilitate Owner's operations.
- C. Schedule the Work to accommodate Owner occupancy.

1.8 SPECIFICATION CONVENTIONS

- A. These specifications are written in imperative mood and streamlined form. This imperative language is directed to the Contractor, unless specifically noted otherwise. The words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PRICE AND PAYMENT PROCEDURES**

SECTION 00-1200 – Page 1 of 7

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Schedule of values.
- B. Applications for payment.
- C. Change procedures.
- D. Defect assessment.
- E. Unit prices.
- F. Alternates.

1.2 SCHEDULE OF VALUES

- A. Submit printed schedule on Contractor's standard form or electronic media printout.
- B. Submit Schedule of Values in duplicate within fifteen (15) days after date established in Notice to Proceed.
- C. Include in each line item, number of Allowances specified in this section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by unit cost to achieve total for each item.
- D. Revise schedule to list approved Change Orders, with each Application For Payment.

1.3 APPLICATIONS FOR PAYMENT

- A. Submit four copies of each application on Contractor's electronic media driven form.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Submit updated construction schedule with each Application for Payment.
- D. Payment Period: Contractor to submit Pay Request, with the agreed upon quantities shown, on the first working day of the month for the previous month.
- E. Submit with transmittal letter as specified for Submittals in Section 01330.
- F. Substantiating Data: When submitting Pay Request that includes a pay request for stored materials, Contractor must also submit a paid invoice for all materials listed for reimbursement.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PRICE AND PAYMENT PROCEDURES**

SECTION 00-1200 – Page 2 of 7

1.4 CHANGE PROCEDURES

- A. Submittals: Submit name of individual authorized to receive change documents and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.
- B. The Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions.
- C. Contractor may propose changes by submitting a request for change to Engineer, describing proposed change and its full effect on the Work. Include a statement describing reason for the change, and effect on Contract Sum/Price and Contract Time with full documentation and a statement describing effect on Work by separate or other Contractors.
- D. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's fixed price quotation.
- E. Unit Price Change Order: For contract unit prices and quantities, the Change Order will be executed on fixed unit price basis.
- F. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract.
- G. Correlation of Contractor Submittals:
 - 1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
 - 2. Promptly revise progress schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
 - 3. Promptly enter changes in Project Record Documents.

1.5 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the Engineer, it is not practical to remove and replace the Work, the Engineer will direct appropriate remedy or adjust payment.
- C. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Engineer.
- D. Defective Work will be partially repaired to instructions of Engineer, and unit sum/price will be adjusted to new sum/price at discretion of Engineer.
- E. Individual specification sections may modify these options or may identify specific formula or percentage sum/price reduction.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PRICE AND PAYMENT PROCEDURES**

SECTION 00-1200 – Page 3 of 7

- F. Authority of Engineer to assess defects and identify payment adjustments is final.
- G. Non-Payment for Rejected Products: Payment will not be made for rejected products for any of the following:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from transporting vehicle.
 - 4. Products placed beyond lines and levels of required Work.
 - 5. Products remaining on hand after completion of the Work.
 - 6. Loading, hauling, and disposing of rejected products.

1.6 UNIT PRICES

- A. Authority: Measurement methods are delineated in individual specification sections.
- B. Measurement methods delineated in individual specification sections complement criteria of this section. In event of conflict, requirements of individual specification section govern.
- C. Take measurements and compute quantities. Engineer will verify measurements and quantities.
- D. Unit Quantities: Quantities and measurements indicated in Bid Form are for contract purposes only. Quantities and measurements supplied or placed in the Work shall determine payment.
 - 1. When actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at unit sum/prices contracted.
- E. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application or installation of item of the Work; overhead and profit.
- F. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Engineer multiplied by unit sum/price for Work incorporated in or made necessary by the Work.

1.7 EXPLANATION OF BID ITEMS

- A. The basis of payment under this contract is the completion of the work as described in this section in accordance with the plans, specifications, applicable codes and good engineering and construction practices; and where applicable to the specific level of performance described in the plans and specifications. In the basis of payment below, the word “additional” means beyond the bid basis as approved by the OWNER’S REPRESENTATIVE. OWNER shall retain ten (10)% of each item’s invoiced under this Contract as retainage pending delivery of a complete and operable system. The basis of payment includes but is not limited to:

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PRICE AND PAYMENT PROCEDURES**

SECTION 00-1200 – Page 4 of 7

Bid Item No. 1. Mobilization – The unit price bid includes the preparatory work including the movement of personnel, equipment, supplies and incidentals to the project site, and other costs incurred prior to beginning work on the various items on the project site. Payment shall be made in accordance with the appropriate schedule shown below, at the contract Lump Sum price bid and shall be full compensation for moving labor, tools, equipment, supplies and incidentals to and from the site as well as other pre-construction costs exclusive of bidding costs.

Schedule of Partial Payments for Mobilization when the Contract Bid Price for Mobilization is less than, or equal to 12% of the Original Contract Amount (Partial Payments are a % of the Contract Amount for MOBILIZATION)		
TIME OF PAYMENT	AMOUNT OF PAYMENT	ACCUMULATED PAYMENT
First Estimate	20% of the Bid Price for Mobilization	20% of the Bid Price for Mobilization
After the First Estimate and Upon Completion of 5% of the Original Contract Amount Excluding Prior Payment for Mobilization	50% of the Bid Price for Mobilization	70% of the Bid Price for Mobilization
After the First Estimate and Upon Completion of 50% of the Original Contract Amount Excluding Prior Payment for Mobilization	30% of the Bid Price for Mobilization	100% of the Bid Price for Mobilization

Schedule of Partial Payments for Mobilization when the Contract Bid Price for Mobilization is greater than 12% of the Original Contract Amount (Partial Payments are a % of the ORIGINAL CONTRACT AMOUNT , except the Final Payment)		
TIME OF PAYMENT	AMOUNT OF PAYMENT	ACCUMULATED PAYMENT
First Estimate	2% of the Original Contract Amount	2% of Total Contract Amount
After the First Estimate and Upon Completion of 5% of the Original Contract Amount Excluding Prior Payment for Mobilization	6% of the Original Contract Amount	8% of Total Contract Amount
After the First Estimate and Upon Completion of 50% of the Original Contract Amount Excluding Prior Payment for Mobilization	4% of the Original Contract Amount	12% of Total Contract Amount

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PRICE AND PAYMENT PROCEDURES**

SECTION 00-1200 – Page 5 of 7

Final Estimate	Remainder of Contract Amount for Mobilization	100% of Contract Amount for Mobilization
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Bid Item No. 2: 2" HDPE SDR-11 Force Main - The unit price bid shall be compensation for material labor necessary for the installation of 2" HDPE SDR-11 Force Main at locations indicated in plans. Payment shall be made per Linear Foot.

Bid Item No. 3: 2" HDPE SDR-11 Air Line – The unit price bid shall be compensation for material labor necessary for the installation of 2" HDPE SDR-11 Air Line at locations indicated in plans. Payment shall be made per Linear Foot.

Bid Item No. 4: Air/Vacuum Release Assembly – The unit price bid shall be compensation for materials and labor necessary for the installation of a A.R.I. S-025 Automatic Air Release Valve at locations indicated in plans on proposed 2" Force Main. Price includes Payment shall be made per Each.

Bid Items No. 5: 14" HDPE SDR-17 Pipe – The unit price bid for the pipe shall be compensation in full 14" HDPE SDR-17 including excavation of trench, excavation, hauling, and placement of bedding material, supply & install pipe and fittings, testing, and backfilling. Payment shall be made per Linear Foot.

Bid Items No. 6: 10" HDPE SDR-17 Pipe – The unit price bid for the pipe shall be compensation in full 10" HDPE SDR-17 including excavation of trench, excavation, hauling, and placement of bedding material, supply & install pipe and fittings, testing, and backfilling. Payment shall be made per Linear Foot.

Bid Items No. 7: 6" HDPE SDR-17 Pipe – The unit price bid for the pipe shall be compensation in full 6" HDPE SDR-17 including excavation of trench, excavation, hauling, and placement of bedding material, supply & install pipe and fittings, testing, and backfilling. Payment shall be made per Linear Foot.

Bid Item No. 8: 36" HDPE SDR-32.5 Condensate Pump Station – The unit price bid shall be compensation in full for supply, plumbing, and installation of the 36" HDPE SDR-32.5 Condensate Pump Station, well caps, filter regulator, cycle counter, discharge lines, and valving, to provide a fully operational dual extraction assembly as indicated on the plans. Price includes 36" HDPE SDR-32.5 Condensate Pump Station and all associated items. Payment shall be made per Each.

Bid Item No. 9: 2" PVC Force Main Valve – The unit price bid shall be compensation for material labor necessary for the installation of 2" PVC Force Main Valve at locations indicated in plans. Payment shall be made per Each.

Bid Item No. 10: 2" Steel Air Valve – The unit price bid shall be compensation for material labor necessary for the installation of 2" Steel Air Valve at locations indicated in plans. Payment shall be made per Each.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PRICE AND PAYMENT PROCEDURES**

SECTION 00-1200 – Page 6 of 7

Bid Item No. 11: Access Riser – The unit price bid shall be compensation for material and labor necessary for the installation of Access Riser per the plan details. Payment shall be made per Each.

Bid Item No. 12: 10" Butterfly Valve – The unit price bid shall be compensation for material labor necessary for the installation of 10" Butterfly Valve at locations indicated in plans. Payment shall be made per Each.

Bid Item No. 13: 14" Butterfly Valve – The unit price bid shall be compensation for material labor necessary for the installation of 14" Butterfly Valve at locations indicated in plans. Payment shall be made per Each.

Bid Item No. 14: 14" Blind Flange Assembly – The unit price bid shall be compensation for material labor necessary for the installation of 14" Blind Flange Assembly at locations indicated in plans. Payment shall be made per Each.

Bid Item No. 15: Remote Well Assembly – The unit price bid for the well conversion shall be compensation in full for supply and installation of each 2" QED wellhead, FERNCO coupling, kanalfex hose, valving, couplings, and other components necessary to install the wellhead, complete as per project details. Well is to accommodate the use of QED pumps to include hoses, parts, and equipment. Payment shall be made per Each.

Bid Item No. 16: Dual Extraction Well Head Assembly – The unit price bid for the well head shall be compensation in full for supply and installation of each 2" QED wellhead, FERNCO coupling, kanalfex hose, valving, couplings, and other components necessary to install the wellhead, complete as per project details. Well is to accommodate the use of QED pumps to include hoses, parts, and equipment. Payment shall be made per Each.

Bid Item No. 17: QED AP4 Auto Pump Condensate Removal Assembly (Wells Only) – The unit price bid shall be compensation in full for supply, plumbing, and installation of the QED AP4 Auto Pump, well caps, filter regulator, cycle counter, discharge lines, and valving, to provide a fully operational dual extraction assembly as indicated on the plans. Price includes QED Pump and all associated items. Payment shall be made per Each.

Bid Item No. 18: Well Abandonment (Drilling) – The unit price bid shall be compensation for material labor necessary for the Well Abandonment (Drilling) at the location indicated in plans. Payment shall be made per Linear Foot.

Bid Item No. 19: Hydroseeding – The unit price bid shall be compensation in full for supply of all seeding, mulching, and fertilizer by means of hydroseeding required to ensure a substantial and stable grass growth on all disturbed surfaces. Payment shall be made per Lump Sum.

Bid Item No. 20: As-Built Survey – The unit price bid shall include all labor, equipment, and material needed to supply the client with comprehensive

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PRICE AND PAYMENT PROCEDURES**

SECTION 00-1200 – Page 7 of 7

horizontal and vertical as-builts of all system improvements, subject to approval by Engineer. Payment shall be made per Lump Sum.

Bid Item No. 21: Gas Extraction Well Construction In Refuse – The unit price bid shall be compensation for material labor necessary for the Gas Extraction Well Construction in Refuse at the location indicated in plans. Payment shall be made per Linear Foot.

1.8 ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement.
- B. Coordinate related work and modify surrounding work.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
ADMINISTRATIVE REQUIREMENTS**

SECTION 00-1300 – Page 1 of 3

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Coordination and project conditions.
- B. Field engineering.
- C. Preconstruction meeting.
- D. Progress meetings.
- E. Pre-installation meetings.

1.2 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of various sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.
- C. Coordinate space requirements, supports, and installation of mechanical and electrical Work indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. In finished areas, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements.
- E. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.
- F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.3 FIELD ENGINEERING

- A. The Contractor shall employ a Land Surveyor registered in State of Alabama for construction stakeout services. The Engineer can be employed by the Contractor to provide control points if requested.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
ADMINISTRATIVE REQUIREMENTS**

SECTION 00-1300 – Page 2 of 3

- B. Locate and protect survey control and reference points. Promptly notify Engineer of discrepancies discovered.
- C. Control datum for survey is that shown on Drawings.
- D. Verify setbacks and easements; confirm drawing dimensions and elevations.
- E. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.
- F. Submit copy of site drawing signed by Land Surveyor certifying elevations and locations of the Work are in conformance with Contract Documents.
- G. Maintain complete and accurate log of control and survey work as Work progresses.
- H. On completion of foundation walls and major site improvements, prepare certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.
- I. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- J. Promptly report to Engineer loss or destruction of reference point or relocation required because of changes in grades or other reasons.
- K. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect/Engineer.

1.4 PRECONSTRUCTION MEETING

- A. Owner will schedule meeting after Notice of Award.
- B. Attendance Required: Owner, Engineer, and Contractor.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of Subcontractors, list of products, schedule of values, and progress schedule.
 - 5. Designation of personnel representing parties in Contract, and Engineer.
 - 6. Procedures and processing of field decisions, submittals, and substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 7. Scheduling.
 - 8. Scheduling activities of Geotechnical Engineer.
- D. Record minutes and distribute copies within five (5) days after meeting to participants, with copies to Engineer, Owner, and those affected by decisions made.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
ADMINISTRATIVE REQUIREMENTS**

SECTION 00-1300 – Page 3 of 3

1.5 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum monthly intervals.
- B. Engineer will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
- C. Attendance Required: Job superintendent, major subcontractors and suppliers, Owner, Engineer, as appropriate to agenda topics for each meeting.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of Work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems impeding planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of off-site fabrication and delivery schedules.
 - 7. Maintenance of progress schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding work period.
 - 10. Coordination of projected progress.
 - 11. Maintenance of quality and work standards.
 - 12. Effect of proposed changes on progress schedule and coordination.
 - 13. Other business relating to Work.
- E. Record minutes and distribute copies within five (5) days after meeting to participants, with copies to Engineer, Owner, and those affected by decisions made.

1.6 PRE-INSTALLATION MEETINGS

- A. When required in individual specification sections, convene pre-installation meetings at Project site prior to commencing work of specific section.
- B. Require attendance of parties directly affecting, or affected by, Work of specific section.
- C. Prepare agenda and preside at meeting:
 - 1. Review conditions of installation, preparation and installation procedures.
 - 2. Review coordination with related work.
- D. Record minutes and distribute copies within five (5) days after meeting to participants, with copies to Engineer, Owner, and those affected by decisions made.

PART 2 PRODUCTS

Not Used.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
SUBMITTAL PROCEDURES**

SECTION 00-1330 – Page 1 of 6

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Proposed products list.
- D. Product data.
- E. Shop drawings.
- F. Samples.
- G. Design data.
- H. Test reports.
- I. Certificates.
- J. Manufacturer's instructions.
- K. Manufacturer's field reports.
- L. Erection drawings.
- M. Construction photography/videography.

1.2 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Engineer accepted form.
- B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- C. Identify Project, Contractor, subcontractor and supplier; pertinent drawing and detail number, and specification section number, appropriate to submittal.
- D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.
- E. Schedule submittals to expedite Project, and deliver to Engineer at business address. Coordinate submission of related items.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
SUBMITTAL PROCEDURES**

SECTION 00-1330 – Page 2 of 6

- F. Provide submittals in both hard copy and electronic media format compatible with Owner and Engineer's viewing software.
- G. For each submittal for review, allow 15 days excluding delivery time to and from Contractor.
- H. Identify variations from Contract Documents and product or system limitations, which may be detrimental to successful performance of completed Work.
- I. Allow space on submittals for Contractor and Engineer review stamps.
- J. When revised for resubmission, identify changes made since previous submission.
- K. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- L. Submittals not requested will not be recognized or processed.

1.3 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial schedules within 15 days after date established in Notice to Proceed. After review, resubmit required revised data within 10 days.
- B. Submit revised Progress Schedules with each Application for Payment.
- C. Distribute copies of reviewed schedules to Project site file, subcontractors, suppliers, and other concerned parties.
- D. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.
- E. Submit computer generated horizontal bar chart with separate line for each major portion of Work or operation, identifying first work day of each week.
- F. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate early and late start, early and late finish, float dates, and duration.
- G. Indicate estimated percentage of completion for each item of Work at each submission.
- H. Submit separate schedule of submittal dates for shop drawings, product data, and samples, including Owner furnished products and products identified under Allowances, and dates reviewed submittals will be required from Engineer. Indicate decision dates for selection of finishes.
- I. Indicate delivery dates for Owner furnished products and products identified under Allowances.
- J. Revisions To Schedules:
 - 1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
SUBMITTAL PROCEDURES**

SECTION 00-1330 – Page 3 of 6

2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
3. Prepare narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect.

1.4 PROPOSED PRODUCTS LIST

- A. Within 15 days after date of Owner-Contractor Agreement, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.5 PRODUCT DATA

- A. Product Data: Submit to Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Submit number of copies Contractor requires, plus four copies Engineer will retain.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- E. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents described in Section 01700.

1.6 SHOP DRAWINGS

- A. Shop Drawings: Submit to Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Submit in form of one reproducible transparency.
- D. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents described in Section 01700.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
SUBMITTAL PROCEDURES**

SECTION 00-1330 – Page 4 of 6

1.7 SAMPLES

- A. Samples: Submit to Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents.
- B. Samples For Selection as Specified in Product Sections:
 - 1. Submit to Engineer for aesthetic, color, or finish selection.
 - 2. Submit samples of finishes from full range of manufacturers' standard colors, textures, and patterns for Engineer selection.
- C. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- D. Include identification on each sample, with full Project information.
- E. Submit number of samples specified in individual specification sections; Engineer will retain one sample.
- F. Reviewed samples which may be used in the Work are indicated in individual specification sections.
- G. Samples will not be used for testing purposes unless specifically stated in specification section.
- H. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes described in Section 01700.

1.8 DESIGN DATA

- A. Submit for Engineer's knowledge as contract administrator or for Owner.
- B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.9 TEST REPORTS

- A. Submit for Engineer's knowledge as contract administrator or for Owner.
- B. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.10 CERTIFICATES

- A. When specified in individual specification sections, submit certification by manufacturer, installation/application subcontractor, or Contractor to Engineer, in quantities specified for Product Data.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
SUBMITTAL PROCEDURES**

SECTION 00-1330 – Page 5 of 6

- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

1.11 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Engineer for delivery to Owner in quantities specified for Product Data.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.12 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for Engineer's benefit as contract administrator or for Owner.
- B. Submit report within 30 days of observation to Engineer for information.
- C. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.13 ERECTION DRAWINGS

- A. Submit drawings for Engineer's benefit as contract administrator or for Owner.
- B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.
- C. Data indicating inappropriate or unacceptable Work may be subject to action by Engineer or Owner.

1.14 CONSTRUCTION PHOTOGRAPHY/VIDEOGRAPHY

- A. Provide digital photographs and/or video of the site prior to beginning construction and monthly throughout progress of Work.
- B. All photo and/or video files shall be saved in a format that is easily read from a Windows- based computer. Each photo/video shall be named or referenced such that their location within the project area is easily identifiable. Additional information provided shall include name of Project, project number, orientation of view, and date and time of view.
- C. All files shall be submitted via a thumb drive, a portable hard drive, or an approved cloud- based file storage transfer.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
SUBMITTAL PROCEDURES**

SECTION 00-1330 – Page 6 of 6

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
QUALITY REQUIREMENTS**

SECTION 00-1400 – Page 1 of 5

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Quality control and control of installation.
- B. Tolerances
- C. References.
- D. Mock-up requirements.
- E. Testing and inspection services.
- F. Manufacturers' field services.
- G. Examination.
- H. Preparation.

1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. When manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.

SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT QUALITY REQUIREMENTS

SECTION 00-1400 – Page 2 of 5

- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. For products or workmanship specified by association, trades, or other consensus standards, comply with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents, except where specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. When specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.
- E. Neither contractual relationships, duties, nor responsibilities of parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

1.5 MOCK-UP REQUIREMENTS

- A. Tests will be performed under provisions identified in this section and identified in respective product specification sections.
- B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Accepted mock-ups shall be comparison standard for remaining Work.
- D. Where mock-up has been accepted by Engineer and is specified in product specification sections to be removed; remove mock-up and clear area when directed to do so by Engineer.

1.6 TESTING AND INSPECTION SERVICES

- A. Employ and pay for services of an independent testing agency or laboratory acceptable to Owner to perform specified testing.
 - 1. CDG can perform the required material testing and geotechnical evaluation for this project.
 - 2. Prior to start of Work, submit testing laboratory name, address, and telephone number if CDG is not selected.
 - 3. Submit copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of deficiencies reported by inspection.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
QUALITY REQUIREMENTS**

SECTION 00-1400 – Page 3 of 5

- B. The independent firm will perform tests, inspections and other services specified in individual specification sections and as required by Engineer.
 - 1. Laboratory: Authorized to operate in State of Alabama
 - 2. Laboratory Staff: Maintain full time registered Engineer on staff to review services.
 - 3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.
- C. Testing, inspections and source quality control may occur on or off project site. Perform off-site testing as required by Engineer or Owner.
- D. Reports will be submitted by independent firm to Engineer and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - 1. Notify Engineer and independent firm 24 hours prior to expected time for operations requiring services.
 - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- F. Testing and employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- G. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by same independent firm on instructions by Engineer. Payment for re-testing or re-inspection will be charged to Contractor by deducting testing charges from Contract Price.
- H. Agency Responsibilities:
 - 1. Test samples of mixes submitted by Contractor.
 - 2. Provide qualified personnel at site. Cooperate with Engineer and Contractor in performance of services.
 - 3. Perform specified sampling and testing of products in accordance with specified standards.
 - 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 5. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or products.
 - 6. Perform additional tests required by Engineer.
 - 7. Attend preconstruction meetings and progress meetings.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
QUALITY REQUIREMENTS**

SECTION 00-1400 – Page 4 of 5

- I. Agency Reports: After each test, promptly submit two copies of report to Engineer and to Contractor. When requested by Engineer, provide interpretation of test results. Include the following:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Name of inspector.
 - 4. Date and time of sampling or inspection.
 - 5. Identification of product and specifications section.
 - 6. Location in Project.
 - 7. Type of inspection or test.
 - 8. Date of test.
 - 9. Results of tests.
 - 10. Conformance with Contract Documents.
- J. Limits On Testing Authority:
 - 1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency or laboratory may not approve or accept any portion of the Work.
 - 3. Agency or laboratory may not assume duties of Contractor.
 - 4. Agency or laboratory has no authority to stop the Work.

1.7 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment and training as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Engineer 30 days in advance of required observations.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- D. Refer to Section 01330 - SUBMITTAL PROCEDURES, MANUFACTURERS' FIELD REPORTS article.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
QUALITY REQUIREMENTS**

SECTION 00-1400 – Page 5 of 5

- A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Verify utility services are available, of correct characteristics, and in correct locations.

3.2 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

END OF
SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
TESTING PIPING SYSTEMS**

SECTION 00-1457– Page 1 of 5

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Detailed requirements for hydrostatic pressure testing, low-pressure air testing and high-pressure air testing of new piping.

1.2 SUBMITTALS

- A. Test reports for each piping system tested including properly completed form (Attachment 1 of this section) for each piping system/section.
- B. Submit in accordance with Section 01330.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 GENERAL

- A. Pressure test in presence of OWNER'S CQA Representative.
- B. OWNER will furnish water required for hydrostatic pressure testing. CONTRACTOR to provide necessary piping connections between section of piping being tested and supplied source of water or air, together with test pressure equipment, meters, pressure gauge, and other equipment, materials, and facilities necessary to perform specified tests.
- C. Provide bulkheads, flanges, valves, bracing, blocking or other temporary sectionalizing devices that may be required.
- D. Remove temporary sectionalizing device after tests complete.
- E. Perform tests on piping that is clean and free of dirt, sand or other foreign material.
- F. Plug pipe outlets with test plugs. Brace each plug securely to prevent blowouts.
- G. Add test fluid slowly.
- H. Include regulator set to avoid over pressurizing and damaging piping.
- I. Perform pressure testing in accordance with local, state, and federal requirements.

- J. Cost of testing including personnel, equipment, and materials shall be CONTRACTOR'S responsibility.
- K. Correct leaks or defects and retest at no additional cost to OWNER.

3.2 HYDROSTATIC PRESSURE TESTING [NOT USED]

- A. Perform hydrostatic pressure testing for all piping. Test pressure shall be 150 psi.
- B. Open vents at high points to purge air pockets while piping system is filling. Venting may also be provided by loosening flanges or with equipment vents.
- C. Testing:
 - 1. After section of piping to be tested has been filled with water, apply test pressure by means of force pump of such design and capacity that required pressure can be applied and maintained without interruption for duration of test.
 - 2. Measure test pressure by means of tested and properly calibrated pressure gauge acceptable to OWNER'S REPRESENTATIVE.
 - 3. Maintain test pressure for sufficient length of time to permit OWNER'S REPRESENTATIVE to observe piping under test but not less than 2 hrs.
 - 4. If repairs required, repeat pressure test until pipe installation conforms to specified requirements and is acceptable to OWNER'S REPRESENTATIVE.
 - 5. Do not test through cleanouts without permission of OWNER'S REPRESENTATIVE.
 - 6. Close all valves to pumps (if installed) prior to pressurizing.
- D. With exception of buried piping with mechanical joints or push-on joints, piping systems shall show no visual evidence of weeping or leaking.

3.3 LOW PRESSURE AIR TESTING - PRIOR TO INSTALLATION [FOR HEADER PIPING]

- A. General:
 - 1. Perform low-pressure air testing for all gas system piping prior to installation.
 - 2. Air Test Procedure: Test pipes between adjacent structures (manholes, cleanout risers or convenient runs).
- B. Notify OWNER'S CQA Representative a minimum of 24-hrs prior to test.
- C. Pipe Test Segments:
 - 1. Less than 5,000' long.
 - 2. Fitted with cap on one end and test apparatus on other end.
- D. Environment:
 - 1. Lay test segment on ground surface and allow reaching constant or ambient air temperature before test.
 - 2. Perform test during period when pipe segment will be out of direct sunlight to minimize pressure changes as result of temperature fluctuations.

- E. Test:
 - 1. Apply test pressure:
 - a. Other Piping in the Gas System: 100 psig to test segment.
 - 2. Observe test pressure for 1 hr.
 - 3. Pressure drop over 1-hr period shall not exceed 1%.
 - 4. Correct pressure drop for temperature.
- F. Test Failure:
 - 1. Perform following when pipe segment fails pre-installation test.
 - a. Check entire length of pipe and fusions for cracks, pinholes, perforations or other possible leakage points.
 - b. Check blocked risers and capped end for leakage.
 - c. Verify leaks by applying soap water solution and observe for bubble formation.
 - 2. Repair pipe and fused joint leaks by cutting out leaking area and rebinds suitable segments.
 - 3. Retest after leaks are repaired.

3.4 TEST REPORT

- A. Each test shall be reported in writing, on Attachment 1 included with this section.
- B. Include following information if failure occurs.
 - 1. Location of failure segment.
 - 2. Nature of leaks.
 - 3. Details of repairs performed.
 - 4. Retest results.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
TESTING PIPING SYSTEMS**

SECTION 00-1457– Page 4 of 5

ATTACHMENT 1 TO SECTION 01457 FORM PE PIPE PRESSURE TEST REPORT				
PROJECT NAME/NO:			TIME:	
CONTRACTOR:			DATE:	
PERSON PERFORMING TESTS:				
DESCRIPTION/LOCATION OF TEST SEGMENT (Pipe Diameter, Length, and SDRs):				
<p> T_i = Initial temperature in °C = _____ °C P_i = Initial test pressure in psig = _____ psig P_c = Initial pressure in psig corrected for temperature (T_t) at time 't' t = Time in minutes from initiation of test T_t = Temperature in °C at time P_t = Test pressure in psig at time 't' $P_c = \frac{(P_i + 14.7)(T_t + 273)}{(T_i + 273)} - 14.7$ Percent Pressure Drop = $\frac{P_c - P_t}{P_c} \times 100$ </p>				
TIME (min.)	T_t TEMP READING (°C)	P_t GAUGE READING (psig)	P_c CORRECTED PRESSURE (psig)	P PRESSURE DROP (%)
0				
20				
30				
40				
50				
60				
PASS/FAILURE:		RETEST (yes/no):		
DESCRIPTION/NATURE OF LEAKS AND REPAIRS OF RETEST SEGMENT:				

EXAMPLE CALCULATION SHEET

GIVEN:

$$P_i = 10 \text{ psig}$$
$$T_i = 21.1^\circ\text{C} = 70^\circ\text{F}$$

and at time $t = 60$ minutes

$$P_t = 10.05 \text{ psig}$$
$$T_t = 23.0^\circ\text{C} = 73^\circ\text{F}$$

Calculated Corrected Initial Pressure

$$P_c = \frac{(10.0 + 14.7)(23.0 + 273)}{(21.1 + 273)} - 14.7$$

$$P_c = 24.85 - 14.7 = 10.15 \text{ psig}$$

Calculate Percent Pressure Loss

$$\% \text{ Pressure Loss} = \frac{10.15 - 10.05}{10.15} \times 100 = 0.98\% < 1\% \text{ ok}$$

NOTE: The difference between the corrected pressure reading (P_c) and the gauge reading (P_t) cannot differ by more than 1% of the corrected pressure reading (P_c) (i.e., .105 @ 10.5 psig) over a time interval of 60 minutes.

END OF
SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
TEMPORARY CONSTRUCTION FACILITIES AND UTILITIES**

SECTION 00-1500 – Page 1 of 4

PART 1 GENERAL

1.1 SUMMARY

- A. CONTRACTOR to provide for own temporary facilities described below as applicable to CONTRACTOR'S scope of work and as required for CONTRACTOR to perform the Work at job site. CONTRACTOR may coordinate use of temporary facilities such as sanitary facilities with other contractors, if applicable.
- B. CONTRACTOR requires OWNER'S REPRESENTATIVE'S approval for location of temporary facilities and utilities and shall coordinate their installation with OWNER'S REPRESENTATIVE'S activities.

1.2 QUALITY ASSURANCE

- A. Items provided under this section shall be listed or labeled by UL or other Nationally Recognized Testing Laboratory (NRTL).
 - 1. Term "NRTL" shall be as defined in OSHA Regulation 1910.7.
 - 2. Terms "listed" and "labeled" shall be as defined in National Electrical Code, Article 100.
- B. Regulatory Requirements:
 - 1. National Electrical Code (NEC): Components and installation shall comply with National Fire Protection Association (NFPA) 70.
- C. Comply with federal, state, and local codes and regulations, and with utility company requirements.

PART 2 PRODUCTS

2.1 TEMPORARY ELECTRICITY AND LIGHTING

- A. General:
 - 1. Temporary lighting shall be sufficient to enable CONTRACTOR and Subcontractors to complete Work and enable OWNER'S REPRESENTATIVE to observe Work as it is being performed. Illumination shall meet or exceed state code requirements.
 - 2. Temporary electricity shall be supplied sufficient for CONTRACTOR'S work.
- B. Responsibilities:
 - 1. Provide, maintain, and remove temporary electric service facilities, if applicable.
 - 2. Facilities exposed to weather shall be weatherproof type and electrical equipment enclosure locked to prevent access by unauthorized personnel.
 - 3. Pay for installation of temporary services including poles, transformer charges, and metering, or provide generator.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
TEMPORARY CONSTRUCTION FACILITIES AND UTILITIES**

SECTION 00-1500 – Page 2 of 4

4. Arrange with local electric utility for temporary electric service subject to their requirements and approval.
5. Register temporary meter in CONTRACTOR'S name.
6. Provide and maintain lamps, wiring, switches, sockets, and similar equipment required for temporary lighting and small power tools.
7. Pay for electrical energy consumed for construction purposes including operation of ventilating equipment for heating of buildings, and for testing and operating of equipment prior to permanent wiring has been installed.
8. Provide and pay for service to temporary offices.

2.2 TEMPORARY TELEPHONE SERVICE

- A. Arrange with local telephone company to provide telephone service throughout duration of Work or use cellular/mobile phone.

2.3 WATER FOR CONSTRUCTION

- A. Water will be provided by OWNER. CONTRACTOR is responsible for transporting the water from its source to the required location.

2.4 WATER FOR TESTING

- A. Water will be provided by OWNER. CONTRACTOR is responsible for transporting the water from its source to the test location.

2.5 SANITARY FACILITIES

- A. No sanitary facilities are available on site.
- B. Provide temporary sanitary toilet facilities conforming to state and local health and sanitation regulations, in sufficient number for use of OWNER'S REPRESENTATIVE, CONTRACTOR'S and Subcontractor's employees.
- C. Maintain a sanitary condition and properly supply with toilet paper.

2.6 TEMPORARY FIRE PROTECTION

- A. Provide and maintain in working order, minimum of one fire extinguisher or other fire protective equipment and devices as would be reasonably effective in extinguishing fires during early stages by personnel at Project site in each temporary building.

2.7 TEMPORARY SITE AND OTHER ROADS

- A. Construct and maintain site roadways in driveable condition as necessary to carry out construction operations as approved by OWNER'S REPRESENTATIVE. Coordinate location and construction with OWNER'S REPRESENTATIVE and local residents.
Contractor shall post

signs for closing of roads or partial roads a minimum of one (1) week prior to construction. Contractor shall assure access to local residents during the closing of roads.

- B. Maintain OWNER'S existing roads in driveable condition. Repair ruts and potholes resulting from CONTRACTOR'S vehicles.
- C. Maintain OWNER'S existing roads and public roads used during construction free from accumulations of dirt, mud and construction debris resulting from construction operations.

2.8 SECURITY

- A. Security will not be provided by OWNER.
- B. CONTRACTOR shall be responsible for loss or injury to persons or property where Work is involved and shall provide security and take precautionary measures to protect CONTRACTOR'S and OWNER'S interests.

2.9 TEMPORARY PARKING

- A. Designated areas of existing parking facilities may be used for parking of construction personnel's private vehicles and of CONTRACTOR'S lightweight vehicles.
 - 1. Do not allow heavy vehicles or construction equipment in parking areas.
- B. Make arrangements with OWNER'S REPRESENTATIVE.

2.10 FIELD OFFICES AND BUILDINGS

- A. If required by CONTRACTOR, erect where designated by OWNER'S REPRESENTATIVE, and maintain in good condition, temporary field office, tool, and storage building(s) or trailer(s) for CONTRACTOR'S use.
 - 1. Tool storage building(s) or trailer(s) shall be of ample size to provide space for tools and equipment.
 - 2. Building(s) or trailer (s) shall be neat and well constructed, surfaced with plywood, drop siding, masonite, or other similar material, well painted and void of advertisements.

PART 3 EXECUTION

3.1 GENERAL

- A. Comply with applicable requirements of these specifications.
- B. Maintain and operate systems to ensure continuous service.
- C. Modify and extend systems as Work progress requires.
- D. Coordinate systems with other Contractors and OWNER's REPRESENTATIVE.

3.2 REMOVAL AND RESTORATION

- A. Completely remove temporary materials, equipment, signs, and structures when no longer required.
- B. In unfinished areas, clean and repair damage caused by temporary installations or use of temporary facilities, restore drainage, and evenly grade, seed or plant as necessary to provide appearance equal to or better than original.
- C. In finished areas, restore existing or permanent facilities used for temporary services to specified or original condition.

3.3 DAMAGE TO EXISTING PROPERTY

- A. CONTRACTOR is responsible for replacing or repairing damage to existing buildings, structures, sidewalks, roads, parking lot surfacing, and other existing assets.
- B. CONTRACTOR shall have option of having OWNER contract for such Work and have cost deducted from Contract price.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PRODUCT REQUIREMENTS**

SECTION 00-1600 – Page 1 of 3

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Product delivery requirements.
- C. Product storage and handling requirements.
- D. Product options.
- E. Product substitution procedures.

1.2 PRODUCTS

- A. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.
- C. Furnish interchangeable components from same manufacturer for components being replaced.

1.3 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products in accordance with manufacturers' instructions.
- B. Store with seals and labels intact and legible.
- C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- D. For exterior storage of fabricated products, place on sloped supports above ground.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PRODUCT REQUIREMENTS**

SECTION 00-1600 – Page 2 of 3

- E. Provide off-site storage and protection when site does not permit on-site storage or protection.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit request for substitution for any manufacturer not named in accordance with the following article.

1.6 PRODUCT SUBSTITUTION PROCEDURES

- A. Engineer will consider requests for Substitutions only within 30 days after date established in Notice to Award and no sooner than 10 days prior to the Notice to Proceed date.
- B. Substitutions may be considered when a product becomes unavailable through no fault of Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that Contractor:
 - 1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
 - 2. Will provide same warranty for Substitution as for specified product.
 - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
 - 5. Will reimburse Owner and Engineer for review or redesign services

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
PRODUCT REQUIREMENTS**

SECTION 00-1600 – Page 3 of 3

associated with re-approval by authorities having jurisdiction.

- E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals, without separate written request, or when acceptance will require revision to Contract Documents.

- F. Substitution Submittal Procedure:
 - 1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
 - 2. Submit Shop Drawings, Product Data, and certified test results attesting to proposed product equivalence. Burden of proof is on proposer.
 - 3. Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used.

END OF
SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
EXECUTION REQUIREMENTS**

SECTION 00-1700 – Page 1 of 8

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Starting of systems.
- D. Demonstration and instructions.
- E. Testing, adjusting and balancing.
- F. Protecting installed construction.
- G. Project record documents.
- H. Operation and maintenance data.
- I. Manual for materials and finishes.
- J. Manual for equipment and systems.
- K. Spare parts and maintenance products.
- L. Product warranties and product bonds.
- M. Maintenance service.

1.2 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Engineer's review.
- B. Provide submittals to Engineer required by authorities having jurisdiction.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.3 FINAL CLEANING (If Applicable)

- A. Execute final cleaning prior to final project assessment.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.
- D. Replace filters of operating equipment.
- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.4 STARTING OF SYSTEMS

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Engineer seven days prior to start-up of each item.
- C. Verify each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of applicable manufacturer's representative in accordance with manufacturers' instructions.
- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report in accordance with Section 01330 that equipment or system has been properly installed and is functioning correctly.

1.5 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.
- B. Demonstrate Project equipment and instructed by qualified manufacturer's representative who is knowledgeable about the Project.
- C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- E. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed time, at equipment location.
- F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.
- G. Required instruction time for each item of equipment and system is specified in individual sections.

1.6 TESTING, ADJUSTING AND BALANCING

- A. Owner will appoint and employ services of independent firm to perform testing, adjusting, and balancing.
- B. Reports will be submitted by independent firm to Engineer indicating observations and results of tests and indicating compliance or non-compliance with requirements of Contract Documents.

1.7 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
EXECUTION REQUIREMENTS**

SECTION 00-1700 – Page 4 of 8

- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

1.8 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Drawings : Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract drawings.
- G. Submit documents to Engineer with claim for final Application for Payment.

1.9 OPERATION AND MAINTENANCE DATA

- A. Submit data bound in 8-1/2 x 11 inch (A4) text pages, capacity expansion binders with durable plastic covers.
- B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
EXECUTION REQUIREMENTS**

SECTION 00-1700 – Page 5 of 8

- C. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- E. Contents: Prepare Table of Contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
 - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Engineer, Contractor, Subcontractors, and major equipment suppliers.
 - 2. Part 2: Operation and maintenance instructions arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
 - 3. Part 3: Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Originals of warranties.

1.10 MANUAL FOR MATERIALS AND FINISHES

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Engineer will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes 15 days prior to final inspection. Draft copy be reviewed and returned after final inspection, with Engineer comments. Revise content of document sets as required prior to final submission.
- D. Submit two sets of revised final volumes in final form within 10 days after final inspection.
- E. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Include

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
EXECUTION REQUIREMENTS**

SECTION 00-1700 – Page 6 of 8

information for re-ordering custom manufactured products.

- F. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- G. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.
- H. Additional Requirements: As specified in individual product specification sections.
- I. Include listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.11 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Engineer will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes 15 days prior to final inspection. Draft copy be reviewed and returned after final inspection, with Engineer comments. Revise content of document sets as required prior to final submission.
- D. Submit two sets of revised final volumes in final form within 10 days after final inspection.
- E. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
- F. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; by label machine.
- G. Include color coded wiring diagrams as installed.
- H. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and special operating instructions.
- I. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking

instructions.

- J. Include servicing and lubrication schedule, and list of lubricants required.
- K. Include manufacturer's printed operation and maintenance instructions.
- L. Include sequence of operation by controls manufacturer.
- M. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- N. Include control diagrams by controls manufacturer as installed.
- O. Include Contractor's coordination drawings, with color coded piping diagrams as installed.
- P. Include charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- Q. Include list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- R. Include test and balancing reports as specified in Section 01400.
- S. Additional Requirements: As specified in individual product specification sections.
- T. Include listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.

1.12 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Furnish spare parts, maintenance, and extra products in quantities specified in individual specification sections.
- B. Deliver to Project site and place in location as directed by Owner; obtain receipt prior to final payment.

1.13 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
- B. Execute and assemble transferable warranty documents and bonds from subcontractors, suppliers, and manufacturers.
- C. Verify documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
EXECUTION REQUIREMENTS**

SECTION 00-1700 – Page 8 of 8

- E. Include Table of Contents and assemble in binder with durable plastic cover.
- F. Submit prior to final Application for Payment.
- G. Time Of Submittals:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
 - 2. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing date of acceptance as beginning of warranty or bond period.

1.14 MAINTENANCE SERVICE

- A. Furnish service and maintenance of components indicated in specification sections during warranty period.
- B. Examine system components at frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by manufacturer of original component.
- D. Do not assign or transfer maintenance service to agent or Subcontractor without prior written consent of Owner.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF
SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
ON-SITE HEALTH AND SAFETY REQUIREMENTS**

SECTION 00-1755 – Page 1 of 3

PART 1 GENERAL

1.1 SUMMARY

- A. Construction activities at the various locations around the site may place CONTRACTOR'S personnel, personnel of other Contractors hired by OWNER to perform Work at site, and OWNER'S personnel in potentially hazardous situations due to well boring and excavation in waste areas.
- B. CONTRACTOR is responsible for implementation and enforcement of safe Work practices including, but not limited to, traffic management; use of trenching, sheeting and shoring; operation of equipment; and safety of all workers during progress of Work.
- C. Payment:
 - 1. Include in Bid, cost for Work performed in Level D protection.
 - 2. Work specified in this section is considered incidental and cost shall be included as part of appropriate lump sum or unit prices specified in Bid Form.
 - 3. If CONTRACTOR is required to prepare and monitor Work of another Contractor hired by OWNER, Contract will be modified by Change Order.

1.2 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Plan for and ensure personnel comply with basic provisions of OSHA Safety and Health Standards (29 CFR 1910) and General Construction Standards (29 CFR 1926) as appropriate.
 - 2. Comply with applicable laws and regulations of any public body having jurisdiction for safety of persons or property.

1.3 OPERATIONS AND EQUIPMENT SAFETY

- A. CONTRACTOR is responsible for initiating, maintaining, and supervising safety precautions and programs in connection with Work. Take necessary precautions for safety of employees on Project site and other persons and organizations who may be affected by Project.
- B. CONTRACTOR'S duties and responsibilities for safety in connection with Work shall continue until such time as Work is complete and OWNER'S REPRESENTATIVE has issued notice to CONTRACTOR that Work is complete.

1.4 HEALTH AND SAFETY

- A. CONTRACTOR is responsible for implementation and enforcement of health and safety requirements and shall take necessary precautions and provide protection for following.
 - 1. Personnel working on or visiting Project site, irrespective of employer.
 - 2. Work and materials or equipment to be incorporated in Work area on- or off-site.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
ON-SITE HEALTH AND SAFETY REQUIREMENTS**

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3. Other property at or adjacent to Project site.
 4. Public exposed to job related operations or potential release of toxic or hazardous materials.
- B. CONTRACTOR shall prepare site-specific health and safety plan (HASP). If CONTRACTOR does not have capability to prepare HASP, CONTRACTOR shall employ consultants with appropriate capability. CONTRACTOR is solely responsible for adequacy of HASP's preparation, monitoring, management, and enforcement. At minimum, CONTRACTOR'S HASP shall address following.
1. Site description and history.
 2. Project activities and coordination with other Contractors.
 3. Hazard evaluation.
 4. On-site safety responsibilities.
 5. Work zones.
 6. Personnel training.
 7. Atmospheric monitoring.
 8. Personal protection, clothing, and equipment.
 9. Emergency procedures.
- C. CONTRACTOR shall follow OWNER'S REPRESENTATIVE'S safety rules, instructions, and policies in effect at the site during CONTRACTOR'S performance of the work.
- D. Submit HASP in accordance with Section 01330.

1.5 OWNER'S REPRESENTATIVE'S RESPONSIBILITIES

- A. When OWNER'S REPRESENTATIVE is required to be present on Project site to perform engineering services, OWNER'S REPRESENTATIVE will comply with CONTRACTOR'S safety plans, programs, and procedures.
- B. If OWNER'S REPRESENTATIVE determines CONTRACTOR'S safety plans, programs, and procedures do not provide adequate protection for OWNER'S REPRESENTATIVE, OWNER'S REPRESENTATIVE may direct its employees to implement additional safeguards for OWNER'S REPRESENTATIVE'S protection. If taken, these actions will be in furtherance of OWNER'S REPRESENTATIVE'S responsibility to its employees only, and OWNER'S REPRESENTATIVE will not assume responsibility for protection of any other persons affected by Work.
- C. If OWNER'S REPRESENTATIVE observes situations, which appear to have potential for immediate and serious injury to persons, OWNER'S REPRESENTATIVE may warn persons who appear to be affected by such situations. Such warnings, if issued, shall be given based on general humanitarian concerns, and OWNER'S REPRESENTATIVE will not, by issuance of any such warning, assume any responsibility to issue future warnings or any general responsibility for protection of persons affected by Work.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
ON-SITE HEALTH AND SAFETY REQUIREMENTS**

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PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Coarse aggregate materials.
 - 2. Fine aggregate materials.
- B. Related Sections:
 - 1. Drawings and general provisions of the Contract including General and Supplemental General Conditions, and Technical Specifications.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO M147 - Standard Specification for Materials for Aggregate and Soil- Aggregate Subbase, Base and Surface Courses.
 - 2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18") Drop.
- B. ASTM International:
 - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 3. ASTM D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 4. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 - 5. ASTM D4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.3 SUBMITTALS

- A. Section 01330 - Submittal Procedures.
- B. Samples: Submit, in air-tight containers, 10 lb sample of each type of fill to testing laboratory.
- C. Materials Source: Submit name of imported materials suppliers.
- D. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
AGGREGATE**

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PART 2 PRODUCTS

2.1 COARSE AGGREGATE MATERIALS

- A. Coarse aggregate shall consist of crushed or uncrushed gravel, crushed stone. Or crushed slag, having hard, strong, durable pieces, free from adherent coatings.
- B. Aggregate materials for landfill gas extraction wells shall be granite or similar approved non-calcareous materials. Coarse Aggregate Type A1 (ALDOT Aggregate size No.4) shall be graded in accordance with the following limits:

<u>Sieve Size</u>	<u>Percent Passing</u>
2"	100%
1½"	90 to 100%
1"	20 to 55%
¾"	0 to 15%
½"	----
⅜"	0 to 5%
No. 4	----
No. 8	----
No. 16	----
No. 50	----
No. 200	----

- C. Coarse Aggregate Type A2 (ALDOT Aggregate size No.57) shall be graded in accordance with the following limits:

<u>Sieve Size</u>	<u>Percent Passing</u>
2"	----
1½"	100%
1"	95 to 100%
¾"	----
½"	25 to 60%
⅜"	----
No. 4	0 to 10%
No. 8	0 to 5%
No. 16	----
No. 50	----
No. 200	----

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
AGGREGATE**

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- D. Coarse Aggregate Type A3 (ALDOT Aggregate size No.78) shall be graded in accordance with the following limits:

<u>Sieve Size</u>	<u>Percent Passing</u>
2"	----
1½"	----
1"	----
¾"	100%
½"	90 to 100%
⅜"	40 to 75%
No. 4	5 to 25%
No. 8	0 to 10%
No. 16	0 to 5%

2.2 FINE AGGREGATE MATERIALS

- A. Fine Aggregate Type A4 (Concrete Sand): Natural River or bank sand; washed; free of silt, clay, loam, friable or soluble materials, and organic matter; graded in accordance with ASTM C136; within the following limits:

<u>Sieve Size</u>	<u>Percent Passing</u>
¾"	100%
No. 4	95 to 100%
No. 8	80 to 100%
No. 16	50 to 90%
No. 50	5 to 30%
No. 100	0 to 10%

- B. Fine Aggregate Type A5 (Manufactured Sand): Natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, and organic matter; graded in accordance with ASTM C136; within the following limits:

<u>Sieve Size</u>	<u>Percent Passing</u>
¾"	100%
No. 4	95 to 100%
No. 8	----
No. 16	50 to 80%
No. 50	20 to 50%
No. 100	10 to 25%
No. 200	5 to 12%

2.3 SOURCE QUALITY CONTROL

- A. Section 01400 - Quality Requirements.
- B. Coarse Aggregate Material - Testing and Analysis: Perform in accordance with ASTM D698, ASTM D1557, ASTM D4318, or ASTM C136.
- C. Fine Aggregate Material - Testing and Analysis: Perform in accordance with ASTM D698, ASTM D1557, ASTM D4318, or ASTM C136.
- D. When tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.1 EXCAVATION

- A. Excavate aggregate materials from on-site locations as specified in Section 02300.
- B. Stockpile excavated material meeting requirements for coarse aggregate materials and fine aggregate materials.
- C. Remove excess excavated materials not intended for reuse, from site.
- D. Remove excavated materials not meeting requirements for coarse aggregate materials and fine aggregate materials from site.

3.2 STOCKPILING

- A. Stockpile materials on site.
- B. Stockpile in sufficient quantities to meet Project schedule and requirements.
- C. Separate different aggregate materials with dividers or stockpile individually to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.
- E. Stockpile unsuitable materials on impervious material and cover to prevent erosion and leaching, until disposed of.

3.3 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Removing surface debris.
 - 2. Removing designated paving, curbs, and culverts.
 - 3. Removing designated trees, shrubs, and other plant life.
 - 4. Removing abandoned utilities.
 - 5. Excavating topsoil.
- B. Related Sections:
 - 1. Drawings and general provisions of the Contract including General and Supplemental General Conditions, and Technical Specifications.

1.2 SUBMITTALS

- A. Section 01330 - Submittal Procedures.
- B. Product Data: Submit data for herbicide. Indicate compliance with applicable codes for environmental protection.

1.3 QUALITY ASSURANCE

- A. Conform to applicable codes for environmental requirements, disposal of debris, burning debris on site, use of herbicides, and disposal of sludge.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements.
- B. Verify existing plant life designated to remain is tagged or identified.

3.2 PREPARATION

- A. Call Alabama One Call service at 1-800-292-8525 or 811 not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
SITE CLEARING**

SECTION 00-02230 – Page 2 of 3

3.3 PROTECTION

- A. Locate, identify, and protect utilities indicated to remain, from damage.
- B. Protect trees, plant growth, and features designated to remain.
- C. Protect benchmarks, survey control points, and existing structures from damage or displacement.

3.4 CLEARING

- A. Clear areas required for access to site and execution of Work to minimum depth of twelve (12)".
- B. Remove trees and shrubs within indicated areas. Remove stumps, surface rock, and fences.
- C. Clear undergrowth and deadwood, without disturbing subsoil.
- D. Apply herbicide to remaining stumps to inhibit growth.

3.5 REMOVAL

- A. Remove debris, rock, and extracted plant life from site.
- B. Partially remove paving, curbs, and gutters. Neatly saw cut edges at right angle to surface.
- C. Remove abandoned utilities. Indicated removal termination point for underground utilities on Record Documents.
- D. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.
- E. Do not burn or bury materials on site. Leave site in clean condition.

3.6 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated, relandscaped, or regraded, without mixing with foreign materials for use in finish grading.
- B. Do not excavate wet topsoil.
- C. Stockpile in area designated on site to depth not exceeding eight (8)' and protect from erosion. Stockpile material on impervious material until disposal.
- D. Remove excess topsoil not intended for reuse, from site.

3.7 SITE RESTORATION

- A. Restore all areas disturbed by the construction activities to pre-construction conditions or better.
- B. Restore areas to satisfaction of Owner and Landowner if work has occurred on private property.
- C. If preconstruction documentation of existing conditions has not been performed, restore areas to complete satisfaction of Owner and Landowner at no additional cost to Owner.
- D. Restore paved or unpaved streets, roads, sidewalks, curbs, etc. disturbed by the construction activities to preconstruction conditions or better using materials and workmanship conforming to requirements of Owner, City or Alabama Department of Transportation, whichever applies.
- E. Maintain seeded areas and re-seed as needed until a stand of grass satisfactory to the Owner is established.

END OF SECTION

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

- A. The Contractor shall furnish all labor, materials, tools, supervision, transportation, and installation equipment, necessary to perform the work specified herein, as shown on the Drawings, and in accordance with the Construction Quality Assurance (CQA) Plan.
- B. The Contractor shall coordinate the construction of the topsoil with other construction activities and subcontractors at the site.
- C. The work specified in this Section shall include, but not necessarily be limited to mixing, loading, and hauling of topsoil from either an on-site source, placing and grading the topsoil at locations shown on the Drawings, and applying weed control and/or soil amendments.

1.2 REFERENCES

- A. Latest version of American Society for Testing and Materials (ASTM) standards:
 - 1. ASTM D 422. Standard Method for Particle-Size Analysis of Soils.
 - 2. ASTM D 2974. Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils.

1.3 SUBMITTALS

- A. For each source of furnished topsoil, the Contractor shall submit to the Owner's Representative certification for the material properties including:
 - 1. the proposed amendment mix design and required spreading rate in the amended topsoil;
 - 2. the source for the amendment mix;
 - 3. the source of the topsoil including the location, site description, previous land use, previous vegetation, and topsoil depth; and
- B. The Contractor shall notify the Owner at least three (3) days in advance of intention to perform the work of this Section.
- C. If work is interrupted for reasons other than inclement weather, the Contractor shall notify the Owner immediately and provide a plan and schedule for resumption of the work.
- D. The Contractor shall abide by all qualification requirements of the CQA Plan.

PART 2 PRODUCTS

2.1 MATERIALS

SECTION 00-02265 – Page 2 of 3

- A. The material for the topsoil layer shall consist of a natural loose, friable, fertile fine sandy loam possessing the characteristics of representative topsoils of the locality and shall be from on-site. The topsoil shall be free from subsoil, noxious weeds, stones larger than one (1)" in diameter, lime, cement, ashes, slag, or other deleterious matter. Topsoil shall be well drained in its original position and free from toxic quantities of acid or alkaline elements.
- B. For topsoil to be considered loamy, that fraction passing through the No. 10 sieve (ASTM D 422) shall contain no more than forty (40)% clay.

PART 3 EXECUTION

3.1 FAMILIARIZATION

- A. Prior to implementing any of the work described in this Section, the Contractor shall become thoroughly familiar with all portions of the work falling within this Section.
- B. Inspection:
 - 1. Prior to implementing any of the work in this Section, the Contractor shall carefully inspect the installed work of all other Sections and verify that all work is complete to the point where the installation of this Section may properly commence without adverse impact.
 - 2. If the Contractor has any concerns regarding the installed work of other Sections, he should notify the Owner in writing within 48 hours of the site inspection. Failure to notify the Owner or continuance with topsoil placement shall be construed as the Contractor's acceptance of the related work of all other Sections.

3.2 APPLICATION

- A. Topsoil shall be placed on those areas shown on the Drawings. Topsoil need not be placed on parts of the site to be covered with structures or pavement.

3.3 PLACEMENT

- A. Topsoil shall be placed over approved areas to a depth sufficiently greater than required so that after natural settlement and light rolling, the complete work shall conform to the lines, grades, and elevations shown on the Drawings. No topsoil shall be spread in water or while frozen or muddy. If soil or weather conditions are unsuitable, as determined by the Owner, the Contractor shall cease placing topsoil until permission to resume topsoil operations is obtained from the Owner.
- B. After topsoil has been spread, it shall be carefully prepared by scarifying or harrowing and hand raking. All stiff clods, lumps, roots, litter and other foreign material shall be removed from the area and disposed of by the Contractor. The areas shall also be free of smaller stones, in excessive quantities, as determined by the Owner.

3.4 PRODUCT PROTECTION

- A. The Contractor shall use all means necessary to protect all prior work and materials and completed work of other Sections.
- B. In the event of damage to prior work or work completed as specified in this Section, the Contractor shall immediately make all repairs and replacements necessary to the approval of the Owner and at no additional cost to the Owner.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Preparing of subgrade and grading for buildings, slabs, walks, embankments, slopes and pavements.
 - 2. Excavating and backfilling of utility trenches.
- B. Related Documents
 - 1. Drawings and general provisions of the Contract including General and Supplemental General Conditions, and Technical Specifications.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO R 18 – Establishing and Implementing a Quality System for Construction Materials Testing Laboratories.
- B. ASTM International:
 - 1. ASTM D 698 – Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 2. ASTM D 1556 – Standard Test Method for Density and Unit Weight of Soil in place by the Sand-Cone Method.
 - 3. ASTM D 1557 – Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 4. ASTM D 2487 – Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 - 5. ASTM D 2922 – Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (shallow depth).
 - 6. ASTM D 2937 – Standard Test Method for Density of Soil in Place by the Drive- Cylinder Method.
 - 7. ASTM D 3017 – Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (shallow depth).
 - 8. ASTM D 4318 – Standard Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
 - 9. ASTM D 4959 – Standard Test Method for Determination of Water (Moisture) Content of Soil by Direct Heating.
 - 10. ASTM D 6913 Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis.
 - 11. ASTM D 7830 Standard Test Method for In-Place Density and Water Content of Soil Using an Electromagnetic Soil Density Gauge.

1.3 DEFINITIONS

- A. Excavation: Removal of material encountered to subgrade elevations indicated and subsequent disposal of materials removed.

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EARTHWORK**

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- B. Unauthorized excavation: Removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Engineer. Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at the Contractor's expense.
 - 1. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Engineer.
 - 2. In locations other than those above, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by the Engineer.
- C. Additional Excavation: When excavation has reached required subgrade elevations, notify Engineer, who will evaluate conditions. If Engineer determines that bearing materials at required subgrade are unstable, continue excavation until suitable bearing materials are encountered and replace excavated material as directed by Engineer. The Contract Sum may be adjusted by an appropriate Contract Modification.
 - 1. Removal of unsuitable material and its replacement as directed will be paid on basis of Conditions of the Contract relative to changes in work.
- D. Subgrade: The undisturbed soil or rock, or the compacted fill layer immediately below structures, granular base, drainage fill, or topsoil materials.
- E. Structures: Buildings, foundations, slabs, tanks, pavements, gravel drives or road, walks, curbs, cut slopes, fill embankments, utilities, or other man-made stationary features occurring above or below ground surface.
- F. Structural Areas: Those plan locations containing a structure plus a minimum of five (5)' beyond the outside edge of the structure including appurtenances or as defined elsewhere in the project documents.
- G. Structural Fill: Materials placed as fill in Structural Areas.

1.4 SUBMITTALS

- A. Section 01330 - Submittal Procedures.
- B. Materials Source: Submit name of imported materials source.
- C. Test Reports: All test reports must be completed under the supervision of a registered engineer, licensed in the state in which the project is located. Contractor will notify testing agency a minimum of twenty-four (24) hours prior to performing work that requires testing. Submit the following test reports directly to Engineer, with copy to Contractor:
 - 1. Test reports on borrow material. (ASTM D-2487, 4318, 6913)
 - 2. Verification of each foundation bearing surface in accordance with specified requirements.
 - 3. Field reports of in-place density tests.

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EARTHWORK**

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4. One optimum moisture-maximum density curve for each type of soil encountered. (ASTM D-698 or ASTM D-1557)
5. Subgrade evaluation report for all structural areas prior to fill placement and after establishing final subgrade, but prior to pavement or building slab construction.

1.5 QUALITY ASSURANCE

- A. Furnish each soil material from single source throughout the Work.
- B. Codes and Standards: Perform excavation work in compliance with applicable requirements of authorities having jurisdiction.
- C. Testing and Inspection Service: Contractor will employ and pay for a qualified independent geotechnical testing and inspection laboratory in accordance with Section 1200 to perform soil testing and inspection service during earthwork operations. Laboratory shall be selected by the Engineer.
- D. Testing Laboratory Qualifications: To qualify for acceptance, the geotechnical testing laboratory must demonstrate to Engineer's satisfaction, based on evaluation of laboratory submitted criteria conforming to AASHTO R18, that it has the experience and capability to conduct the required field and laboratory geotechnical testing.

1.6 PROJECT CONDITIONS

- A. Site Information: Data in subsurface investigation reports (if performed) was used for the basis of the design and are available to the Contractor for information only. Conditions noted in the report(s) are not intended as representations or warranties of accuracy or continuity between soil borings. The Owner and Engineer will not be responsible for interpretations or conclusions drawn from this data by Contractor.
 1. Additional test borings and other exploratory operations may be performed by Contractor, at the Contractor's option; however, no change in the Contract Sum will be authorized for such additional exploration.
- B. Existing Utilities: Locate existing underground utilities in areas of excavation work. If utilities are indicated to remain in place, provide adequate means of support and protection during earthwork operations.
 1. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner at no expense to the Owner.
 2. Do not interrupt existing utilities serving facilities occupied by Owner or others during occupied hours, except when permitted in writing by Engineer and then only after acceptable temporary utility services have been provided.
 - a. Provide minimum of forty-eight (48) hour notice to Engineer and receive written notice to proceed before interrupting any utility.

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3. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shutoff of services if lines are active. Resultant excavations must be backfilled in lifts and tested in accordance with the project requirements.
- C. Use of Explosives: Use of explosives is not permitted.
- D. Jobsite safety and conformance to applicable codes and guidelines to protect persons and property is solely the responsibility of the contractor.
 1. Excavate in accordance with OSHA guidelines. Barricade open excavations.
 2. Operate safety barriers, markings and warning lights as required to maintain a safe work environment and as recommended by authorities having jurisdiction.
 3. Protect structures, utilities, sidewalks, pavements, and other facilities to remain from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
 4. Perform excavation by hand within dripline of large trees to remain. Protect root systems from damage or dry out to the greatest extent possible. Maintain moist condition for root system and cover exposed roots with moistened burlap.

PART 2 PRODUCTS

- A. Base Material: Naturally or artificially graded mixture of crushed gravel or stone, sand or select granular materials conforming to the Department of Transportation requirements for the state in which the project designated is located.
- B. Aggregate: Graded fine or coarse aggregates as specified in Section 02060.
- C. Structural Fill: On or off-site soil free of rock or gravel larger than two (2)" in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter. Material shall have a liquid limit of fifty (50) or less, a plasticity index of twenty-five (25) or less, less than 20% rock fragments retained on a $\frac{3}{4}$ " sieve, and a maximum dry density of at least 100 pcf. May also consist of Aggregate Type A2, Type A3 or Crushed Aggregate Base Course.
- D. General Fill: On or off-site soil and/or rock which is stable and can be compacted to the specified density. Rock fragments shall be less than four (4)" in largest dimension and blended with sufficient fines to create a dense fill mass free of visible voids.

PART 3 EXECUTION

3.1 EXCAVATION

- A. Excavate topsoil from areas. Strip topsoil to full depth of topsoil in designated areas as directed by the Engineer.
- B. Stockpile excavated material meeting requirements for satisfactory soil materials and topsoil materials.
- C. Remove excess excavated material not intended for reuse from site.
- D. Excavate to subgrade elevations or cut line as indicated, regardless of character of materials and obstructions encountered, including rock, existing structures, and utilities. Subsurface materials are unclassified.

3.2 STABILITY OF EXCAVATIONS

- A. General: Comply with local codes, ordinances, and requirements of agencies having jurisdiction. Design of retaining structures must be performed, signed, and sealed by a registered engineer licensed in the state in which the project is located.
- B. Slope sides of excavations to comply with local codes, ordinances, and requirements of agencies having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.
- C. Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers, and cross braces, in good serviceable condition. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Extend shoring and bracing as excavation progresses.
 - 1. Provide permanent steel sheet piling or reinforced concrete drilled shaft walls wherever subsequent removal of retaining structure might permit lateral movement of soil under adjacent structures. Cut off tops a minimum of 2"-6" below final grade and leave permanently in place.

3.3 DEWATERING

- A. Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.
 - 1. Do not allow water to accumulate in excavations or in foundation excavations prior to or following footing construction. Remove water to prevent softening of foundation boring soils, undercutting footings, and soil changes detrimental to stability of the subgrade and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
 - 2. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rainwater and water removed from excavations to collecting or runoff areas. Do not use trench excavations as temporary drainage ditches.

3. Dewater excavations only as necessary for suitable construction. Do not continue dewatering overnight or for an extended period of time except as required.

3.4 STORAGE OF EXCAVATED MATERIALS

- A. Stockpile excavated materials acceptable for backfill and fill where directed. Place, grade, and shape stockpiles for proper drainage. Stabilize in accordance with ADEM and NPDES regulations.
 1. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.
 2. Dispose of excess excavated soil material and materials not acceptable for reuse as backfill or fill.

3.5 EXCAVATION FOR STRUCTURES

- A. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10' and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, and other construction and for inspection.
 1. Excavations for footings and foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim sides and bottom to required lines and grades. Compact with hand or remote operated equipment to leave solid base to receive other work.
 2. For pile foundations, stop excavations from six (6)" to twelve (12)" above bottom of cap before piles are placed. After piles have been placed, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.
 3. Excavations for soil supported foundations must be neat, clean, and dry. Remove loose, disturbed, and soft soil. Dewater only as necessary for proper construction.

3.6 EXCAVATION FOR PAVEMENTS

- A. Cut surface under pavements to comply with cross-sections, elevations and grades as indicated.

3.7 TRENCH EXCAVATION FOR PIPES AND CONDUIT

- A. Excavate trenches to uniform width, sufficiently wide to provide ample working room and a minimum of thirty-six (36)" total width.
- B. Excavate trenches and conduit to depth indicated or required to establish indicated slope and invert elevations and to support bottom of pipe or conduit on structural fill or undisturbed soil and bedding material. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
 1. Where rock is encountered, refer to Section 02316 – Rock Removal. No direct payment will be made for rock removal, unless specified in other sections.

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EARTHWORK**

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2. For pipes or conduit in all other soil conditions, refer to Section 02324 – Utility Trenching.

3.8 COLD WEATHER PROTECTION

- A. Protect excavation bottoms against freezing when atmospheric temperature is less than thirty-five (35)°F.
- B. Do not place frozen soil fill.

3.9 BACKFILL AND FILL

- A. General: Place soil material in uniform, horizontal lifts as required to final subgrade elevations. Compact individual lifts uniformly to specified density prior to placing the subsequent lift. For each area classification listed below, use materials specified in Part 2 of the Section.
 1. In non-structural areas, use general fill. The final lift shall be the required thickness of topsoil.
 2. In structural areas, use aggregate fill. The final lift shall be as indicated on the plans.
 3. Under utilities, use aggregate as indicated on the plans in areas determined by the Engineer to be unsuitable for pipe bedding. Shape excavation bottom to fit bottom 90 degrees of cylinder.
 4. Backfill trenches with concrete where trench excavations pass within 18 inches of column or wall footings or that are carried below bottom of such footings or that pass under wall footings. Place concrete to level of bottom of adjacent footing.
 - a. Concrete is specified in Section 03300.
 - b. Do not backfill trenches until tests and inspections have been made and backfilling is authorized by Engineer. Use care in backfilling to avoid damage or displacement of pipe systems.
 5. Provide four (4)" thick concrete base slab support for piping or conduit less than twenty-four (24)" below surface of roadways. After installation and testing of piping or conduit, provide minimum four (4)" thick encasement (sides and top) of concrete prior to backfilling or placement of roadway base.
- B. Backfill excavations as promptly as work permits, but not until completion of the following:
 1. Acceptance of construction below finish grade including, where applicable, damp proofing, waterproofing, and perimeter insulation.
 2. Inspection, testing, approval, and recording locations of underground utilities have been performed and recorded.
 3. Removal of concrete formwork.
 4. Removal of shoring and bracing and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities or leave in place if required.

5. Removal of trash and debris from excavation.
6. Permanent or temporary horizontal bracing is in place on horizontally supported walls.

3.10 PLACEMENT AND COMPACTION

- A. Ground Surface Preparation: Remove vegetation, debris, topsoil, obstructions, underground structures (foundations, slabs, walls, and utilities), and deleterious materials from area prior to placement of fills. Backfill disturbed areas with compacted and tested fill. Contractor shall notify Engineer to evaluate the natural ground prior to fill placement. Where access permits, Contractor shall provide pneumatic-tired equipment capable of producing the pressure equal to that produced by a fully loaded, tri-axle dump truck for use in evaluation.
 1. When existing ground exhibits instability, scarify ground surface, moisture- condition to within two (2)% of the optimum moisture content, and compact to the project requirements. Alternatively, remove and replace unstable soils with suitable, compacted soils or stabilize at the direction of the Engineer.
 2. Bench sloped surfaces steeper than one (1) vertical to four (4) horizontal so that fill material will bond with existing surface. Benches shall consist of alternating horizontal and vertical soil surfaces in the original ground with horizontal benches no more than 5' apart vertically.
 3. Overbuild slopes and cut back to the desired configuration to ensure the soils at the slope face are properly compacted and tested.
- B. In structural areas, place aggregate fill in layers not more than eight (8)" in loose thickness and compact each layer with vibratory compaction equipment in two passes. In non- structural areas, place general fill in maximum twenty-four (24)" thick lifts.
- C. In structural areas, before compaction, moisten or aerate each layer of fill as necessary to provide moisture content within the fill at $\pm 2\%$ of the optimum moisture content. Compact each layer to required percentage of maximum dry density for each area classification. Do not place structural fill on surfaces that are muddy, frozen, or contain frost or ice.
- D. Place backfill and fill materials evenly adjacent to structures, piping, or conduit to required elevations. Prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.
- E. Control soil and fill compaction, providing minimum percentage of density specified for each area classification indicated below. Correct improperly compacted areas or lifts as directed by Engineer if soil density tests indicate inadequate compaction.
 1. Percentage of Maximum Standard Proctor Density Requirements:
 - a. Structural Areas: Compact each individual lift of structural fill and fine aggregate to not less than 98% of the maximum standard Proctor density in accordance with ASTM D-698. Compact each

- individual lift of coarse aggregate using multiple passes of a vibratory compactor or as directed by the Engineer.
 - b. Non-Structural Areas: Compact each individual lift using multiple passes of a compactor designed for the type of soils used as fill or backfill.
- 2. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade or layer of soil material. Apply water in minimum quantity as necessary to prevent free water from appearing on surface during or subsequent to compaction operations.
 - a. Remove and replace or scarify and air-dry soil material that is too wet to permit compaction to specified density.
 - b. Stockpile or spread soil material that has been removed because it is too wet to permit compaction. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

3.11 GRADING

- A. General: Uniformly grade areas within limits of grading under this section, including adjacent transition area. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated or between such points and existing grades.
- B. Grading Outside Building Lines: Grade areas adjacent to building lines to drain away from structures and to prevent ponding. Finish surfaces free from irregular surface changes and as follows:
 - 1. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10' above or below required subgrade elevations.
 - 2. Walks: Shape surface of areas under walks to line, grade, and cross-section, with finish surface not more than 0.10' above or below required subgrade elevation.
 - 3. Pavements: Shape surface of areas under pavement to line, grade, and cross-section, with finish surface not more than 1/2" above or below required subgrade elevation.
- C. Grading Surface of Fill under Building Slabs: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 1/2".
- D. Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum or relative density for each area classification.

3.12 PAVEMENT BASE COURSE

- A. General: Base course consists of placing base material in layers of specified thickness, over subgrade surface to support a pavement base course.
 - 1. Refer to other Division 2 sections for paving specifications.

- B. Grade Control: During construction, maintain lines and grades including crown and cross- slope of base course.
- C. Shoulders: Place shoulders along edges of base course to prevent lateral movement. Construct shoulders of acceptable soil materials, placed in such quantity to compact to thickness of each base course layer. Compact and roll at least a twelve (12)" width of shoulder simultaneous with the compaction and rolling of each layer of base course.
- D. Placing: Place base course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting base material during placement operations.
 - When a compacted base course is indicated to be six (6)" thick or less, place material in a single layer. When indicated to be more than six (6)" thick, place material in equal layers, except no single layer more than six (6)" or less than three (3)" when compacted.
- 1. Compact individual lifts of the base to a minimum of 100% of the ASTM D-1557 maximum dry density at $\pm 2\%$ of the optimum moisture content.

3.13 BUILDING SLAB DRAINAGE COURSE

- A. General: Drainage course consists of placing aggregate in layers of indicated thickness over subgrade surface to support concrete building slabs.
- B. Placing: Place aggregate on prepared subgrade in layers of uniform thickness, conforming to the indicated cross-section and thickness. Maintain optimum moisture content for compacting material during placement operations.
 - 1. When a compacted drainage course is indicated to be six (6)" thick or less, place material in a single layer. When indicated to be more than six (6)" thick, place material in equal layers, except no single layer shall be more than six (6)" or less than three (3)" when compacted.
 - 2. Compact the individual lifts of the drainage course with a vibratory compactor as directed by the Engineer.

3.14 FIELD QUALITY CONTROL

- A. Quality Assurance consisting of testing and observation of a limited sampling of construction materials will be paid for using the testing allowance for acceptance purposes. Passing test results are not a warranty, guarantee, or certification by the testing agency, Engineer, or Owner that all work was performed in conformance with the plans and specifications. Therefore, the Contractor should not rely solely on test results generated by the quality assurance process as an indication of the suitability of the construction.
- B. It is entirely the Contractor's responsibility to perform quality control as necessary to construct the project in conformance with the plans and specifications. Deviations from the plans and specifications, whether identified during construction or following the completion of construction, must be corrected by the Contractor at no cost to the Owner.

- C. Quality Control Testing During Construction: Allow testing service (to be selected by Engineer) to test each subgrade and fill layer before further backfill or construction work is performed.
 - 1. Perform field density tests on each lift of fill in accordance with ASTM D 2937 (Drive Cylinder Method), ASTM D 2922 (Nuclear Method), ASTM D 7830 (Electromagnetic Method), or ASTM D 1556 (sand cone method).
 - a. In conjunction with each density test, the natural moisture content shall be determined in accordance with ASTM D 3017 (nuclear method), ASTM D 4959 (direct heating), ASTM D 7830 (electromagnetic method) or other method approved by the Engineer.
 - b. If field tests are performed using nuclear or electromagnetic methods, make calibration checks using alternate methods of both density and moisture results on each different type of material encountered and at intervals as directed by the Engineer.
 - 2. Footing Subgrade: For all soil on which footings will be placed, perform tests to verify required design bearing capacities. Engineer shall be notified to observe and approve each footing subgrade. Engineering evaluation may include the excavation of hand augers or test pits. The contractor shall provide suitable equipment to excavate test pits as directed by the Engineer.
 - 3. Paved Areas and Building Slab Subgrade: Perform at least one field density test per lift for every 2,500 sq. ft. of area, but in no case fewer than three (3) tests.
 - 4. Foundation Wall Backfill: Perform at least two field density tests on each lift of fill placed at locations directed by the Engineer.
- D. If in opinion of Engineer, based on testing reports or Engineering judgement, subgrade or fill that have been placed are unsuitable, perform additional compaction and testing until specified density is obtained. Do not place additional fill over materials that have not been approved by the Engineer. Work to recompact and retest unsuitable areas will be at the expense of the contractor.

3.15 EROSION CONTROL

- A. Provide erosion control methods in accordance with requirements of authorities having jurisdiction and/or as described in the Plans.
- B. Unless otherwise specified in the Plans, the contractor is responsible to apply for and obtain any required permits in the contractor's name associated with current NPDES guidelines. Requirements for implementing and maintaining an acceptable Best Management Practices Plan shall be the responsibility of the contractor. The contractor is responsible to maintain the NPDES permit in good standing with the regulatory authority and comply with applicable NPDES regulations during construction and terminate permit upon completion and approval at no additional cost to the owner.

3.16 MAINTENANCE

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades in settled, eroded, and rutted areas to specified tolerances.
- C. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.
- D. Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn, or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work and eliminate evidence of restoration to greatest extent possible.

3.17 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Removal from Owner's Property: Remove waste materials, including unacceptable excavated material, trash, and debris, and dispose of it off Owner's property.
 - 1. Secure a disposal site and all necessary approvals for use.
 - 2. Remove excess excavated material, trash, debris, and waste materials and dispose of it off Owner's property.
 - 3. Excavated material in area noted on plans shall be screened by geotechnical engineer. If classified "contaminated", it shall be stockpiled and monitored by the contractor at no additional cost.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
ROCK REMOVAL**

SECTION 00-02316 – Page 1 of 3

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Removing discovered rock during excavation.
 - 2. Expansive tools and Explosives to assist rock removal.
- B. Related Sections:
 - 1. Drawings and general provisions of the Contract including General and Supplemental General Conditions, and Technical Specifications.

1.2 REFERENCES

- A. National Fire Protection Association:
 - 1. NFPA 495 - Explosive Materials Code.

1.3 UNIT PRICE – MEASUREMENT AND PAYMENT

- A. Basis of Measurement: Cubic Yard
- B. Basis of Payment: Rock removal is a subsidiary obligation of other pay items and will not be paid as a separate item unless designated in a special provision.

1.4 DEFINITIONS

- A. Rock: Solid mineral material of size that cannot be removed with twelve (12) metric ton excavator.

1.5 SUBMITTALS

- A. Section 01330 - Submittal Procedures.
- B. Shop Drawings: Indicate proposed method of blasting, delay pattern, explosive types, type of blasting mat or cover, and intended rock removal method.
- C. Survey Report: Submit survey report on conditions of buildings near locations of rock removal.

1.6 QUALITY ASSURANCE

- A. Seismic Survey Firm: Licensed company specializing in seismic surveys with five years documented experience.
- B. Explosives Firm: Company specializing in explosives for disintegration of rock, with five years documented experience.

1.7 PROJECT CONDITIONS

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- A. Conduct survey and document conditions of buildings near locations of rock removal, prior to blasting, and photograph existing conditions identifying existing irregularities.
- B. Advise owners of adjacent buildings or structures in writing, prior to executing seismographic survey. Explain planned blasting and seismic operations.
- C. Obtain seismic survey prior to rock excavation to determine maximum charges that can be used at different locations in area of excavation without damaging adjacent properties or other work.

1.8 SCHEDULING

- A. Section 01300 - Administrative Requirements.
- B. Schedule Work to avoid disruption to occupied buildings nearby.
- C. Conduct blasting operations between hours of 8:00 AM and 4:00 PM only.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Explosives: Type recommended by explosive firm following seismic survey and required by authorities having jurisdiction.
- B. Delay Device: Type recommended by explosives firm.
- C. Blast Mat Materials: Type recommended by explosives firm.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements.
- B. Verify site conditions and note subsurface irregularities affecting Work of this section.

3.2 PREPARATION

- A. Rock excavation shall be performed by mechanical methods, such as jack hammers, rippers, hydraulic hammers, or other approved methods. Use blasting to remove massive, unrippable rock only when approved by the Engineer.
- B. Identify required lines, levels, contours, and datum.

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3.3 ROCK REMOVAL BY MECHANICAL METHOD

- A. Excavate and remove rock by mechanical method.
 - 1. Drill holes and use expansive tools, wedges or mechanical disintegration compound to fracture rock.
- B. Cut away rock at bottom of excavation to form level bearing.
- C. Remove shale layers to provide sound and unshattered base for footings.
- D. In utility trenches, excavate to six (6)" below invert elevation of pipe and twenty-four (24)" wider than pipe diameter.
- E. Correct unauthorized rock removal in accordance with backfilling and compacting requirements of Section 02300 or as directed by Engineer.

3.4 ROCK REMOVAL BY EXPLOSIVE METHODS

- A. When rock is uncovered requiring explosives method for rock disintegration, notify Engineer.
- B. Provide seismographic monitoring during progress of blasting operations.
- C. Disintegrate rock and remove from excavation.
- D. Remove rock at excavation bottom to form level, intact rock surface.
- E. Remove shale layers to provide sound and unshattered base for footings.
- F. In utility trenches, excavate to six (6)" below invert elevation of pipe and twenty-four (24)" wider than pipe diameter.
- G. Footing excavations designed to bear on soil shall be over excavated twelve (12)" and backfilled with compacted, engineered soil fill.
- H. Blasting can create zones of broken and disturbed rock below the planned level of excavation. Correct overshoot rock removal in accordance with backfilling and compacting requirements of Section 02300.

3.5 FIELD QUALITY CONTROL

- A. Section 01400 - Quality Requirements.
- B. Excavated rock may not be reused as fill on the site unless expressly authorized by the Engineer. Remove excavated material from site.

END OF SECTION

SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT UTILITY TRENCHING

SECTION 00-02324 – Page 1 of 5

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Excavating trenches for utilities.
 - 2. Backfilling and compaction.
- B. Related Sections:
 - 1. Drawings and general provisions of the Contract including General and Supplemental General Conditions, and Technical Specifications.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm Eighteen (18)" Drop.
- B. ASTM International:
 - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 3. ASTM D1556 - Standard Test Method for Density of Soil in Place by the Sand- Cone Method.
 - 4. ASTM D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 5. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
 - 6. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 7. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, or cable.
- B. Structures: Buildings, foundations, slabs, tanks, pavements, walks, curbs, cut slopes, fill embankments, utilities, or other man-made stationary features occurring above or below ground surface.
- C. Structural Areas: Those plan locations containing a structure plus a minimum of five (5)' beyond the outside edge of the structure including appurtenances or as defined elsewhere in the project documents.

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SECTION 00-02324 – Page 2 of 5

- D. Structural Fill: Materials placed as fill in Structural Areas.

1.4 SUBMITTALS

- A. Product Data: Submit data for geotextile fabric indicating fabric and construction.
- B. Materials Source: Submit name of imported fill materials suppliers.

1.5 QUALIFICATIONS

- A. Prepare erosion control plan and submit to Engineer prior to start of construction.
- B. Refer to Section 02374, Erosion Control Devices.

1.6 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.7 COORDINATION

- A. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. General fill: As specified in Section 02300.
- B. Aggregate Fill: As specified in Section 02300, Section 02060, and the Plans.
- C. Structural Fill: As specified in Section 02300.
- D. Concrete: Structural concrete as specified in Section 03300 with compressive strength of 3,000 psi.
- E. Lean Concrete: Non-structural concrete with a compressive strength of 2,000 psi.

PART 3 EXECUTION

3.1 LINES AND GRADES

- A. Lay pipes to lines and grades indicated on Drawings.
 - 1. Engineer reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.
- B. Use laser-beam instrument with qualified operator to establish lines and grades.

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SECTION 00-02324 – Page 3 of 5

- C. Maintain proper horizontal alignment of utilities not laid on grade.

3.2 PREPARATION

- A. Call Alabama One Call service at 1-800-292-8525 not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum locations.
- C. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- D. Protect benchmarks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Maintain and protect above and below grade utilities indicated to remain.
- F. Establish temporary traffic control and detours when trenching is performed in public right- of-way. Relocate controls and reroute traffic as required during progress of Work.

3.3 TRENCHING

- A. Erect erosion control devices prior to excavation.
- B. Excavate subsoil required for utilities to the depth indicated on the Drawings.
- C. Remove lumped subsoil, boulders, and rock up of 1/6 cubic yard, measured by volume. Remove larger material as specified in Section 02316.
- D. Perform excavation within twenty-four (24)" of existing utility in accordance with utility's requirements.
- E. Do not advance open trench more than four hundred (400)' ahead of installed pipe.
- F. Excavate trenches to uniform width, sufficiently wide to provide ample working room and a minimum of twelve (12)" of clearance on each side of pipe or conduit or as indicated in the plans.
- G. Remove water or materials that interfere with Work.
- H. Excavate trenches and conduit to depth indicated or required to establish indicated slope and invert elevations and to support bottom of pipe or conduit on undisturbed soil and bedding material. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

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SECTION 00-02324 – Page 4 of 5

- I. Do not interfere with forty-five (45)° bearing splay of building foundations or roadbeds.
- J. When subsurface materials at bottom of trench are loose or soft, notify Engineer, and request instructions.
- K. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Fill Type A1 and compact to density equal to or greater than requirements for subsequent backfill material.
- L. Correct over excavated areas with compacted backfill as specified for authorized excavation or replace with concrete as directed by Engineer.
- M. Remove excess subsoil not intended for reuse, from site.
- N. Maintain trench depth sufficient to provide a minimum cover of thirty (30)" over utility pipe unless otherwise noted in the Drawings. Maintain a minimum of thirty-six (36)" cover under highway ditches.

3.4 STABILITY OF EXCAVATIONS

- A. General: Comply with local codes, ordinances, and requirements of agencies having jurisdiction. Design of retaining structures must be performed, signed and sealed by a registered engineer licensed in the state in which the project is located.
- B. Slope sides of excavations to comply with local codes, ordinances, and requirements of agencies having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.
- C. Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers, and cross braces, in good serviceable condition. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Extend shoring and bracing as excavation progresses.
 - 1. Provide permanent steel sheet piling or reinforced concrete drilled shaft walls wherever subsequent removal of retaining structure might permit lateral movement of soil under adjacent structures. Cut off tops a minimum of 2"-6" below final grade and leave permanently in place.
- D. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- E. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
UTILITY TRENCHING**

SECTION 00-02324 – Page 5 of 5

3.5 BACKFILLING

- A. Backfill trenches as follows:
 - 1. In non-structural areas, use excavated material to backfill to existing contours and elevations, unless such material does not conform to the requirements of General Fill as outlined in Section 02300. In such instances, borrow material meeting those requirements shall be brought in to backfill the trench. The final lift shall be the required thickness of topsoil.
 - 2. In structural areas, use structural fill as shown on the Plans or as directed by the Engineer. Backfill to elevations reflected on the plans, or to match surrounding grade. The final lift shall be as indicated on the plans. If subgrade is unstable, prepare subgrade beneath pipe in accordance with Section 2300 prior to fill placement.
 - 3. Use aggregate as indicated on the plans in areas determined by the Engineer to be unsuitable for pipe bedding. Shape excavation bottom to fit bottom ninety (90)° of cylinder.
 - 4. Backfill trenches with concrete where trench excavations pass within eighteen (18)" of column or wall footings or that are carried below bottom of such footings or that pass under wall footings. Place concrete to level of bottom of adjacent footing.
 - a. Concrete is specified in Section 03300.
 - b. Do not backfill trenches until tests and inspections have been made and backfilling is authorized by Engineer. Use care in backfilling to avoid damage or displacement of pipe systems.
 - 5. Provide four (4)" thick concrete base slab support for piping or conduit less than twenty-four (24)" below surface of roadways. After installation and testing of piping or conduit, provide minimum four (4)" thick encasement (sides and top) of concrete prior to backfilling or placement of roadway base.
- B. Place, moisture condition, and compact fill material in accordance with Section 02300.
- C. Employ placement method that does not disturb or damage utilities in trench, or structures near the trench.
- D. Do not leave trench open at end of working day.

3.6 PROTECTION OF FINISHED WORK

- A. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Riprap placed loose.
 - 2. Riprap placed in bags.
- B. Related Sections:
 - 1. Drawings and general provisions of the Contract including General and Supplemental General Conditions, and Technical Specifications.

1.2 SUBMITTALS

- A. Section 01330 - Submittal Procedures.
- B. Product Data: Submit data for riprap bags, binder, and geotextile fabric.
- C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.3 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Riprap: Limestone type; broken stone; solid and nonfriable; class as specified on Drawings.
- B. Bags: Woven jute, where shown on Drawings.
- C. Binder: Portland cement, not required unless detailed on Drawings.
- D. Geotextile Fabric: Non-biodegradable, non-woven, eight (8) oz. minimum weight.

2.2 BAGGED RIPRAP – Not Used

- A. Mix riprap, cement, sand and aggregate dry.
 - 1. Cement: Maximum ten (10)% of dry mixed materials by volume.
- B. Fill bags with dry ingredients to seventy (70)% percent capacity and close by sewing or stapling to straight seam.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements.
- B. Do not place riprap over frozen or spongy subgrade surfaces.

3.2 PLACEMENT

- A. Place geotextile fabric over substrate, lap edges and ends.
- B. Place riprap at culvert pipe ends, at embankment slopes, and as indicated on Drawings.
- C. Installed Thickness Per Class:
 - 1. Class 1 Thickness = 18"; Tolerance 0", +6"
 - 2. Class 2 Thickness = 24"; Tolerance -3", +15"
 - 3. Class 3 Thickness = 30"; Tolerance -3", +15"
 - 4. Class 4 Thickness = 32"
 - 5. Class 5 Thickness = 36"

3.3 SCHEDULES

- A. Culvert Pipe Ends: Loose riprap, placed one layer thick, eighteen (18)" average thickness, extend a minimum of two feet beyond culvert wall in each direction.
- B. Sloped Grade: Loose riprap units, eighteen (18)" thickness; placed prior to finish topsoil.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
EROSION CONTROL DEVICES**

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PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Silt Fences.
 - 2. Diversion Channels.
 - 3. Rock Energy Dissipater.
 - 4. Paved Energy Dissipater.
 - 5. Rock Basin.
 - 6. Rock Barriers.
 - 7. Sediment Ponds.
 - 8. Sediment Traps.
- B. Related Sections:
 - 1. Drawings and general provisions of the Contract including General and Supplemental General Conditions, and Technical Specifications.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T88 - Standard Specification for Particle Size Analysis of Soils.
 - 2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm eighteen (18)" Drop.
- B. American Concrete Institute:
 - 1. ACI 301 - Specifications for Structural Concrete.
- C. ASTM International:
 - 1. ASTM C127 - Standard Test Method for Specific Gravity and Absorption of Coarse Aggregate.
 - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 3. ASTM D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 4. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 5. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
- D. Precast/Prestressed Concrete Institute:
 - 1. PCI MNL-116S - Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products.

1.3 SUBMITTALS

- A. Section 01330 - Submittal Procedures.

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- B. Product Data: Product Data: Submit data on joint filler joint sealer and geotextile.
- C. Submit Erosion Control Plan along with application for Stormwater NPDES permit to Engineer prior to placement of erosion control devices.
- D. Submit manufacturer's catalog sheets and other pertinent information on filter fabrics showing that they meet or exceed the requirements of this specification.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01700 - Execution Requirements.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Section 01600 - Product Requirements.
- B. Do not place grout when air temperature is below freezing.
- C. Do not place concrete when base surface temperature is less than forty (40)°F, or surface is wet or frozen.
- D. Silt fence should not be installed across streams, ditches, waterways, or other concentrated flow areas.

PART 2 PRODUCTS

2.1 SILT FENCE MATERIALS

- A. Geotextile fabric shall be a thirty-six (36)" wide, nonwoven filter fabric composed of polypropylene, polyethylene, ethylene, or polyamide material.
- B. Minimum grab strength shall be 100 lbs. in any direction.
- C. Apparent opening size shall be thirty (30) (maximum sieve size).
- D. Flow rate shall be twenty-five (25) gallons/minute/square foot.
- E. Ultraviolet ray inhibitors and stabilizers shall provide a maximum of six (6) months of expected usable life.
- F. Type A silt fence shall include a thirty-six (36)" wide, 12½ gauge galvanized wire fence reinforcement to be placed with the geotextile material. Wire fence shall have openings no larger than six (6)" by six (6)". Type B silt fence shall be a thirty-six (36)" wide fabric with no wire fence reinforcement.
- G. Fence posts shall be minimum two (2)" x two (2)" oak, sixty (60)" long or steel T-post for Type B silt fence. Steel T-posts or four (4)" x four (4)" pressure treated wood posts shall be required for Type A silt fence. A minimum bury depth for wood posts is twenty-four (24)".

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2.2 ROCK

- A. Rock: Sound, hard and angular shape; well graded; without shale seams, structural defects, and foreign substances; with width and thickness greater than one third its length. Refer to Section 02371.

2.3 CONCRETE MATERIALS AND REINFORCEMENT

- A. Concrete: As specified in Section 03300.
- B. Water: Clean and not detrimental to concrete.
- C. Reinforcement Steel: As specified in Section 03200.

2.4 BLOCK, STONE, AGGREGATE, AND SOIL MATERIALS

- A. Precast Solid Concrete Block.
- B. Soil Backfill: Soil as specified in Section 02300.

2.5 PLANTING MATERIALS

- A. Seeding and Soil Supplements: As specified in Section 02924.
- B. Mulch: As specified in Section 02924.

2.6 PIPE MATERIALS

- A. Pipe: Corrugated Plastic (HDPE).

2.7 SOURCE QUALITY CONTROL (AND TESTS)

- A. Section 01400 - Quality Requirements.
- B. Perform tests on cement, aggregates, and mixes to ensure conformance with specified requirements.
- C. Make rock available for inspection at producer's quarry prior to shipment. Notify Engineer at least seven days before inspection is allowed.
- D. Allow witnessing of inspections and testing at manufacturer's test facility. Notify Engineer at least seven days before inspections and tests are scheduled.

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PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements.
- B. Verify location of existing streams, drainage structures and environmentally sensitive areas prior to placing erosion control devices.
- C. Verify compacted subgrade, granular base or stabilized soil is acceptable and ready to support devices and imposed loads.
- D. Verify gradients and elevations of base or foundation for other work are correct.

3.2 SILT FENCE

- A. The silt fence should be purchased in a continuous roll cut to length to avoid the use of joints. When joints are unavoidable, fabric should be spliced together at a post with a minimum six (6)" overlap.
- B. Post installation should start at the center of the low point with remaining posts spaced ten (10)' apart for Type A and seven (7)' apart for Type B fence.
- C. Anchor fabric by entrenching the bottom edge in a six (6)" deep trench and backfilling.
- D. Hay or straw bales shall be placed at each end of the silt fence.

3.3 DIVERSION CHANNELS

- A. Windrow excavated material on low side of channel.
- B. Compact to 95% maximum density.
- C. On entire channel area, apply soil supplements and sow seed as specified in Section 02924.
- D. Mulch seeded areas with hay as specified in Section 02924.

3.4 ROCK ENERGY DISSIPATOR

- A. Excavate to indicated depth of rock lining or nominal placement thickness as follows. Remove loose, unsuitable material below bottom of rock lining, then replace with suitable material. Thoroughly compact and finish entire foundation area to firm, even surface.

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NCSA Class	Nominal Placement
Thickness R8	48"
R7	36"
R6	30"
R5	24"
R4	18"
R3	12"

- B. Lay and overlay geotextile fabric over substrate. Lay fabric parallel to flow from upstream to downstream. Overlap edges upstream over downstream and upslope over downslope. Provide a minimum overlap of three (3)'. Offset adjacent roll ends a minimum of five (5)' when lapped. Cover fabric as soon as possible and in no case leave fabric exposed more than four (4) weeks.
- C. Carefully place rock on geotextile fabric to produce an even distribution of pieces, with minimum of voids and without tearing geotextile.
- D. Unless indicated otherwise, place full course thickness in one operation to prevent segregation and to avoid displacement of underlying material. Arrange individual rocks for uniform distribution.
 - 1. Saturate rock with water. Fill voids between pieces with grout, for at least top six (6)". Sweep surface with stiff broom to remove excess grout.
 - 2. Moist cure grouted rock for at least three (3) days after grouting, using water saturated burlap in accordance with Section 03300.

3.5 PAVED ENERGY DISSIPATER

- A. Excavate to the required paving depth. Remove loose, unsuitable material below bottom of paving, and then replace with suitable material. Thoroughly compact and finish entire foundation area to firm, even surface.
- B. Place forms and hold reinforcement firmly in position during placing of concrete.
- C. Mix, place, and finish concrete, as specified in Section 03300.
- D. Embed stones or blocks four (4)" in plastic concrete at indicated separation on slopes and channel bottom.
- E. Pave in uniform ten (10)' lengths or sections.
- F. Pave in shorter sections as necessary for closures or curves.
- G. Place premolded expansion joint filler, ½" thick, cut to conform to paving cross sections, at ends of curved sections at intervals of not more than one-hundred (100)', at end of day's work, and where paving is adjacent to rigid structure. Use joint filler with depth of ½" inch less than paving depth and press firmly against adjacent concrete.

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- H. Form intermediate joints between sections, with two (2) thicknesses of bituminous paper cut neatly to paving cross section.

3.6 ROCK BASIN

- A. Construct generally in accordance with rock energy dissipator requirements to indicated shape and depth. Rock courses may be placed in several operations, but minimum depth of initial course must be three (3)' or greater.

3.7 ROCK BARRIER

- A. Determine length required for ditch or depression slope and excavate compact and foundation area to firm, even surface.
- B. Produce an even distribution of rock pieces, with minimum voids to the indicated shape, height and slope.
- C. Construct coarse aggregate filter blanket against upstream face of rock barrier to the indicated thickness.

3.8 SEDIMENTATION POND

- A. Clear and grub storage area and embankment foundation area site as specified in Section 02230.
- B. Excavate key trench for full length of dam. Excavate emergency spillway in natural ground.
- C. Install pipe spillway, with anti-seep collar attached, at location indicated.
- D. Place forms and reinforcing for concrete footing at bottom of riser pipe with trash rack and anti-vortex device, as specified in Section 03200. Construction of embankment and trench prior to placing pipe is not required.
- E. Mix, place, finish, and cure concrete, as specified in Section 03300.
- F. Do not use coarse aggregate as backfill material around pipe. Backfill pipe with suitable embankment material to prevent dam leakage along pipe.
- G. Construct rock basin at outlet end of pipe, as specified in this Section. Place embankment material, as specified in Section 02300. When required, obtain borrow excavation for formation of embankment, as specified in Section 02300.
- H. On entire sedimentation pond area, apply soil supplements and sow seed as specified in Section 02924.
- I. Mulch seeded areas with hay as specified in Section 02924.

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3.9 SEDIMENT TRAPS

- A. Clear site, as specified in Section 02230.
- B. Construct trap by excavating and forming embankments as specified in Section 02300.
- C. Place coarse aggregate or rock at outlet as indicated on Drawings.
- D. Place geotextile fabric, as specified for rock energy dissipater.
- E. When required, obtain borrow excavation for formation of embankment, as specified in Section 02300.
- F. On entire sediment trap area, apply soil supplements and sow seed as specified in Section 02924.
- G. Mulch seeded areas with hay as specified in Section 02924.

3.10 SITE STABILIZATION

- A. Incorporate erosion control devices indicated on the Drawings into the Project at the earliest practicable time.
- B. Construct, stabilize and activate erosion controls before site disturbance within tributary areas of those controls.
- C. Stabilize any disturbed area of affected erosion control devices on which activity has ceased and which will remain exposed for more than twenty (20) days.
 - 1. During non-germinating periods, apply mulch at recommended rates.
 - 2. Stabilize disturbed areas which are not at finished grade and which will be disturbed within one year in accordance with Section 02924 at ninety (90)% of permanent application rate with no topsoil.
 - 3. Stabilize disturbed areas which are either at finished grade or will not be disturbed within one year in accordance with Section 02924 permanent seeding specifications.
- D. Stabilize diversion channels, sediment traps, and stockpiles immediately.

3.2 FIELD QUALITY CONTROL

- A. Inspect erosion control devices on a weekly basis and after each runoff event. Make necessary repairs to ensure erosion and sediment controls are in good working order.

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- B. Sediment should be removed from behind silt fence once it has accumulated to one-half the original height of the barrier. Fabric should be replaced whenever it has deteriorated to such an extent that the effectiveness of the fabric is reduced (approximately six (6) months).
- C. Hay bales shall be replaced every six (6) months regardless of condition.
- D. When tests indicate Work does not meet specified requirements, remove Work, replace, and retest.
- E. Do not damage structure or device during cleaning operations.
- F. Do not permit sediment to erode into construction or site areas or natural waterways.
- G. Clean channels when depth of sediment reaches approximately one-half channel depth.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
REVEGETATION**

SECTION 00-02920 – Page 1 of 7

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

- A. The Contractor shall furnish all labor, materials, installation equipment, and incidentals required to apply lime and fertilizer, hydraulically apply seed and mulch and maintain all seeded areas as shown on the Drawings and as specified herein, including all areas disturbed by the Contractor.
- B. The work specified in this Section shall include furnishing and placing seed, fertilizer, mulching, watering, and maintenance until acceptance by the Owner.

1.2 QUALITY ASSURANCE

- A. Requirements
 - 1. It is the intent of this Specification that the Contractor is obliged to deliver a satisfactory stand of grass as specified. If necessary, the Contractor shall repeat any or all of the work, including grading, fertilizing, watering, and seeding at no additional cost to the Owner until a satisfactory stand is obtained.
- B. Satisfactory Stand
 - 1. For purposes of grassing, a satisfactory stand of grass is herein defined as a full lawn cover over areas to be seeded, with grass free of weeds, alive and growing, leaving no bare spots larger than $\frac{3}{4}$ sq yd within a radius of 10'.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Fertilizer
 - 1. Fertilizer shall be a dry or liquid commercial fertilizer, the elements of which are derived from organic sources. Fertilizer shall be a standard product complying with all local, State, and Federal fertilizer laws.
 - 2. Percentages of nitrogen, phosphorus, and potash shall be based on laboratory tests on and approved by the Engineer. For purposes of bidding, assume twelve (12)% nitrogen, twelve (12)% phosphorus, and twelve (12)% potash by weight. At least fifty (50)% of the total nitrogen shall contain no less than 3% water-insoluble nitrogen.
 - 3. Fertilizer shall be delivered to the site, mixed as specified, in the original unopened standard, factory-sealed containers showing weight, analysis, and name of Manufacturer. Containers shall bear the Manufacturer guaranteed statement of analysis, or a Manufacturer's certification of compliance covering analysis shall be furnished to the Owner's Representative. Containers shall have all labeling required by the Department of Agriculture. The label shall be intact and usable until the contents are used. Store fertilizer in a weatherproof place and in such a manner that it will be kept dry and its effectiveness will not be impaired.

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4. Superphosphate shall be composed of finely ground phosphate rock and commonly used for agricultural purposes containing not less than twenty (20)% available phosphoric acid.
- B. Agricultural Limestone
1. Agricultural limestone shall be a standard grade, shall contain not less than eighty-five (85)% of calcium carbonate and magnesium carbonate combined, and shall be crushed so that at least eighty-five (85)% will pass the No. ten (10) sieve and fifty (50)% through a No. forty (40) sieve.
 2. Agricultural limestone shall be delivered to the site in factory-sealed containers, and bearing the name, trademark, and warranty of the producer.
- C. Seeding
1. Seed shall comply with the current rules and regulations of the Indiana State Plant Board and the germination test shall be valid on the date the seed is used.
 2. Seed mixture shall have a minimum of 98% pure seed and 85% germination by weight and shall contain no more than 1% weed seeds. The seed mixture shall be native grass mixture approved by the Engineer and shall include, as a minimum, the following pure seeds:
 - a. Hulled Bermuda Grass;
 - b. Unhulled Bermuda Grass;
 - c. Weeping Love Grass;
 - d. Annual Lespedeza; and
 - e. Pensacola Bahia Grass
 3. The proportions by weight of the native grass mixture shall be approved by the Engineer. The seed shall contain no noxious weeds including Canada Thistle, Field Bindweed, Johnson grass, Perennial Peppergrass, Perennial Sowthistle, Quack Grass, Russian Knapweed, and Wild Garlic.
 4. Seed shall be furnished in sealed, standard containers labeled in accordance with U.S. Department of Agriculture Rules and Regulations under Federal Seed Act in effect as well as applicable Department of Agriculture seed laws.
 5. Seed which has become wet, moldy, or otherwise damaged in transit or storage shall not be acceptable.
 6. The seed shall be treated with an approved nitrogen fixing inoculant, such as manufactured by commercial laboratories suitable for the particular legume. The inoculant shall be stored and handled in accordance with the manufacturer's directions.
- D. Topsoil
1. Topsoil stockpiled during excavation may be used. If on-site sources of topsoil are depleted, off-site sources conforming to the specifications shall be identified. Topsoil shall be fertile and natural surface soil.
- E. Mulch
1. Mulch shall be either straw or a specially processed wood cellulose fiber containing no growth or germination-inhibiting factors. Straw mulch shall be baled wheat or oat straw free of weed seed, sticks, or other foreign material.
 2. Wood cellulose fiber mulch shall be manufactured in such a manner that after addition and agitation in slurry tanks with water, the fibers in the material become

3. uniformly suspended to form a homogeneous mixture. When sprayed on the ground, the material shall allow absorption and percolation of moisture. Each package of the cellulose fiber shall be marked by the manufacturer to show the air dry weight content and not contain in excess of ten (10)% moisture.
 4. Mulch shall be dry and reasonably free from Johnson grass or other noxious weeds, and shall not be excessively brittle or in an advanced state of decomposition.
- F. Tackifier
1. A tackifier material of such quality that the mulch cover will be held together to form a cover mat that will stay intact under normal climatic conditions shall be used. The quality and performance of the tackifier will be determined and approved by the Engineer.
- G. Water
1. It is the Contractor's responsibility to supply all water to the site, as required during seeding operations and through the maintenance period and until the work is accepted. The Contractor shall make whatever arrangements may be necessary to ensure an adequate supply of water to meet the needs for this work. The Contractor shall also furnish all necessary hose, equipment, attachments, and accessories for the adequate irrigation of lawns and planted areas as may be required. Water shall be suitable for irrigation and free from ingredients harmful to plant life.

PART 3 EXECUTION

3.1 FAMILIARIZATION

- A. Prior to implementing any of the work in this Section, the Contractor shall carefully inspect the installed work of all other Sections and verify that all work is complete to the point where the installation of this Section may properly commence without adverse impact.
- B. If the Contractor has any concerns regarding the installed work of other Sections, the Contractor shall notify the Owner's Representative in writing within forty-eight (48) hours of his site inspection. Failure to inform the Owner's Representative in writing or installation of the work of this Section will be construed as Contractor's acceptance of the related work for all other Sections.

3.2 APPLICATION

- A. Topsoil shall be placed to a minimum depth of six (6)" in the areas shown on the Drawings.
- B. *Dry Seeding.* When a seed mix is sown dry, the materials shall be applied as follows:
 1. *Liming.* Agriculture ground limestone shall be applied when the soil test results show the "Lime Test Index" of the soil to be of less than sixty-eight (68). When

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the lime test index is less than sixty-eight (68), the rate of application shall be 2,500 lbs. per acre. When the lime test index is less than sixty-seven (67), the rate of application shall be 4,500 lbs. per acre. When the lime test index is less than sixty-six (66), the rate of application shall be 8,000 lbs. per acre. One representative soil test per acre shall be taken for determining the lime test index value.

2. *Fertilizing.* Fertilizer shall be applied uniformly to all areas to be seeded at the rate of 870 lbs. per acre. The fertilizer shall be disked, harrowed, or raked into the seedbed to a depth of two (2)". The Contractor shall provide a smooth seedbed prior to seeding. The application of fertilizer shall precede the seed planting by not more than forty-eight (48) hours.
 3. *Seeding.* The native grass seed mixture shall be mixed thoroughly and sown uniformly over the prepared areas at the rate of 100 lbs. per acre or as approved by the Engineer. After sowing, the area shall be raked, dragged, or otherwise treated to cover the seed with soil to a depth of 0.25". The seeded area shall then be evenly covered with straw mulching material.
 4. *Water.* The Contractor shall water the seeded areas. The Contractor shall water the seeded areas at the rate of two times a week after seeding unless otherwise directed by the Owner's Representative and Engineer.
 5. *Mulching.* Straw mulching material shall be placed evenly over all seeded areas within forty-eight (48) hours of seeding at a rate of two (2) tons per acre. Straw mulching material shall be secured with an approved tackifier. Mulching which is displaced shall be replaced and the area reseeded; other work damaged as a result of mulch displacement shall be repaired.
- C. *Hydraulic Seeding.* When seed is applied hydraulically, a combined slurry of fertilizer, inoculant when required, and seed shall be applied in one operation; wood cellulose fiber mulch shall be applied next as a slurry in another operation. Wood cellulose fiber shall be mixed at a rate of 1,500 lbs. per acre. Fertilizer and seed shall be mixed at the rate specified for dry seeding.

3.3 INSTALLATION

- A. Previously established grades, as shown on the Drawings, shall be maintained in a true and even condition.
- B. Subgrade shall be prepared by tilling prior to placement of topsoil to obtain a more satisfactory bond between the two layers. Tillage operations shall be across the slope. Tillage shall not take place on slopes steeper than two (2) horizontals to one (1) vertical or where tillage equipment cannot be operated. Tillage shall be accomplished by disking or harrowing to a depth of nine (9)" parallel to contours. Tillage shall not be performed when the subgrade is frozen, excessively wet, extremely dry, or in other conditions which would not permit tillage. The subgrade shall be inspected and all rubbish, sticks, roots, and stones larger than one (1)" shall be removed. Subgrade surface shall be raked or otherwise loosened immediately prior to being covered with topsoil.

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- C. Topsoil shall be placed over approved areas to a depth as shown on the Drawings or as designated by the Owner's Representative. Spreading and dressing of the topsoil layer shall be as uniform as possible. After spreading, any remaining large roots, branches, or other foreign substances shall be removed to leave a smooth and clean appearance. No topsoil shall be spread in water or while frozen or muddy.
- D. After topsoil has been spread, it shall be carefully prepared by scarifying or harrowing. All stiff clods, lumps, roots, litter, and other foreign material shall be removed from the topsoil area and disposed of by the Contractor. The areas shall also be free of smaller stones, in excessive quantities, as determined by the Owner's Representative. The whole surface shall then be rolled using equipment approved by the Engineer. During the rolling, all depressions caused by settlement of rolling shall be filled with additional topsoil and the surface shall be regraded and rolled until a smooth and even finished grade is created.
- E. Seeding, mulching, and conditioning shall only be performed during those periods within the seasons which are normal for such work as determined by the weather and locally accepted practice, as approved by the Engineer. The Contractor shall hydroseed only on a calm day.
- F. Schedules for seeding and fertilizing must be submitted to the Engineer and Owner's Representative for approval prior to the work. Seeding as specified herein shall be accomplished between the period of February 1 to July 1. Seeding during the period from July 1 to February 1 shall be considered by the Engineer and Owner's Representative to be temporary seeding if only reliable irrigation water is available, and irrigation is to be performed at least twice a week. The Contractor shall also implement weed control measures during temporary seeding. Temporary seeded areas shall be reseeded if the grass is not considered to be alive and healthy by May. The reseeding work shall include all of the work and materials specified in this Specification.
- G. Seeding shall be done within ten days following soil preparation. Seed shall be applied hydraulically at the rates and percentages indicated. The spraying equipment and mixture shall be so designed that when the mixture is sprayed over an area, the grass seed and mulch shall be equal in quantity to the specified rates. Prior to the start of work, the Contractor shall furnish the Engineer and Owner's Representative with a certified statement as to the number of pounds of materials to be used per one hundred (100) gal of water. The statement shall also specify the number of square feet of seeding that can be covered with the quantity of seeding operations, the Contractor shall furnish the Engineer and Owner's Representative with a certified statement on the actual quantity of solution applied.
- H. In order to prevent unnecessary erosion of newly topsoiled and graded slopes and unnecessary siltation of drainage ways, the Contractor shall carry out seeding and mulching as soon as the Contractor has satisfactorily completed a unit portion of the project. For the purpose of this project a unit is defined as 10,000 ft². When protection of newly loamed and graded areas is necessary at a time which is outside of whatever means necessary as approved by the Engineer, the Contractor shall be responsible for prevention of siltation in the areas beyond the limit of work.

- I. When newly graded subgrade areas cannot be topsoiled and seeded because of season or weather conditions and will remain exposed for more than 30 days, the Contractor shall protect those areas against erosion and washouts by whatever means necessary such as straw applied with an approved tackifier, wood chips, or by other measures as approved by the Engineer. Prior to application of topsoil, any such materials applied for erosion control shall be thoroughly incorporated into the subgrade by disking. Fertilizer shall be applied prior to spreading of topsoil.
- J. On slopes, the Contractor shall provide against washouts by a method approved by the Engineer. Any washout which occurs shall be regraded and reseeded at the Contractor's expense until a good sod is established.

3.4 MAINTENANCE AND PROVISIONAL ACCEPTANCE

- A. The Contractor shall keep all seeded and mulched areas watered and in good condition, reseeding all seeded areas if and when necessary, until a good, healthy, uniform growth is established over the entire area seeded, and shall maintain all seeded areas in an approved condition until provisional acceptance.
- B. The Engineer or Owner's Representative will inspect all work for provisional acceptance at the end of a ten (10) week maintenance period, upon the written request of the Contractor received at least ten days before the anticipated date of inspection. The maintenance period must occur during the growing season. Mowing of excess growth on seeded areas shall be performed when and as directed by the Owner's Representative.
- C. A satisfactory stand shall be as defined in Part 1.03.B of this Specification.
- D. After the inspection has occurred but prior to provisional acceptance, a soil test shall be performed to determine if additional soil fertilization should occur. If necessary, additional fertilizer not to exceed thirty (30) lbs per 1,000 ft² of 6-12-12 shall be applied as directed by the Engineer.
- E. The Contractor shall furnish full and complete written instructions for maintenance of the seeded areas to the Owner's Representative at the time of provisional acceptance.
- F. The inspection by the Owner's Representative will determine whether maintenance shall continue in any area or manner.
- G. After all necessary corrective work and clean-up has been completed, and maintenance instructions have been received by the Owner, the Owner's Representative will certify in writing the provisional acceptance of the lawn areas. The Contractor's responsibility for maintenance of lawns, or parts of lawns, shall cease on receipt of provisional acceptance.

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REVEGETATION**

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3.5 GUARANTEE PERIOD AND FINAL ACCEPTANCE

- A. All seeded areas shall be guaranteed by the Contractor for not less than one (1) full year from the time of provisional acceptance.
- B. At the end of the guarantee period, inspection will be made by the Owner's Representative upon written request submitted by the Contractor at least ten (10) days before the anticipated date. Seeded areas not demonstrating satisfactory stands as outlined above, as determined by the Owner's Representative, shall be renovated, reseeded, and maintained meeting all requirements as specified herein.
- C. After all necessary corrective work has been completed, the Owner's Representative shall certify in writing the final acceptance of the seeded areas.

3.6 PRODUCT PROTECTION

- A. The Contractor shall use all means necessary to protect all prior work and materials and completed work of other Sections.
- B. In the event of damage, the Contractor shall immediately make all repairs and replacements necessary to the approval of the Owner's Representative and at no additional cost to the Owner.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
SEEDING AND SOIL SUPPLEMENTS**

SECTION 00-02924 – Page 1 of 6

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Preparation of subsoil.
 - 2. Placing topsoil.
 - 3. Seeding and Hydroseeding.
 - 4. Mulching.
 - 5. Soil testing and fertilizer.
 - 6. Maintenance.
- B. Related Sections:
 - 1. Drawings and general provisions of the Contract including General and Supplemental General Conditions, and Technical Specifications.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Grassing and Restoration:
 - 1. Basis of Measurement: Lump Sum or Per Acre.
 - 2. Basis of Payment: Includes all labor, material, and equipment required to finish grading to smooth surface, applying topsoil in four (4)" thickness, either saved from initial stripping operations, or provided from offsite locations, applying fertilizer, seeding of all areas disturbed by the construction activities, applying mulch to seeded areas and maintenance of disturbed areas until stand of grass acceptable to Engineer and/or Owner is established.

1.3 REFERENCES

- A. ASTM International:
 - 1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

1.4 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.5 SUBMITTALS

- A. Section 01330 - Submittal Procedures.
- B. Product Data: Submit data for seed mix, fertilizer, mulch, and other accessories.

1.6 CLOSEOUT SUBMITTALS

- A. Section 01700 - Execution Requirements.

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SEEDING AND SOIL SUPPLEMENTS**

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- B. Operation and Maintenance Data: Include maintenance instructions, cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer.

1.7 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

1.8 QUALIFICATIONS

- A. Seed Supplier: Company specializing in manufacturing Products specified in this section with minimum five (5) years' experience.
- B. Installer: Company specializing in performing work of this section with minimum three years documented experience.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Product Requirements.
- B. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- C. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.10 COORDINATION

- A. Section 01300 - Administrative Requirements.
- B. Coordinate with installation of underground sprinkler system piping and watering heads.

1.11 MAINTENANCE SERVICE

- A. Section 01700 - Execution Requirements.
- B. Maintain seeded areas immediately after placement until grass is well established and exhibits vigorous growing condition.

PART 2 PRODUCTS

2.1 PLANTING SCHEDULE

- 1. Established lawns and residential areas shall utilize the following schedule:

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RATE – (LB/ACRE)	FROM	TO	SEED
30	March 1	May 1	Kentucky 31
20	April 1	August 1	Common Bermuda
30	August 1	November 1	Kentucky 31 Fescue and Unhulled Bermuda
20	November 1	March 1	Annual Rye

2. Unimproved areas may utilize the following schedule:

Planting Dates	March 1 to May 15	May 16 to August 1	March 1 to May 15	Sept. 1 to Nov. 15
Hulled Bermuda Grass	15	20	10	-
Unhulled Bermuda	10	-	10	-
Tall Fescue	-	-	50	50
Annual Lespedeza	-	30	-	-
Reseed Crimson Clover	-	-	30	-

2.2 SOIL MATERIALS

- A. Topsoil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay or impurities, plants, weeds and roots; pH value of minimum 5.4 and maximum 7.0.
- B. Topsoil: Excavated from site and free of weeds where approved by Engineer.

2.3 ACCESSORIES

- A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.
- B. Fertilizer: Commercial grade; recommended for grass; of proportion necessary to eliminate deficiencies of topsoil to the following proportions: Nitrogen 13%, phosphoric acid 13 %, soluble potash 13%.

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- C. Water: Clean, fresh and free of substances or matter capable of inhibiting vigorous growth of grass.
- D. Erosion Fabric: SC150 BN by North American Green or Equal,
 - 1. 70% straw, 30% coconut fiber mat.
 - 2. Longevity: up to eighteen (18) months.
 - 3. Blanket covered top and bottom with 100% biodegradable woven natural fiber netting.
 - 4. Shall meet type 3.8 Specification of Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.17.
- E. Stakes: Softwood lumber, chisel pointed.
- F. String: Inorganic fiber.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements.
- B. Verify prepared soil base is ready to receive the Work of this section.

3.2 PREPARATION OF SUBSOIL

- A. Prepare sub-soil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes into level areas.
- B. Remove foreign materials, weeds and undesirable plants and their roots. Remove contaminated sub-soil.
- C. Scarify subsoil to depth of three (3)" where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted sub-soil.

3.3 PLACING TOPSOIL

- A. Spread topsoil to minimum depth of four (4)" over area to be seeded. Rake until smooth.
- B. Place topsoil during dry weather and on dry unfrozen subgrade.
- C. Remove vegetable matter and foreign non-organic material from topsoil while spreading.
- D. Grade topsoil to eliminate rough, low or soft areas, and to ensure positive drainage.

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- E. Install edging at periphery of seeded areas in straight lines to consistent depth.

3.1 FERTILIZING

- A. Apply fertilizer at application rate recommended by soil analysis.
- B. Apply after smooth raking of topsoil and prior to roller compaction.
- C. Do not apply fertilizer at same time or with same machine used to apply seed.
- D. Mix fertilizer thoroughly into upper two (2)" of topsoil.
- E. Lightly water soil to aid dissipation of fertilizer. Irrigate top level of soil uniformly.

3.2 SEEDING

- A. Apply seed at rate of 5.5 lbs per 1000 sq ft evenly in two (2) intersecting directions. Rake in lightly.
- B. Do not seed areas in excess of that which can be mulched on same day.
- C. Do not sow immediately following rain, when ground is too dry, or when winds are over twelve (12) mph.
- D. Immediately following seeding, apply mulch to thickness of ¼". Maintain clear of shrubs and trees.
- E. Apply water with fine spray immediately after each area has been mulched. Saturate top four (4)" of soil.

3.3 HYDROSEEDING

- A. Apply fertilizer, mulch and seeded slurry with hydraulic seeder at rate established by manufacturer.
- B. After application, apply water with fine spray immediately after each area has been hydroseeded. Saturate to 4 inches of soil and maintain moisture levels two to four inches.

3.4 SEED PROTECTION

- A. Cover seeded slopes where grade is 3:1 or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.
- B. Lay fabric smoothly on surface, bury top end of each section in six (6)" deep excavated topsoil trench. Overlap edges and ends of adjacent rolls minimum twelve (12)". Backfill trench and rake smooth, level with adjacent soil.
- C. Secure outside edges and overlaps at thirty-six (36)" intervals with stakes.

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- D. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
- E. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
CONCRETE REINFORCEMENT**

SECTION 00-3200– Page 1 of 4

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Reinforcing bars.
 - 2. Welded wire fabric.
 - 3. Reinforcement accessories.
- B. Related Sections:
 - 1. Drawings and general provisions of the Contract including General and Supplemental General Conditions, and Technical Specifications.

1.2 REFERENCES

- A. American Concrete Institute:
 - 1. ACI 301 - Specifications for Structural Concrete.
 - 2. ACI 318 - Building Code Requirements for Structural Concrete.
 - 3. ACI SP-66 - ACI Detailing Manual.
- B. ASTM International:
 - 1. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
 - 2. ASTM A184/A184M - Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
 - 3. ASTM A497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
 - 4. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 5. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 - 6. ASTM A704/A704M - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
 - 7. ASTM A706/A706M - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
 - 8. ASTM A767/A767M - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement.
 - 9. ASTM A775/A775M - Standard Specification for Epoxy-Coated Reinforcing Steel Bars.
 - 10. ASTM A884/A884M - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Fabric for Reinforcement.
 - 11. ASTM A934/A934M - Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars.
 - 12. ASTM A996/A996M - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.

- 13. ASTM D3963/D3963M - Standard Specification for Fabrication and Jobsite Handling of Epoxy-Coated Reinforcing Steel Bars.
- C. American Welding Society:
 - 1. AWS D1.4 - Structural Welding Code - Reinforcing Steel.
- D. Concrete Reinforcing Steel Institute:
 - 1. CRSI - Manual of Standard Practice.
 - 2. CRSI - Placing Reinforcing Bars.
- 1.3 SUBMITTALS
 - A. Section 01330 - Submittal Procedures.
 - B. Shop Drawings: Indicate bar sizes, spacings, locations, and quantities of reinforcing steel and welded wire fabric, bending and cutting schedules.
 - C. Certificates: Submit AWS qualification certificate for welders employed on the Work.
 - D. Submit certified copies of mill test report of reinforcement materials analysis.
- 1.4 QUALITY ASSURANCE
 - A. Perform Work in accordance with CRSI - Manual of Standard Practice and ACI 301.
- 1.5 QUALIFICATIONS
 - A. Welders: AWS qualified within previous 12 months.
- 1.6 COORDINATION
 - A. Section 01300 - Administrative Requirements.
 - B. Coordinate with placement of formwork, formed openings and other Work.

PART 2 PRODUCTS

- 2.1 REINFORCEMENT
 - A. Reinforcing Steel: ASTM A615/A615M, 60 ksi yield grade; deformed billet steel bars, unfinished.
 - B. Reinforcing Steel Plain Bar and Rod Mats: ASTM A704/A704M, ASTM A615/A615M, Grade 60; steel bars or rods, unfinished.
 - C. Stirrups Steel: ASTM A82, unfinished.
 - D. Welded Steel Wire Fabric: ASTM A497 Deformed Type; in flat sheets or coiled rolls; galvanized finish.

2.2 ACCESSORY MATERIALS

- A. Tie Wire: Minimum 16 gauge annealed type.
- B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapor retarder puncture.
- C. Special Chairs, Bolsters, Bar Supports, Spacers Adjacent to Weather Exposed Concrete Surfaces: Plastic tipped steel type; size and shape to meet Project conditions.
- D. Reinforcing Splicing Devices: Exothermic welding type; full tension and compression; sized to fit joined reinforcing.

2.3 FABRICATION

- A. Fabricate concrete reinforcement in accordance with CRSI Manual of Practice.

PART 3 EXECUTION

3.1 PLACEMENT

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
- B. Do not displace or damage vapor retarder.
- C. Accommodate placement of formed openings.
- D. Maintain concrete cover around reinforcement as

follows: Item

Coverage

Concrete in contact with soil	3"
Exterior concrete	
Bars larger than No. 5	2"
No. 5 bars and smaller	1½"
Interior concrete	
Bars larger than No. 11	1½"
No. 11 bars and smaller	¾"
Stirrups	1½"

- E. Conform to applicable code for all other conditions.
- F. Splice reinforcing in accordance with splicing device manufacturer's instructions.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
CONCRETE REINFORCEMENT**

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- G. Lap length shall be as follows unless otherwise noted on the

Drawings: <u>Bar Size</u>	<u>Lap Length</u>
No. 3	12"
No. 4	12"
No. 5	15"
No. 6	18"
No. 7	24"
No. 8	30"

3.2 FIELD QUALITY CONTROL

- A. Section 01400 - Quality Requirements; Section 01700 - Execution Requirements.

END OF
SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
CAST-IN-PLACE CONCRETE**

SECTION 00-3300– Page 1 of 18

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Cast-in-place concrete.
 - 2. Formwork.
 - 3. Reinforcing.
 - 4. Mix Design.
 - 5. Control, expansion and contraction joint devices.
 - 6. Placement procedures.
 - 7. Finishes.
 - 8. Testing requirements.
- B. Related Documents:
 - 1. Drawings and general provisions of the Contract including General and Supplemental General Conditions, and Technical Specifications.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Cast-in-Place Structures:
 - 1. Basis of Measurement: Cubic Yard or Lump Sum.
 - 2. Basis of Payment: Includes all labor, material, and equipment required to construct the concrete structures shown on the Plans and/or reflected in the Bid Form. Includes placing and compacting of base material, formwork, underground piping, drains, conduit, reinforcement, pouring and finishing of concrete, removal of forms, water stops, water proofing, expansion and control joints, cleanup and all related items.
- B. Concrete Driveway Replacement:
 - 1. Basis of Measurement: Square Yard or Cubic Yard.
 - 2. Basis of Payment: Includes all labor, materials, and equipment required to place concrete surface at the thickness and cured strength shown in the Plans and/or reflected in the Bid Form. Includes saw cutting and removal of existing surface, backfill materials per the Plans, wire mesh, pouring and finishing concrete drive, cleanup and all related work. Also, shall include coordination with any residents to provide an alternate entrance to their driveway while concrete is curing. The maximum width for payment shall be as noted on the Plans.
- C. Minor Concrete Structures:
 - 1. Basis of Measurement: Cubic Yard.
 - 2. Basis of Payment: Includes all labor, material, and equipment required to replace or construct any minor or miscellaneous structures as indicated in the Plans, directed by the Engineer, and/or reflected in the Bid Form. Items could include curb and gutters, sidewalks, and small slabs.

1.3 REFERENCES

- A. American Concrete Institute:
 - 1. ACI 301 - Specifications for Structural Concrete.
 - 2. ACI 305 - Hot Weather Concreting.
 - 3. ACI 306.1 - Standard Specification for Cold Weather Concreting.
 - 4. ACI 318 - Building Code Requirements for Structural Concrete.

- B. ASTM International:
 - 1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - 2. ASTM C33 - Standard Specification for Concrete Aggregates.
 - 3. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
 - 4. ASTM C150 - Standard Specification for Portland Cement.
 - 5. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
 - 6. ASTM C330 - Standard Specification for Lightweight Aggregates for Structural Concrete.
 - 7. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.
 - 8. ASTM C595 - Standard Specification for Blended Hydraulic Cements.
 - 9. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.
 - 10. ASTM C1017 - Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
 - 11. ASTM C1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
 - 12. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.
 - 13. ASTM D994 - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
 - 14. ASTM D1190 - Standard Specification for Concrete Joint Sealer, Hot-Applied Elastic Type.
 - 15. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
 - 16. ASTM D1752 - Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
 - 17. ASTM E1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.
 - 18. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.

1.4 SUBMITTALS

- A. Section 01330 - Submittal Procedures.

- B. Product Data: Submit data on joint devices, attachment accessories, and admixtures.

- C. Design Data:
 - 1. Submit concrete mix design for each concrete strength. Submit separate mix designs when admixtures are required for the following:
 - a. Hot and cold weather concrete work.
 - b. Air entrained concrete work.
 - 2. Identify mix ingredients and proportions, including admixtures.
- D. Manufacturer's Installation Instructions: Submit installation procedures and interface required with adjacent Work.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01700 - Execution Requirements.
- B. Project Record Documents: Accurately record actual locations of embedded utilities and components concealed from view in finished construction.

1.6 QUALITY CONTROL / QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 301.
- B. Maintain one copy of each document on site.
- C. Acquire cement and aggregate from one source for Work.
- D. Conform to ACI 305 when concreting during hot weather.
- E. Conform to ACI 306.1 when concreting during cold weather.
- F. Concrete Testing Service: Contractor shall employ CDG to provide quality assurance testing during construction. Contractor is responsible to provide suitable quality control of materials, procedures, and of the mix design process to ensure the concrete conforms to the project plans and specifications. Submit quality control plan and proposed concrete mix designs to Engineer prior to concrete placement.

1.7 COORDINATION

- A. Section 01300 - Administrative Requirements.
- B. Coordinate placement of joint devices with erection of concrete formwork and placement of form accessories.

PART 2 PRODUCTS

2.1 FORM MATERIALS

- A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or

other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces.

1. Use overlaid plywood complying with U.S. Product Standard PS-1 “A-C or B-B High Density Overlaid Concrete Form”, Class 1.
 2. Use plywood complying with U.S. Product Standard PS-1 “B-B (Concrete Form) Plywood”, Class 1, Exterior Grade or better, mill-oiled and edge sealed, with each piece bearing legible inspection trademark.
- B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least two (2) edges and one side for a tight fit.
- C. Form Coatings: Provide commercial formulation form coating compounds with a maximum VOC of 350 mg/l that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
- D. Form Ties: Factory fabricated, adjustable length, removable or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal.

2.2 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A615, Grade 60, deformed.
- B. Welded Wire Fabric: ASTM A185 welded steel wire fabric.
- C. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire-bar type supports complying with CRSI specifications.
1. For slabs-on-grade use supports with sand plates or horizontal runners where base material will not support chair legs.
 2. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs that are plastic protected (CRSI, Class 1) or stainless steel protected (CRSI, Class 2).
 3. For sand blasted or intentionally roughened concrete surfaces, provide supports of stainless steel (CRSI, Class 2).
- D. Reinforcing Bars to be Welded: ASTM A706, “Specifications for Low Alloy Steel Deformed Bars for Concrete Reinforcement”.
- E. Bar and Rod Mats: ASTM A184 “Specifications for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement”.
- F. Threaded Dowels: Continuous Threaded high-strength steel bars. Provide inserts compatible with dowels, designed for ultimate pull-out force indicated on the Drawings.
- G. Mechanical Splices: Equal to “Cadweld Rebar Splices”, as manufactured by Erico Products, Inc., “C” Series, for developing 125% of minimum ASTM specified yield strengths, unless otherwise noted on Drawings.

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CAST-IN-PLACE CONCRETE**

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- H Steel Shapes, Plates and Rods: Conform to ASTM A36 “Specifications for Structural Steel”.
- I Do not weld reinforcing steel unless specifically noted on Drawings. If welding is shown, conform to latest revision of AWS D12.1, “Reinforcing Steel Welding Code of the American Welding Society”. Perform all welding with certified welders qualified per AWS.

2.3 CONCRETE MATERIALS

- A Cement: ASTM C150, Type I – Normal, Portland type for all applications other than structures used in conjunction with wastewater projects. All wastewater related structures shall use Type V – Sulfate Resistant, Portland Cement.
- B Fly Ash: ASTM C618, Type C or Type F.
 - 1. Limit use of fly ash to not exceed 20% of cement content by weight.
- C Normal Weight Aggregate: ASTM C33 and as herein specified. Provide aggregates from a single source for exposed concrete.
 - 1. For exterior exposed surfaces, do not use fine or coarse aggregates containing spalling-causing deleterious substances.
- D Water: Clean, potable.
- E Admixtures, General: Provide admixtures for concrete that contain not more than 0.1 percent chloride ions.
- F Air-Entraining Admixtures: ASTM C260, certified by manufacturer to be compatible with other required admixtures.
- G Water Reducing Admixtures: ASTM C494, Type A.
- H High Range Water Reducing Admixtures (Super Plasticizer): ASTM C494, Type F or Type G.
- I Water Reducing, Non-Chloride Accelerating Admixture: ASTM C494, Type E.
- J Water Reducing, Retarding Admixture: ASTM C494, Type D.
- K All admixtures shall be supplied by the same manufacturer.

2.4 ACCESSORIES

- A Vapor Retarder: ASTM E1745 Class A; 6 mil thick fabric-reinforced plastic film, 0.03 perms; rated for below grade application. Furnish joint tape recommended by manufacturer.

- B. Non-Shrink Grout: ASTM C1107, premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents; capable of developing minimum compressive strength of 2,400 psi in 48 hours and 7,000 psi in 28 days.
- C. Concrete Reinforcing Fibers: ASTM C1116, high strength industrial-grade fibers specifically engineered for secondary reinforcement of concrete. Tensile strength 130 ksi; toughness 15 ksi; ¾" long fibers, 34 million/lb fiber count.
- D.
- E. Waterstops: Provide flat, dumbbell-type or centerbulb-type waterstops at construction joints and other joints as shown on the Drawings.
- F. Granular Base: Evenly graded mixture of fine and course aggregates to provide, when compacted, a smooth and even surface below slabs on grade.
- G. Sand Cushion: Clean, manufactured or natural sand.
- H. Nonslip Aggregate Finish: Provide fused aluminum oxide granules or crushed emery as abrasive aggregate for nonslip finish. Material shall be factory graded, rustproof, non-glazing, and is unaffected by freezing, moisture, and cleaning materials.
- I. Colored Wear Resistant Finish: Packaged, dry, combination of materials consisting of Portland cement, graded quartz aggregate, coloring pigments, and plasticizing admixture. Use coloring pigments that are finely ground, nonfading mineral oxides, interground with cement. Color as selected by Engineer.
- J. Bonding Compound: Polyvinyl acetate or acrylic base.
- K. Epoxy Adhesive: ASTM C881, two-component material suitable on dry or damp surfaces. Provide material type, grade and class to suit project requirements.

2.5 JOINT DEVICES AND FILLER MATERIALS

- A. Joint Filler Type A: ASTM D994; Asphalt impregnated fiberboard or felt, thickness as indicated on the drawings; tongue and groove profile.
- B. Joint Filler Type B: ASTM D1751; cellular bonded fiber material, non-extruding, resiliency recovery of 70% if not compressed more than 50% of original thickness.
- C. Construction Joint Devices: Integral galvanized steel, formed to tongue and groove profile, with removable top strip exposing sealant trough, knockout holes spaced at 6", ribbed steel spikes with tongue to fit top screed edge.
- D. Expansion and Contraction Joint Devices: ASTM B221 alloy, extruded aluminum; resilient neoprene filler strip with Shore A hardness of 35 to permit plus or minus 25% joint movement with full recovery; extruded aluminum of longest manufactured length at each location, flush mounted.

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- E. Joint Sealant: ASTM C920, Type S; single component, self leveling, premium grade polyurethane sealant, equal to Sikaflex-1C SL.

2.6 CONCRETE MIX

- A. Mix concrete in accordance with ACI 301. Deliver concrete in accordance with ASTM C94.
- B. Select proportions for normal weight concrete in accordance with ACI 301 trial mixtures.
- C. Provide concrete to the following criteria:

Unit	Measurement
Compressive Strength (f'_c at 28 day)	As Indicated in Plans
Aggregate Size (maximum)	1"
Air Entrainment	4 to 6%
Slump	3 to 5"

- D. Prepare design mixes for each type and strength of concrete by either laboratory trial mixture or field experience methods as specified in ACI 318-89 Section 5.3.
- E. Mix design based on historical performances in accordance with ACI 318-89 Section 5.3, may be provided by a qualified concrete supplier or precast concrete manufacturer for concrete designs. Mix design shall be certified by an independent testing laboratory.
- F. All concrete mix designs shall include the following information:
1. Proportions of cement, fine and coarse aggregates and water.
 2. Water/cement ratio, design strength, slump and air content.
 3. Type and source of cement and aggregates.
 4. Type and dosage of all admixtures.
 5. Any special characteristics of the mix which require precautions in the mixing, placing or finishing techniques to achieve the finished product specified.
- G. Engineer to review and approve mix designs prior to start of concrete production.
- H. Design mixes to provide normal weight concrete.
- I. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Engineer.
- J. All mix design information and data shall not be older than 18 months from the date of the submittal.

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CAST-IN-PLACE CONCRETE**

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2.7 ADMIXTURES

- A. Use water reducing admixture or high range water reducing admixture (superplasticizer) in concrete as required for placement and workability.
- B. Use high range water reducing admixture in pumped concrete, concrete required to be watertight, and concrete with water/cement ratio below 0.50.
- C. Use nonchloride accelerating admixture in concrete slabs placed at ambient temperatures below 50°F.
- D. Use air-entraining admixture in concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete having an air content of 4% to 6% at the point of placement.
- E. Use admixtures for water reduction and set control in strict compliance with manufacturer's directions.
- F. Temperature Limit: Do not place concrete if the concrete temperature exceeds 90°F or the ambient temperature is 40°F or less and falling.
- G. Slump Limit: Proportion and design mixes to result in concrete slump of 3 to" at point of placement.

2.1 CONCRETE MIXING

- A. Provide batch ticket for each batch used on the project. Batch ticket must indicate project name, contractor's name, date, mix type, mix time, batch time, quantity, and amount of water introduced.
- B. Ready-Mix Concrete: Comply with requirements of ASTM C94, and as specified.
 - 1. Addition of water to batch for material with insufficient slump will be permitted in accordance with ACI 301.
 - 2. When air temperature is between 85°F. and 90°F., reduce mixing and delivery time from 1½ hours to 75 minutes. When air temperature exceeds 90°F. reduce mixing and delivery time to 60 minutes.
 - 3. Concrete shall only be placed when the air temperature is above 40°F. and rising.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01300 - Administrative Requirements.
- B. Verify requirements for concrete cover over reinforcement.
- C. Verify anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with placing concrete.

3.2 FORMS

- A. General: Design, erect, support, brace, and maintain formwork to support vertical and lateral, static and dynamic loads that might be applied until concrete structure can support such loads.
- B. Maintain formwork construction tolerances complying with ACI 301 Table 4.3.1.
- C. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, chamfers, blocking, bulkheads, anchorages, and other features required in work.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces.
- E. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar.
- F. Chamfer exposed edges and corners as indicated using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- G. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items.
- H. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed.

3.3 VAPOR BARRIER

- A. General: Following leveling and tamping of granular base for slabs-on-grade, place vapor barrier sheeting with longest dimension parallel with direction of pour.

- B. Lap joints 6 inches and seal vapor barrier joints with manufacturer's recommended mastic and pressure-sensitive tape.
- C. After placement of vapor barrier, cover with sand cushion and compact to depth as shown on Drawings.

3.4 PLACING REINFORCEMENT

- A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as herein specified.
 - 1. Avoiding cutting or puncturing vapor retarder during reinforcement placement and concreting operations.
- B. Clean reinforcement of loose rust and mill scale, earth ice, and other materials that reduce or destroy bond with concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.
- D. Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.5 JOINTS

- A. Construction Joints: Locate and install construction joints as indicated or, if not indicated, locate so as not to impair strength and appearance of the structure.
- B. Provide keyways at least 1½" deep in construction joints in walls, slabs, beams and between walls and footings.
- C. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as otherwise indicated.
- D. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.
- E. Waterstops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Field-fabricate joints in waterstops according to manufacturer's printed instructions.
- F. Isolation Joints in Slabs-on-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs-on-ground and vertical surfaces, such as column pedestals, foundation walls, grade beams, and elsewhere as indicated.

- G. Contraction (Control) Joints in Slabs-On-Grade: Construct contraction joints in slabs-on-ground to form panels of patterns as shown. Use saw cuts $\frac{1}{8}$ " wide by $\frac{1}{4}$ slab depth or approved inserts, unless otherwise indicated. Make saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregates.
1. With prior approval from Engineer contraction joints may be formed by inserting premolded plastic, hardboard, or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
 2. Refer to drawings for scoring pattern as shown. If joint pattern not shown, provide joints not exceeding 15' in either direction and located to conform to bay spacing wherever possible.

3.6 PREPARATION OF FORM SURFACES

- A. Clean re-used forms of concrete matrix residue, repair and patch as required to return forms to acceptable surface condition.
- B. Coat contact surfaces of forms with an approved, noresidual, low-VOC, form-coating compound before reinforcement is placed. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.
- C. Coat steel forms with a nonstaining, rust-preventative material. Rust-stained steel formwork is not acceptable.

3.7 CONCRETE PLACEMENT

- A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in.
- B. General: Comply with ACI 304, "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete."
- C. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete that has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete to avoid segregation at its final location.
- D. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
- E. Consolidate full depth of placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI 309.
- F. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine.

Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

- G. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
 - 1. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Bring slab surfaces to correct level with straightedge and strike off. Use bull floats or derbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations
 - 3. Maintain reinforcing in proper position during concrete placement.
- H. Cold-Weather Placing: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When placing concrete in cold weather, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50°F (10°C) and not more than 80°F (27°C) at point of placement.
 - 2. Concrete shall only be placed when the air temperature is above 40°F. and rising.
 - 3. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 4. Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.
- I. Hot-Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI305 and as herein specified.
 - 1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90°F (32°C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is Contractor's option.
 - 2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
 - 3. Fog spray forms, reinforcing steel, and subgrade just before concrete is placed.
 - 4. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, when acceptable to Engineer.

3.8 FINISH OF FORMED SURFACES

- A. Rough Form Finish: For formed concrete surfaces not exposed to view in the finish work or concealed by other construction. This is the concrete surface having texture imparted by form-facing material used, with tie holes and defective areas repaired and patched. Fins and other projections exceeding ¼" in height shall be rubbed down or chipped off.

- B. Smooth Form Finish: For formed concrete surfaces exposed to view or to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or other similar system. This is an as-cast concrete surface obtained with selected form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas with fins and other projections completely removed and smoothed.
- C. Smooth Rubbed Finish: Provide smooth rubbed finish to scheduled concrete surfaced, which have received smooth form finish treatment, not later than one day after form removal.
 - 1. Moisten concrete surfaces and rub with carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than that created by the rubbing process.
- D. Grout-Cleaned Finish: Provide grout-cleaned finish to scheduled concrete surfaces that have received smooth form finish treatment.
 - 1. Combine one part Portland cement to 1½ parts fine sand by volume, and a 50:50 mixture of acrylic or styrene butadiene-based bonding admixture and water to consistency of thick paint. Blend standard Portland cement and white Portland cement, amount determined by trial patches, so that final color of dry grout will match adjacent surfaces.
 - 2. Thoroughly wet concrete surfaces apply grout to coat surfaces, and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.
- E. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.
- F. Unless otherwise noted on the Drawings, all exposed surfaces shall receive a smooth rubbed finish.

3.9 SLAB FINISHES

- A. After placing slabs, plane surface to tolerances for floor flatness (Ff) of 15 and floor levelness (Fl) of 13. Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set with stiff brushed, brooms, or rakes, as required.
- B. Float Finish: Apply float finish to slab surfaces to receive trowel finish and other finishes as hereinafter specified; slab surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo; and as otherwise indicated.
 - 1. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating, using float blades or float shoes only, when surface water has disappeared, when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats or by hand floating if area is small or inaccessibly to power units. Check and level surface plane to tolerances of Ff 18-Fl 15. Cut down high spots and fill

low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

- C. Trowel Finish: Apply trowel finish to slab surfaces to be exposed to view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or other thin film finish coating system.
 - 1. After floating, begin first trowel finish operation using a power-driven trowel. Being final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with surface leveled to tolerances of Ff 20-FI 17. Grind smooth surface defects that would telegraph through applied floor covering system.
- D. Nonslip Broom Finish: Apply nonslip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
 - 1. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Engineer before application.
- E. Nonslip Aggregate Finish: Apply nonslip aggregate finish to concrete stair treads, platforms, ramps, sloped walks, and elsewhere as indicated.
- F. After completion of float finishing and before starting trowel finish, uniformly spread 25 lbs. of dampened nonslip aggregate per 100 sq. ft. of surface. Tamp aggregate flush with surface using a steel trowel, but do not force below surface. After broadcasting and tamping, apply trowel finishing as herein specified.
- G. After curing, lightly work surface with a steel wire brush, or an abrasive stone, and water to expose nonslip aggregate.

3.10 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply in accordance with manufacturer's instructions after screeding and bull floating, but before power floating and troweling.
- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting; keep continuously moist for not less than seven (7) days.
- C. Curing Methods: Perform curing of concrete by curing and sealing compound, moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.
- D. Provide moisture curing by following methods.
 - 1. Keep concrete surface continuously wet by covering with water.
 - 2. Use continuous water-fog spray.

3. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.

3.11 REMOVAL OF FORMS

- A. General: Formwork not supporting weight of concrete, such as sides of beams, walls columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50°F (10 °C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed until approved by the structural engineer.
- C. Form-facing material may be removed four (4) days after placement only if shores and other vertical supports have been arranged to permit removal of form-facing material without loosening or disturbing shores and supports.

3.12 CONCRETE SURFACE REPAIRS

- A. General: No surface shall be patched or repaired until the Engineer had reviewed the defective condition and approved the Contractor's submitted repair and/or patching materials and procedures.
- B. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Engineer.
 1. Cut of honeycomb, rock pockets, and voids over ¼" in any dimension, and holes left by tie rods and bolts, down to solid concrete but in no case to a depth of less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with specified bonding agent. Place patching mortar before bonding compound has dried.
 2. For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.
- C. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Engineer. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry-pack mortar, or precast cement cone plugs secured in place with bonding agent.
 1. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
- CI. Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane

to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having required slope.

1. Repair finished unformed surfaces that contain defects that affect durability of concrete. Surface defects, as such, include crazing and cracks in excess of 0.01 in wide or that penetrate to reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.
2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
3. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with patching compound. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable to Engineer.
4. Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, when acceptable to Engineer by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least $\frac{3}{4}$ " clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

CII. Repair isolated random cracks and single holes not over 1 inch in diameter by dry-pack method when acceptable to Engineer. Groove top of cracks and cut out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part Portland cement to $2\frac{1}{2}$ parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing.

F. Perform structural repairs with prior approval of Structural Engineer for method and procedure, using specified epoxy adhesive and mortar.

G. Repair methods not specified above may be used, subject to acceptance of Engineer.

3.13 FIELD QUALITY ASSURANCE, CONTROL AND TESTING DURING CONSTRUCTION

A. General: The Owner may employ the Engineer or another professional firm to perform quality assurance testing during construction. The Contractor will notify the Engineer at least 24 hours prior to requiring tests. The Contractor is responsible to provide equipment to allow sampling and testing of the concrete at the point of placement.

B. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94. Perform the following tests.

1. Slump: ASTM C 143; one test at point of placement for each set of compression test specimens; additional tests when concrete properties appear to have changed.
2. Air Content: ASTM C 173 (volumetric method for lightweight or normal weight concrete) or ASTM C 231 (pressure method for normal weight concrete); one test at point of placement for each set of compression test specimens; additional tests

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
CAST-IN-PLACE CONCRETE**

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- when concrete properties appear to have changed.
 - 3. Concrete Temperature: ASTM C 1064; test hourly when air temperature is 40°F and below or 80°F and above, and each time a set of compression test specimens is made.
 - 4. Compression Test Specimen: ASTM C 31; one set of four (4) cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cure test specimens are required.
 - 5. Compressive Strength Tests: ASTM C 39; one (1) set for each 50 cubic yards or fraction thereof for each concrete class placed in any one day. One specimen tested at seven (7) days, two specimens tested at 28 days, and one specimen retained in reserve for later testing, if required.
 - 6. When frequency of testing will provide fewer than five (5) strength tests for a given class of concrete, conduct testing from at least five (5) randomly selected batches or from each batch if fewer than five (5) are used.
- C. Test results will be reported in writing to Engineer, Ready-Mix Producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete supplier and testing agency, concrete type and class, location of concrete placed in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.
- D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but **shall not** be used as the sole basis for acceptance or rejection.
- E. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Engineer. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests when unacceptable concrete is verified.
- F. Quality Assurance consisting of testing and observation of a limited sampling of construction materials will be provided by the Owner for acceptance purposes. Passing test results are not a warranty, guarantee, or certification by the testing agency, Engineer, or Owner that all work was performed in conformance with the plans and specifications. Therefore, the Contractor should not rely solely on test results generated by the quality assurance process as an indication of the suitability of the construction.
- G. It is entirely the Contractor's responsibility to perform quality control as necessary to construct the project in conformance with the plans and specifications. Deviations from the plans and specifications, whether identified during construction or following the completion of construction, must be corrected by the Contractor at no cost to the Owner.

3.14 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by Engineer.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
POLYVINYL CHLORIDE (PVC) PIPE**

SECTION 00-15018– Page 1 of 2

PART 1 GENERAL

1.1 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. ANSI B1.20.1 - 83 - Pipe Threads, General Purpose (Inch).
 - 2. ANSI B16.5 - 88 - Steel Pipe Flanges and Flanged Fittings.
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM A193-90a - Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High Temperature Service.
 - 2. ASTM A194-91 - Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure and High Temperature Service.
 - 3. ASTM D1785-90 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedule 40, 80, and 120.
 - 4. ASTM D2467 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedules 80.
 - 5. ASTM D2564 - Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings.
 - 6. ASTM F480 - Standard Specification for Thermoplastic Well Casing Pipe and Couplings in Standard Dimension Ratios (SDR), Schedules 40 and 80.

1.2 SUBMITTALS

- A. Shop Drawings:
 - 1. Submit materials list identifying the specific pipe lengths, fittings, flanges, gaskets, and bolts.
- B. Product Data:
 - 1. Submit product data for pipe, fittings, flanges, gaskets, and bolting.
- C. Submit in accordance with Section 01330.

1.3 BASIS OF PAYMENT

- A. The basis of payment is to provide the PVC piping and fittings for the project, as identified by the drawings. This cost shall be included in the unit price for the Gas Extraction Well Construction item.

PART 2 PRODUCTS

2.1 PVC MATERIAL

- A. Conforming to ASTM D1785.

2.2 PIPE

- A. Schedule 80 PVC conforming to ASTM F480.

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POLYVINYL CHLORIDE (PVC) PIPE**

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2.3 **FITTINGS**

- A. Schedule 80 PVC.
 - 1. ASTM D2467 for socket joint type.

2.4 **JOINTS**

- A. Provide socket type at all locations except unions, valves, and equipment with flanged end connections.
- B. Threaded connections are not acceptable.

2.5 **FLANGES**

- A. PVC, one (1) piece socket type, flat faced, conforming to ANSI B16.5 150-lb bolt hole drilling pattern.

2.6 **BOLTING**

- A. Type 316 Stainless Steel, ASTM A193, Grade B8M hex head bolts and ASTM A194, Grade 8M hex head nuts.
- B. Bolts shall conform to ANSI B.1.20.1.
- C. Provide washers same material as bolts.

2.7 **SOLVENT CEMENT**

- A. Join socket connections with PVC solvent cement conforming to ASTM D2564.
- B. As recommended by pipe and fitting manufacturer to assure compatibility.

PART 3 EXECUTION

3.1 **INSTALLATION**

- A. Install products as specified in applicable specification and drawings.
- B. Install products in accordance with manufacturer's written instructions.

END OF SECTION

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
HIGH DENSITY POLYETHYLENE (HDPE) MATERIALS**

SECTION 00-15019– Page 1 of 6

PART I GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. HDPE structures, piping, and fittings for underground landfill leachate piping conveyance system.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM D638-89 - Standard Test Method for Tensile Properties of Plastics.
 - 2. ASTM D790-86 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
 - 3. ASTM D1238-89 - Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer.
 - 4. ASTM D1248-84 - Standard Specification for Polyethylene Plastics Molding and Extrusion Materials.
 - 5. ASTM D1505-85 - Standard Test Method for Density of Plastics by the Density- Gradient Technique.
 - 6. ASTM D1693-70 - Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics.
 - 7. ASTM D2122-88 - Standard Test Method of Determining Dimensions of Thermoplastic Pipe and Fittings.
 - 8. ASTM D2321 - Standard Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe.
 - 9. ASTM D2513-90 - Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing, and Fittings.
 - 10. ASTM D2774 - Underground Installation of Thermo Plastic Pressure Piping.
 - 11. ASTM D2837-90 - Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.
 - 12. ASTM D3261-88 - Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
 - 13. ASTM D3350-84 - Specification for Polyethylene Plastics Pipe and Fittings Material.
- B. American National Standards Institute (ANSI):
 - 1. B16.5-88 - Pipe Flanges and Flanged Fittings

1.3 SUBMITTALS

The Contractor shall submit:

- A. Manufacturing test specification data listing resin type, cell classification, stock density, melt flow, flexural modulus, tensile strength, and coloration.
- B. Test results with shipment of materials, with two (2) additional copies of test results furnished to OWNER'S REPRESENTATIVE.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
HIGH DENSITY POLYETHYLENE (HDPE) MATERIALS**

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- C. Pipe Dimensions:
 - 1. Average outside diameter.
 - 2. Average inside diameter.
 - 3. Minimum and average wall thickness.
- D. Submit in accordance with Section 01330.

1.4 QUALITY ASSURANCE

- A. Source Quality Control:
 - 1. If manufacturer's test data is inadequate or unavailable, OWNER reserves right to reject or require additional tests to satisfy material requirements. Costs of these tests shall be borne by CONTRACTOR.
- B. Work shall comply with appropriate codes and standards of following organizations for handling, heat fusion, and underground installation of low-pressure polyethylene pipe.
 - 1. American Gas Association (AGA).
 - 2. Plastic Pipe Institute (PPI).

1.5 DESIGN

- A. The expected pipe services are as follows:
 - 1. Leachate Collection system conveyance piping.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Pipe Storage:
 - 1. Store or stack pipe to prevent damage from marring, crushing or puncture. Limit maximum stacking height to six (6)'.
 - 2. Store in accordance with manufacturer's recommendations.
- B. Pipe Handling:
 - 1. Protect pipe from excessive heat or harmful chemicals.

PART 2 PRODUCTS

2.1 PHYSICAL PROPERTIES OF PIPE RESIN

- A. Density: ASTM D1505, not less than 0.941 - 0.955 gms/cu cm.
- B. Melt Flow: ASTM D1238 - Condition E, not greater than 0.15.
- C. Flexural Modulus: ASTM D790, 110,000 to less than 160,000 psi.
- D. Tensile Strength at Yield: ASTM D638, 3,000 to less than 3,500 psi.
- E.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
HIGH DENSITY POLYETHYLENE (HDPE) MATERIALS**

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- F. Environmental Stress Crack Resistance (ESCR): ASTM D1693 - Condition C, shall be in excess of 5,000 hrs with zero failures.
- G. Hydrostatic Design Basis: ASTM D2837, 1,600 psi at 23°C.

2.2 HDPE PIPE

- A. Manufacturers:
 - 1. Poly Pipe Industries, Gainesville, TX
 - 2. Fluid Controls, Inc. Huntsville, AL.
 - 3. Plexco, Amsted Industries, Franklin Park, IL
 - 4. Asahi-America, Inc. Malden, MA.
 - 5. Phillips Driscopipe, Inc., Richardson, TX.
 - 6. Or equal.
- B. High performance, high molecular weight, high density polyethylene pipe (Type 3408 resin).
- C. ASTM D1248 (Type III, Class C, Category 5, P34).
- D. ASTM D3350, minimum cell classification value 345434C.
- E. Standard dimension ratio (SDR): As indicated on Drawings.
- F. Marking: Intervals of twenty (20)' or less.
 - 1. Manufacturer's name or trademark.
 - 2. Nominal pipe size.
 - 3. Type of plastic pipe (i.e., PE 3408)
 - 4. Standard dimension ratio 11.0 (SDR).
 - 5. ASTM D2513.
 - 6. Extrusion date, period of manufacture or lot, or batch number.
- G. Dimensions:
 - 1. Conform to standard dimensions and tolerances of ASTM D2513.

2.3 FITTINGS

- A. Fittings from polyethylene compound having cell classification equal to or exceeding compound used in pipe to ensure compatibility of polyethylene resins.
- B. Provide molded fittings rather than factory fabricated fittings in available diameters.
- C. Be of same manufacture as pipe being provided. OWNER'S REPRESENTATIVE may allow substitution for approved material with use of flanged joint sections.
- D. Flange Joints:
 - 1. 150-lb carbon steel or convoluted epoxy coated ductile iron backup flanges as recommended by manufacturer.

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2. Cadmium plated carbon steel nuts and bolts.
 3. Flanges and bolt patterns consistent with ANSI B16.5, AWWA C207, ASTM A536, and as recommended by manufacturer.
- E. Fitting dimensions shall conform to standard dimensions and tolerances in accordance with ASTM D3261.

PART 3 EXECUTION

3.1 FIELD QUALITY CONTROL

- A. Pipe may be rejected for failure to conform to Specifications or the following.
1. Fractures or cracks passing through pipe wall, except single crack not exceeding two (2)" in length at either end of pipe which could be cut off and discarded. Pipes within one shipment shall be rejected if defects exist in more than five (5)% of shipment or delivery.
 2. Cracks sufficient to impair strength, durability or serviceability of pipe.
 3. Defects indicating improper proportioning, mixing, and molding.
 4. Damaged ends, where such damage prevents making satisfactory joint.
- B. Acceptance of fittings, stubs or other specially fabricated pipe sections shall be based on visual inspection at job site and documentation of conformance to these Specifications.

3.2 INSTALLATION

- A. Trench, backfill, and compact in accordance with Section 02300.
- B. Heat Fusion of Pipe:
1. Weld in accordance with manufacturer's recommendation for butt fusion methods. Provide qualified fusion operators.
 2. Butt fusion equipment for joining procedures shall be capable of meeting conditions recommended by pipe manufacturer including, but not limited to, temperature requirements, alignment, and fusion pressures.
 3. For cleaning pipe ends, solutions such as detergents and solvents, when required, shall be used in accordance with manufacturer's recommendations.
 4. Do not bend pipe to greater degree than minimum radius recommended by manufacturer for type and grade.
 5. Do not subject pipe to strains that will overstress or buckle piping or impose excessive stress on joints.
 6. Branch saddle fusions shall be joined in accordance with manufacturer's recommendations and procedures. Branch saddle fusion equipment shall be of size to facilitate saddle fusion within trench.
 7. Before butt fusing pipe, inspect each length for presence of dirt, sand, mud, shavings, and other debris or animals. Remove debris from pipe.

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8. Cover at end of each working day open ends of fused pipe. Cap to prevent entry by animals or debris.
 9. Use compatible fusion techniques when polyethylenes of different melt indexes are fused together. Refer to manufacturer's specifications for compatible fusion.
- C. Flange Jointing:
1. Use on flanged pipe connection sections.
 2. Connect slip-on carbon steel backup flanges with nuts and bolts. Convoluted ductile iron backup rings may be substituted for joining HDPE pipes per manufacturer's recommendations.
 3. Butt fuse fabricated flange adapters to pipe.
 4. Observe following precautions in connection of flange joints.
 - a. Align flanges or flange/valve connections to provide tight seal. Require nitrile- butadiene (hycar) for petroleum applications gaskets if needed to achieve seal. Gaskets are required for flange/valve connections.
 - b. Place U.S. Standard round washers as may be required on some flanges in accordance with manufacturer's recommendations. Bolts shall be lubricated in accordance with manufacturer's recommendations.
 - c. Tighten flange bolts in sequence and accordance with manufacturer's recommendations. Do not over-torque bolts.
 5. Pull bolt down by degrees to uniform torque in accordance with manufacturer's recommendations.
 6. Protect below grade bolts with Tapecoat mastic and tape.
- D. Pipe Placement:
1. Grade control equipment shall be of type to accurately maintain design grades and slopes during installation of pipe.
 2. Unless otherwise specifically stated, install pipe in accordance with manufacturer's recommendations.
 3. Maximum lengths of fused pipe to be handled as one section shall be placed according to manufacturer's recommendations as to pipe size, pipe SDR, and topography so as not to cause excessive gouging or surface abrasion; but not to exceed 400'.
 4. Cap pipe sections longer than single joint (usually forty (40')) on both ends during placement except during fusing operations.
 5. Prevent migration of dirt and debris through perforations during placement. Remove dirt or debris from pipe before backfilling.
 6. Notify OWNER'S REPRESENTATIVE prior to installing pipe into trench and allow time for OWNER'S REPRESENTATIVE'S inspection. Correct irregularities found during inspection.
 7. Complete tie-ins within trench whenever possible to prevent overstressed connections.
 8. Complete flanged branch saddle connections within trench.
 9. Allow pipe sufficient time to adjust to trench temperature prior to testing, segment tie- ins or backfilling activity.
 10. Install reducers adjacent to laterals and tees.

**SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT
HIGH DENSITY POLYETHYLENE (HDPE) MATERIALS**

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11. To reduce branch saddle stress, install saddles at slope equal to and continuous with lateral piping.
12. Place in trench by allowing minimum 12"/100' for thermal contraction and expansion.

3.3 PIPE TESTING

- A. Pressure test groundwater carrier and groundwater containment pipe prior to and after installation in accordance with Section 01400.
- B. Air Pressure tested to 100 psi.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Butterfly valves.
 - 2. Check Valves.
- B. Valves furnished as part of factory fabricated equipment specified as part of equipment. assembly in other sections.

1.1 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. ANSI B1.20.1-83 - Pipe Threads, General Purpose (Inch).
 - 2. ANSI B16.1-89 - Cast Iron Pipe Flanges and Flanged Fittings.
 - 3. ANSI B16.5-88 - Pipe Flanges and Flanged Fittings.
 - 4. ANSI B16.10-86 - Face-to-Face and End-to-End Dimensions of Valves.
 - 5. ANSI B16.11-80 - Forged Steel Fittings, Socket-Welding and Threaded.
 - 6. ANSI B16.25-86 - Butt welding Ends.
 - 7. ANSI B16.34-88 - Valves - Flanged, Threaded, and Welding End.
- B. American Society of Mechanical Engineers (ASME):
 - 1. ASME B31.9-88 - Building Services Piping.
- C. American Society for Testing and Materials (ASTM):
 - 1. ASTM A126-84 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
- D. Federal Specifications (FS):
 - 1. WW-V-35 - Valves, Ball.
- E. Fluid Controls Institute, Inc. (FCI):
 - 1. FCI 74-1 - Spring Loaded Lift Disc Check Valve Standard.
- F. Manufacturing Standardization Society of the Valves and Fittings Industry, Inc. (MSS):
 - 1. MSS SP-25-78 - Standard Marking System for Valves, Fittings, Flanges, and Unions.
 - 2. MSS SP-45-82 - Bypass and Drain Connection Standard.
 - 3. MSS SP-70-84 - Cast Iron Gate Valves, Flanged and Threaded Ends.
 - 4. MSS SP-71-84 - Cast Iron Swing Check Valves, Flanged and Threaded Ends.
 - 5. MSS SP-72-87 - Ball Valves with Flanged or Butt-Welding Ends for General Service.
 - 6. MSS SP-80-87 - Bronze Gate, Globe, Angle, and Check Valves.

SHELBY COUNTY LANDFILL GAS COLLECTION SYSTEM EXPANSION PROJECT VALVES

SECTION 00-15100– Page 2 of 4

1.2 SUBMITTALS

A. Submittal Information:

1. Product Data: Submit manufacturer's technical product data, including installation instructions for each type of valve. Include pressure drop curve or chart for each type and size of valve. Submit valve schedule showing manufacturer's figure number, size, service rating, and valve features for each required valve.
2. Operation and Maintenance (O&M) Data:
 - a. Submit maintenance data and spare parts lists for each type of valve include product data and Shop Drawings.

1.3 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of valves of types and sizes required, whose products have been in satisfactory service for not less than 5 yrs.
- B. Valve Types: Provide valves of same type by same manufacturer to greatest extent possible.
- C. Valve and Rating Identification: Provide valves with manufacturer's name (or trademark) and pressure rating clearly marked on valve body.
- D. Codes and Standards:
 1. MSS Compliance: Mark valves in accordance with MSS SP-25.
 2. ANSI Compliance: For face-to-face and end-to-end dimensions of flanged or welded end valve bodies, comply with ANSI B16.10.

1.4 BASIS OF PAYMENT

- A. The basis of payment for valves is the supply and proper installation of valves according to the Plans and specifications. Payment will be Unit Cost for valve, fittings, steel valve stem, and piping extensions.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer's equipment used as basis of design for Project its name indicated in Specifications for a particular type of equipment or application contained in these Contract Documents. If no manufacturer listed, basis of design is industry standard.
- B. Subject to compliance with requirements above, provide equipment of one of following manufacturers to greatest extent possible.
 1. Butterfly Valves:
 - a. Conbraco Industries, Inc.
 - b. Asahi America
 - c. Or equal.

2.2 VALVES

A. General:

1. Factory-fabricated valves recommended by manufacturer for use in service indicated.
2. Types and pressure ratings indicated.
3. End connections that properly mate with pipe, tube, and equipment connections.
4. Where more than one type indicated, selection is CONTRACTOR'S option.
5. Sizes: Unless otherwise indicated, provide valves of same size as upstream pipe size.

B. Operators:

1. Hand wheels fastened to valve stem for valves other than ¼ turn.
2. Lever handles for ¼ turn valves six (6)" and smaller, other than plug valves.
3. One wrench for every 10-plug valve.
4. Chain-operated sheaves and chains for overhead valves as indicated.

C. Valve Features: Provide valves with features indicated and, where not otherwise indicated, provide proper valve features as determined by CONTRACTOR for installation requirements.

1. ASME B31.9 for building services piping and ASME B31.1 for power piping.
2. Bypass: MSS SP-45, and except as otherwise indicated, manufacturer's standard bypass piping and valving.
3. Drain: MSS SP-45, threaded pipe plugs.
4. Flanged: Valve flanges comply with ANSI B16.1 (cast iron), ANSI B16.5 (steel) or ANSI B16.24 (bronze).
5. Flangeless Valve Bodies: Fit between flanges complying with ANSI B16.1 (cast iron), ANSI B16.5 (steel) or ANSI B16.24 (bronze).

2.3 BUTTERFLY VALVES

A. PE Flange Connection Body Construction:

1. 1-Piece Valves, 150 psi rated.
 - a. Flanged ends: Asahi/America, or equal.

B. Steel Body Construction

1. Flanged Ends: 150 psi rated, Type 56 control valve with 2-piece carbon steel valve stem extension, nitrile seats, and gear operator.

2.4 SWING CHECK VALVES

A. PE Flange Connection Body Construction:

1. PVC body with FKM or EPDM seals, single disc
 - a. Flanged Ends: 150 psi rated, Type 56 control valve with 2-piece carbon steel valve stem extension, nitrile seats, and gear operator.
 - b. Asahi/America, or equal.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Except as otherwise indicated, comply with following requirements.
 - 1. Install valves where required for proper operation of piping and equipment, include valves in branch lines where necessary to isolate sections of piping. Locate valves so accessible and separate support can be provided when necessary.
 - 2. Install valves with stems pointed up, in vertical position where possible, but in no case with stems pointed downward from horizontal plane unless unavoidable.
- B. Valve System: Select and install valves with outside screw and yoke stems, except provide inside screw non-rising stem valves where headroom prevents full opening of outside screw and yoke valves.
- C. Nonmetallic Disc: Limit selection and installation of valves with nonmetallic discs to locations indicated and where foreign material in piping system can be expected to prevent tight shutoff of metal seated valves.
- D. Renewable Seats: Select and install valves with renewable seats, except where otherwise indicated.
- E. Fluid Control: Except as otherwise indicated, install butterfly valves to comply with ASME B31.9. Where throttling indicated or recognized as principal reason for valve, install butterfly valves, or other valves as indicated.

3.2 ADJUSTING AND CLEANING

- A. Valve Adjustment: After piping systems tested and put into service, but before final testing, adjusting, and balancing; inspect each valve for possible leaks. Adjust or replace packing to stop leaks. Replace valve if leak persists.
- B. Cleaning: Clean factory finished surfaces. Repair marred or scratched surfaces with manufacturer's touch-up paint.

END OF SECTION

APPLICATION AND CERTIFICATE FOR PAYMENT

PAGE ONE OF PAGES

TO OWNER: Shelby County Commission
200 West College Street
Columbiana, Alabama 35051

PROJECT: Shelby County LF Gas System Expansion

APPLICATION #:
PERIOD TO:
PROJECT NOS: R070122586

Distribution to:

FROM CONTRACTOR:

ENGINEER
VIA ARCHITECT: CDG, Inc.
11 West Court Square
Andalusia, Alabama
36420

CONTRACT DATE:

☐ Owner
☐ Const. Mgr
☐ Architect
☐ Contractor

CONTRACT FOR: Shelby County LF Gas System Expansion

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
Continuation Sheet is attached.

1. ORIGINAL CONTRACT SUM-----	\$	
2. Net change by Change Orders-----	\$	
3. CONTRACT SUM TO DATE (Line 1 +/- 2)	\$	
4. TOTAL COMPLETED & STORED TO DATE-\$		
(Column G on Continuation Sheet)		
5. RETAINAGE:		
a. 10.0% of Completed Work	\$	
(Columns D+E on Continuation Sheet)		
b. 10.0% of Stored Material	\$	
(Column F on Continuation Sheet)		
Total Retainage (Line 5a + 5b or		
Total in Column I of Continuation Sheet-----	\$	
6. TOTAL EARNED LESS RETAINAGE-----	\$	
(Line 4 less Line 5 Total)		
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT		
(Line 6 from prior Certificate)-----		
8. CURRENT PAYMENT DUE-----	\$	
9. BALANCE TO FINISH, INCLUDING RETAINAGE		
(Line 3 less Line 6) \$		

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner		
Total approved this Month		
TOTALS		
NET CHANGES by Change Order		

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown therein is now due.

CONTRACTOR:

By: _____ Date: _____

State of: _____
County of: _____

Subscribed and sworn to before
me this _____ day of _____

Notary Public: _____
My Commission expires: _____

CERTIFICATE FOR PAYMENT

In accordance with Contract Documents, based on on-site observations and the data comprising application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED ----- \$

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this application and on the Continuation Sheet that are changed to conform to the amount certified.)

ENGINEER
ARCHITECT: CDG, Inc.

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner of Contractor under this Contract.

CONTINUATION SHEET

ATTACHMENT TO PAY APPLICATION
PROJECT: Shelby County LF Gas System Expansion

APPLICATION NUMBER:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO: R070122586

A	B	C	D	E	F	G		H	I
Item No.	Description of Work	Scheduled Value	Work Completed		Materials Presently Stored (Not In D or E)	Total Completed And Stored To Date (D + E + F)	% (G/C)	Balance To Finish (C - G)	Retainage (If Variable Rate)
			From Previous Application (D + E)	This Period					
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SUBTOTALS PAGE 2									