PROJECT MANUAL

CLOSURE OF NGS-S POND

PINEY POINT PHOSPHOGYPSUM STACK SYSTEM
MANATEE COUNTY, FLORIDA

October 08, 2025

REVISION	DATE	DESCRIPTION
P0	10/02/2025	Issued for Receiver's Review
P1	10/08/2025	Issued for Receiver's Review
P2	10/08/2025	Issued for Bid

This item has been electronically signed and sealed by Mohamad Al-hawaree on the date adjacent to the seal using a *SHA* authentication code.

Printed copies of this document are not considered signed and sealed and the *SHA* authentication code must be verified on any electronic copies.

Prepared By:

Ardaman & Associates, Inc.
8008 S. Orange Ave., Orlando, FL 32809
TEL: 407/855-3860 FAX: 407/859-8121 C.A.N.: 5950

MOHAMAD AL-HAWAREE ★ LICENSE No. 58537 ★ STATE OF FLORIDA ★ PROFESSIONAL ENGINEER

10/08/2025

Mohamad Al-hawaree, P.E.
Senior Consultant
Florida License No. 58537

MOHAMAD AL-HAWAREE

Digitally signed by MOHAMAD AL-HAWAREE
Date: 2025.10.08 18:22:05 -04'00'

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved.

TABLE OF CONTENTS

CLOSURE OF NGS-S POND

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT PHOSPHOGYPSUM STACK SYSTEM
MANATEE COUNTY, FLORIDA

Attachment	Description
I	**INVITATION TO BID AND INSTRUCTION TO BIDDERS**

1. Receiver and Project Name
2. Project Site
3. Description of Work
4. Safety
5. Qualifications
6. Examinations of Project Manual and Site
7. Sub-Contractors, Material Manufacturers, and Suppliers
8. Pre-Bid Meeting
9. Construction Schedule
10. Correspondence and Bid Submittal
11. Contract
12. Award of Contract
13. Right to Suspend or Terminate Contract
14. Return of Bid Documents

II BID FORM

1. Offer to Perform Work
2. Schedule of Prices
3. Sub-Contractors
4. Material Manufacturers and Suppliers
5. Substitute Items
6. Construction Schedule
7. Required Submittals
8. Method of Payment

III CONSTRUCTION DRAWINGS

III-A Closure of NGS-S
III-B H&H Project #8

Attachment	Description
IV	**TECHNICAL SPECIFICATIONS AND CONSTRUCTION QUALITY ASSURANCE PLAN**

1. List of Specification Sections
2. Intent
3. List of Drawings
4. Contractor's Understanding
5. General Provisions
6. Earthwork with Soil and Gypsum
7. HDPE Geomembrane Materials
8. HDPE Geomembrane Installation
9. HDPE Pipe and Fittings
10. Corrugated HDPE Pipe and Fittings
11. Aggregates
12. Non-Woven Geotextile
13. High-Strength Woven Geotextile
14. Bi-Planar HDPE Geonet-Geotextile Composite
15. Grassing
16. Concrete Erosion Control Mat
17. Concrete and Reinforcing Steel
18. Ancillary Items and Materials
19. Daily and Final Clean-up
20. Site Limitations
21. Construction Schedule
22. Final Inspection and Acceptance
23. Scheduling and Coordination

V	**CONTRACT PROVISIONS FOR FEDERALLY FUNDED AGREEMENTS**
VI	**CONTRACT AND GENERAL CONDITIONS**

END OF TABLE OF CONTENTS

ATTACHMENT I

INVITATION TO BID AND INSTRUCTIONS TO BIDDERS

CLOSURE OF NGS-S POND

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT PHOSPHOGYPSUM STACK SYSTEM
MANATEE COUNTY, FLORIDA

ATTACHMENT I

INVITATION TO BID AND INSTRUCTION TO BIDDERS

CLOSURE OF NGS-S POND

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT PHOSPHOGYPSUM STACK SYSTEM
MANATEE COUNTY, FLORIDA

1. RECEIVER AND PROJECT NAME

The court-appointed Receiver for the project is Herbert R Donica. Mr. Donica conducts receivership operations through his company, Donica Receivership Services, LLC The name of the project is “CLOSURE OF NGS-S POND”.

2. PROJECT SITE LOCATION

The address of the site is 13500 Scale Avenue, Palmetto, Florida 34421. Pond OGS-N is north of Buckeye Road, approximately 0.7 miles east of its intersection with US 41. The site can be accessed from Exit 240 of I-75 via State Road 674 West and US-41 South. The Piney Point Phosphogypsum Stack System is located within Sections 5, 6, 7, and 8 of Township 33 South, Range 18 East, in Manatee County, Florida.

Closure construction will be undertaken at the New Gypsum Stack-South (NGS-S) compartment of the Piney Point Phosphogypsum Stack System.

3. DESCRIPTION OF WORK

3.1 Scope of Work

The NGS-S compartment is a 72-acre lined phosphogypsum pond that had been partially closed but subsequently used to support activities related to the dredging of marine sediments from Port Manatee. Marine sediments that are still present in the 52-acre base of the pond are in the process of being removed. The geomembrane at the base of the pond will also be removed to expose the gypsum subgrade for inspection and repairs. Those activities will be completed by others prior to mobilization.

The work shall consist of furnishing all labor, materials (except those provided by the Receiver as described herein), equipment, and support facilities to terminally close the NGS-N pond. The work is to be performed within the designated horizontal limits and elevations indicated in the Drawings.

The work associated with the terminal closure of the NGS-S shall include, but shall not be limited to, the following major tasks (materials to be provided by the Receiver for these tasks are indicated in Schedule B in Attachment II - Contractor's Materials Quantity Take-Off):

- **Mobilization and demobilization** Mobilizing equipment and personnel, setting up on-site temporary construction facilities, and delivering all required materials to the job site to allow the construction to proceed without interruptions and to meet the project schedule.

- **Safety** as a minimum, adherence to state, federal, local and site-specific safety regulations at all times to ensure a safe working environment throughout the duration of construction.

  Preparation and submittal of a Job Safety Analyses (JSA) package that covers the safety aspects of all construction activities for review by the Receiver.

- **Site preparation:** Removal of any debris, vegetation, and unsuitable gypsum materials within the limits of the construction and disposal of these materials at on-site locations designated by the Receiver; preparation of parking lot, laydown yards, contractor trailer area, and access roads; implementation of dust control measures; and maintenance of areas and roads during site preparation.

- **Surface water controls:** Implementation of surface water controls to allow the construction to be conducted in a "dry" environment, and discharge of rain water that comes in contact with exposed gypsum into the pond, as directed by the Receiver. The Contractor shall make provisions to convey water to the southwest corner of the pond, from where the Receiver will remove it.

- **Demolition:** Remove two metal formwork cofferdams (measuring 10'x14'x8' and 16'x20'x8') and three steel plates (measuring 8'x12', 10'x14' and 10'x10') that were placed in the pond to stop former leaks, and dispose of them in the material's storage area indicated in the Drawings.

  Abandon the existing inlet structure in the southwest corner by filling it with flowable cementitious material as depicted in the Drawings.

- **Subgrade Repairs:** Repair the gypsum subgrade at three locations where cavities/cracks caused leaks in the past. Two of the locations are fitted with the previously mentioned metal formwork cofferdams and steel plates, and the third one is covered by a steel plate. Final repair methods will be selected once the subgrade is fully exposed and inspected.

  Repair an approximately 250-foot-long subgrade crack in the inner slope of the east dike, and any additional cracks, voids, or subgrade damage uncovered within the pond in general accordance with the project Specifications.

  Because the extent, methodology, and total number of repairs cannot yet be determined, all work under this task will be performed on a time-and-material basis.

- **Subgrade Grading:** Excavate, pulverize, borrow, moisture condition, haul, place, compact, and grade gypsum, as needed, within the limits of the construction area to the lines, grades, and dimensions shown on the Drawings. Prepare and fine grade gypsum surfaces as required by the Specification in all areas to receive HDPE geomembrane to the extent shown on the Drawings, and maintain surfaces to receive the geomembrane until the surfaces are turned over to the geomembrane installer. Any excess gypsum that cannot be consumed inside the NGS-S, shall be hauled to the NGS-N as directed by the Receiver.

- **HDPE geomembrane installation:** Install approximately 58 acres of 60-mil HDPE textured geomembrane in accordance with the project Specifications. Geomembrane installation includes connection to existing 80-mil geomembrane where indicated in the Drawings. The geomembrane material will be provided by the Receiver.

- **Stormwater drainage system:** Furnish and install a stormwater drainage system comprising: (i) a sand and gravel drain; (ii) collection pipes, pipe/geomembrane penetrations and fittings; (iii) an HDPE sump structure; (iv) erosion control measures for the stormwater drainage system as shown on the Drawings; and (v) a discharge pipe through the south gypsum dike.

- **Slope drain system installation:** Install roughly 17 acres of geotextile/geonet geocomposite on the inside slopes of the perimeter dike in accordance with the project Specifications. The geocomposite material will be provided by the Receiver.

- **Toe drain system installation**: Construct about 6,000 linear feet of geotextile-wrapped gravel drain along the inside toe of the perimeter dike, tied into the slope drain geocomposite. The geotextile will be provided by the Receiver.

- **HDPE geomembrane soil cover:** Haul; stockpile; moisture condition; place, grade and compact a generally 2.0-foot thick soil cover atop all lined areas to the lines, grades and dimensions shown on the Drawings and in accordance with the project Specifications. Any damage to the HDPE liner by the Earthwork Contractor will be repaired by the Liner Contractor at Earthwork Contractor's expense. Soil for the geomembrane cover is provided by the Receiver and shall be sourced from the on-site borrow area indicated in the Drawings.

- **Grassing**: Grassing of the soil geomembrane cover shall be by sodding on the slopes (approximately 20 acres) and seeding/hydroseeding on the base (approximately 50 acres). Areas disturbed by the contractor during construction will have to be re-grassed accordingly. The contractor will be required to secure the sod early in the project to avoid delays and rework due to erosion of exposed, ungrassed areas.

  Water, fertilize and maintain grassed areas during construction and for a period of 6 months following completion of construction. Maintenance shall include filling and repairing erosion gullies and re-application of fertilizer and seed/sod as needed.

- **Construction of Light Traffic Access Road:** Supply and place a 6-inch-thick layer of FDOT #67 hard, durable aggregate atop the compacted soil cover on the perimeter dike as

shown on the Drawings. The Contractor is expected to provide the Lump Sum cost to complete this scope in the Bid Form, but the execution of the work is conditional to prior approval by the Receiver in agreement with the Contractor. The cost of all other items in the bid form should not be impacted if the Receiver decides not to execute this task of the closure scope.

3.2 Additional Scope (H&H Project #8)

An additional scope related to general improvements for the site in preparation for terminal closure of the facility is the placement and compaction of earthen fill to raise an existing road adjacent to the main access ramp at the northwest corner of the OGS ponds as indicated on the Drawings included in Attachment III-B.

3.3 General Provisions

The Contractor shall be responsible for all earthwork operations, including any required surface water control activities, to achieve the design grades for installation of the geomembrane by the geomembrane installer and for construction of dikes and ditches, and to achieve the final design grade after placement of the geomembrane, until the entire construction has been accepted by the Receiver. The Contractor shall also be responsible for exposing/cleaning the existing HDPE geomembrane at all areas where connection to the new geomembrane is required. Repairs for any damages to the existing geomembrane shall be paid for by the Contractor.

In addition to the above major tasks, the following ancillary work items will be required: (i) setup and maintenance of an on-site construction office and a staging area for materials storage; (ii) setup and maintenance of erosion and sedimentation controls; (iii) protection and security of construction and staging areas; (iv) protection of the previously installed HDPE geomembrane; (v) verify and, if necessary, modify existing access roads or propose alternate access roads, for hauling gypsum or unsuitable materials, that will be used by the Contractor; (vi) removal of any obstructions as well as construction/modification and maintenance of access roads to allow vehicular traffic into and out of the construction area; (vii) surveying to document that the grading, cover system (geomembrane and soil cover), drains, pipes, geocomposite, vents and structures have been installed to the lines, grades, and dimensions shown on the Drawings; (viii) hauling and spraying fresh water to control dusting; (ix) backfilling of any temporary construction dewatering ditches; (x) maintenance of all completed work items until the entire construction has been accepted by the Receiver; (xi) repair of any disturbed areas outside the designated construction area, and any site facilities, equipment, or properties that have been damaged by the Contractor; (xii) disposal of any excess gypsum fill at on-site locations designated by the Receiver; (xiii) cleanup of the construction and staging areas as well as removal of erosion and sedimentation controls, and (xiv) installing a water line or using water trucks for washing and cleaning of Contractor's tools and equipment inside the footprints of the gypsum stack or lined containment areas designated by the Receiver.

All equipment must be washed down within the lined areas of the stack. All roads used by the Contractor must have signage and maintained clear of any debris.

The Contractor shall be aware that other contractor(s) may be working in or near the designated construction area. The Contractor shall coordinate all his work activities with the Receiver as well as with his sub-contractor(s) and other contractor(s) to assure a smooth, safe operation, and to prevent disruption to the existing gypsum disposal operation at the site. The Contractor shall be required to maintain or restore all access roads used by other contractors so as not to disrupt their operations.

4. SAFETY

The Receivership believes in a safe work environment and is committed to creating a safe work environment for its employees, the Contractor and the Contractor's employees. To reduce risks and hazards associated with the project, the Contractor is required to be familiar and comfortable with the project requirements and environment.

The Contractor shall strictly comply with all applicable safety regulations and standards including all federal, state and local laws, ordinances, rules and regulations. The Contractor shall also comply with all OSHA safety requirements and with the Trench Safety Act (Senate Bill 2626).

The Contractor shall submit, prior to commencing any activity at the site, a Contractor's Health and Safety Plan (HASP or similar), specific for the Project, identifying hazards, safety concerns and risks involved in the project.

The Contractor shall submit applicable Job Safety Analyses (JSA) associated with all activities onsite. The contractor safety plan must address open cuts stability and trench fall protection. Additional JSA's may be requested by the Receiver during construction as specific work tasks are observed by the Receiver's representatives.

No employee shall work more than 60 hours per week without written approval from the Receiver.

5. QUALIFICATIONS

Failure to meet the minimum qualifications or failure to provide documentation that clearly and beyond a reasonable doubt verifies the Bidder's qualifications will constitute grounds for rejection of the Bid.

5.1 Contractor

To be considered for bidding on this project, the Contractor and any Subcontractors must be qualified to perform the work described in this Project Manual, including setup and operation of pumping systems and pipelines, dewatering, handling, placing and compaction of gypsum and soil; placement and compaction of soil atop HDPE geomembrane; handling and installation of HDPE pipe; installation of trench and toe drain systems; and handling and installation of woven geotextile and geocomposite, as applicable, for the work that the Contractor intends to perform.

Earthwork must be performed by a general earthwork contractor well experienced in earthwork with gypsum and soil (hereafter referred to as the Earthwork Contractor). The Earthwork Contractor must be well experienced in earthwork with gypsum and soil related to site grading,

dike construction, compaction of gypsum and soil, installation of HDPE pipe and fittings. In particular, the Contractor must demonstrate experience in excavation, dewatering, hauling, moisture conditioning, placement, compaction of gypsum, maintenance of completed gypsum surfaces, and working above HDPE geomembrane.

The Contractor shall provide and maintain, continually on the site of the work during its progress, adequate and competent superintendence of all operations for and in connection with the work. The Contractor's designated Site Supervisor shall have authority to see that the work is conducted in accordance with the Drawings and Specifications in a first-class, thorough, and competent manner in every respect.

The Contractor must designate a Site Supervisor for this project who has supervised construction of a minimum of three projects of similar size and scope. The resumes and qualifications of the Contractor's designated Project Manager and Site Supervisor must be included with the supporting information for the Bid.

5.2 HDPE Liner Contractor

To be considered qualified for this project, the Liner Contractor and any subcontractors must be well experienced in the installation of geocomposite as well as HDPE liners. The Liner Contractor shall be an approved installer trained and/or licensed to install the HDPE liner supplied by the approved Liner Manufacturer. The Liner Contractor must submit with the Bid a written certification, or license to install.

The Liner Contractor shall have installed HDPE liner in similar applications, for a period of not less than two years. The Liner Contractor shall submit to the Receiver a list of at least 10 completed facilities, totaling a minimum of 4 million square feet, for which the Liner Contractor has installed an HDPE geomembrane liner of the same type as specified in the Specifications. For each installation, the following information shall be provided:

- Name and purpose of facility, location, and date of installation.
- Name of owner and Engineer, Liner Manufacturer, and name and telephone number of a contact person at the facility who can discuss the project.
- Type and thickness of HDPE liner installed, and surface area covered (textured and smooth).
- Type of field seaming performed, and names of the installation supervisor and master seamer representing the Liner Contractor.
- Crew size and typical daily production per crew.

The Liner Contractor must submit qualification resumes for the HDPE liner installation supervisor(s) and master seamer(s) to be assigned to, and who will be present on site for this project, including documentation that each has similar experience on completed facilities totaling a minimum of 4 million square feet of HDPE liner installation.

All other seamers and quality control testing technicians representing the Liner Contractor who will be involved in the installation shall have a minimum of 1.5 million square feet of related HDPE liner installation experience.

6. EXAMINATIONS OF PROJECT MANUAL AND SITE

Before submitting a Bid, each Bidder must: (i) examine the Drawings and Specifications, and all other information provided in the Project Manual, thoroughly; (ii) attend the pre-bid meeting and perform a site visit to familiarize themselves with local conditions that may in any manner affect cost, progress, or performance of the work; (iii) consider federal, state, and local laws, ordinances, rules, and regulations, and site-specific contractor safety regulations that may in any manner affect cost, progress, or performance of the work; (iv) study and carefully correlate Bidder's observations with the Drawings and Specifications; and (v) notify the Engineer in writing of all conflicts, errors, or discrepancies in the Drawings and Specifications.

A Bidder's submittal of a Bid shall constitute an acknowledgment that the Bidder has fully complied with the foregoing requirements prior to the submission of a Bid. All questions about the meaning or intent of Drawings and Specifications are to be directed to the Engineer. Interpretations or clarifications considered necessary by the Engineer in response to such questions will be issued by addenda and provided to all parties recorded by the Engineer as having received the Project Manual. Questions received after **October 20, 2025,** may not be answered. Only questions answered by formal written addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Addenda may also be issued by the Engineer to modify the Project Manual during the bidding period.

Complete sets of the Project Manual shall be used in preparing the Bid. The Receiver and Engineer assume no responsibility for errors or misinterpretations resulting from a Bidder's use of an incomplete or outdated Project Manual.

Bidders are not to submit bids with exclusions for materials or methodologies that do not meet the Drawings or Technical Specifications without prior written consent by the Engineer.

7. SUB-CONTRACTORS, MATERIAL MANUFACTURERS, AND SUPPLIERS

Bidders shall provide a list, for approval by the Receiver, of all Subcontractors and material manufacturers and suppliers that will be used in the execution of the work, both on site and off site. This list must be submitted as part of the supporting information for the Bid. If the Receiver has a reasonable objection to any proposed Subcontractor, Manufacturer, Supplier, or other person or organization, the Receiver may, before the Notice of Award is given, request that the Bidder submit an acceptable substitute. If the Bidder declines to make any such substitution, the Contract may be awarded to another Bidder or the Contract may not be awarded to any Bidder.

8. PRE-BID MEETING

A mandatory pre-bid meeting has been scheduled for **October 15, 2025, at 11 a.m. (EDT)**, and will be conducted at the site location or via video conference (the Receiver will provide online meeting details). The pre-bid meeting is mandatory in order to submit a bid. Additional visits to the Piney Point Facility can be arranged after the pre-bid meeting.

Bid packages will be available for distribution at the pre-bid meeting, and on **October 09, 2025, after 11:00 a.m. (EDT)** from the Receiver's website. All Bidders are required to register at the website to receive the bid package. The website address is:

https://www.pineypointreceivership.com/

9. CONSTRUCTION SCHEDULE

A proposed construction schedule consisting of a bar chart showing the sequence of construction activities shall be included by the Bidder in the supporting information for the Bid. The critical path and long lead-time items must be identified in the schedule. The schedule shall be prepared using Microsoft Project® scheduling software or other software that is 100 percent compatible with Microsoft Project®, unless approved otherwise by the Receiver, and shall include all items within the scope of work described herein, in the Specifications, and shown on the Drawings. The proposed start and completion dates for each work item shall be identified on the schedule. In addition, the schedule shall include submittals requiring Receiver or Engineer approval before delivery to the site (e.g., shop drawings, product specification sheets, product samples, etc.), and shall also include order placement and delivery of construction material.

Time is of the essence, and the Contractor's proposed schedule will be taken into consideration during the bid evaluation.

The Contractor must complete all work and demobilize all personnel and equipment by June 01, 2026.

10. CORRESPONDENCE AND BID SUBMITTAL

All supporting information for the Bid, including list of Subcontractors and Manufacturers and Suppliers, substitute items, construction schedule, and other required submittals (per Section 8 of the Bid Form) shall be submitted at the same electronically by email or by mail to the Receiver by **October 24, 2025 at 04:30 pm (EDT)** at the following address:

- **Receiver**

  Mailing Address: Donica Receivership Services, LLC
  301 W. Platt St., #A 410
  Tampa, FL 33606

Delivery Address: Same

Attention: Mr. Herbert R. Donica

Telephone: (813) 878-9790
Facsimile: (813) 878-9746
Email: herb@PineyPoint.org

- **Engineer**

Mailing Address: Ardaman & Associates, Inc.
Post Office Box 593003
Orlando, FL, 32859-3003

Package Delivery: Ardaman & Associates, Inc.
8008 South Orange Avenue
Orlando, FL, 32809

Attention: Dr. Reinaldo Rolo, P.E.
Mr. Phong Vo

Phone: (407) 855-3860
Cell: (407) 949-1981 (Dr. Rolo)
(407) 496-3724 (Mr. Vo)
E-mail: rrolo@ardaman.com
pvo@ardaman.com

All technical questions regarding this project should be directed to the Receiver and Engineer. All contractual questions regarding this project should be directed to the Receiver. The questions shall be submitted via email.

By submission of a Bid, the Bidder acknowledges and represents that the Trench Safety Standards in effect at the time of the Bid and at the time of performing the work shall be adhered to, and compliance is the complete and sole responsibility of the Bidder.

11. CONTRACT

The lump sum fixed price contract that will be entered into by the Receiver with the successful bidder will be provided by the Receiver. The contract will also include a clause for the Time and Material scope related to the Subgrade Repairs.

The contract that will be entered into by the Receiver with the successful bidder is attached to this Project Manual as Attachment VI. State and Federal procurement requirements and the requirements imposed by the Receiver's funding limit the Receiver's ability to deviate from the

attached contract. Bids that propose any material deviation from the contract's requirements are subject to disqualification.

Time is of the essence. The successful bidder must be able to negotiate and execute a contract for this project no later than 14 calendar days after selection [November 14, 2025].

12. AWARD OF CONTRACT

The contract will be awarded to the successful bidder on or about **October 31, 2025.** The work shall begin on **December 01, 2025.**

13. RIGHT TO SUSPEND OR TERMINATE CONTRACT

The Receiver reserves the right to suspend or terminate the contract for convenience or for default, in accordance with the terms and conditions set forth in the contract.

14. RETURN OF BID DOCUMENTS

The Project Manual is the property of the Receiver and shall only be used by the Bidder for the purpose for which it is supplied. The Project Manual shall not be copied or reproduced, and the information contained therein shall not be furnished in whole or in part to others unless authorized by the Receiver in writing.

Upon notification, all unsuccessful Bidders will be required to return the Project Manual to the Receiver.

END OF ATTACHMENT I

ATTACHMENT II

BID FORM

CLOSURE OF NGS-S POND

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT PHOSPHOGYPSUM STACK SYSTEM
MANATEE COUNTY, FLORIDA

ATTACHMENT II

BID FORM

CLOSURE OF NGS-S POND

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT PHOSPHOGYPSUM STACK SYSTEM
MANATEE COUNTY, FLORIDA

1. OFFER TO PERFORM WORK

Having carefully examined the Bid Documents, Construction Drawings, and Technical Specifications, having visited the job site, and having a good understanding of the various conditions affecting the proposed work, the undersigned offers to perform the work specified for the total Time and Materials Not to Exceed price quoted on Schedule A of this Bid Form. In submitting this offer, the undersigned accepts all terms and conditions contained in the General Conditions of Construction Contract and Site Safety Rules. Furthermore, by submission of a bid, the bidder acknowledges and represents that the Trench Safety Standards in effect at the time of the bid and at the time of performing the work shall be adhered to, and compliance of the safety standards will be the complete and sole responsibility of the Contractor.

Date: _____

Firm Name: _____

Signed By: _____
Signature

Printed Name: _____

Title: _____

Address: _____

_____

_____

Telephone: (____) _____

Fax: (____) _____

Email: _____

2. SCHEDULE OF PRICES

The Bidder shall complete Schedule A of this Bid Form to list the schedule of prices covering the work items described in the Construction Drawings and Technical Specifications, and all other items described in the Project Manual.

The bidder's prices in Schedule A must include all materials required, except those that will be provided by the Receiver as specifically indicated in Schedule B - Contractor's Materials Quantity Take-Off.

3. SUB-CONTRACTORS

The Bidder agrees that only the following Subcontractors will be used in completion of the work and that Subcontractors are qualified to undertake the work required.

The bidder agrees that only the following subcontractors will be used on this project, and that these subcontractors are qualified to undertake the work.

Type of Work	Name of Subcontractor	Telephone Number
General Earthwork with Gypsum		
General Earthwork with Soil		
Demolition		
HDPE Pipes and Fittings Installation		
Toe Drain Installation		
Geocomposite Drain Installation		
HDPE Liner Installation		
HDPE Liner Soil Cover		
Concrete Apron		
Concrete Erosion Control Mat		
Surveying		
Grassing		
Other: _____		
Other: _____		
Other: _____		
Other: _____		
Other: _____		

No other sub-contractors will be allowed to undertake work without the prior written approval of The Receiver and the Engineer.

4. MATERIAL MANUFACTURERS AND SUPPLIERS

The bidder expects to use materials from the following manufacturers and suppliers.

Material	Trade Name Designation, Type, or Series	Name of Supplier/Manufacturer	Telephone Number
HDPE Liner	Supplied by the Receiver		
Geonet-Geotextile Composite	Supplied by the Receiver		
Non-Woven Geotextile	Supplied by the Receiver		
HDPE Pipes and Fittings			
Aggregates			
Sod and Seed for Grassing Soil Cover			
Concrete			
Reinforcing Steel			
Concrete Erosion Control Mat			
Other:_____			
Other:_____			
Other:_____			
Other:_____			

The bidder agrees that no other material manufacturers and suppliers will be used without the prior written approval of the Receiver and the Engineer.

5. SUBSTITUTE ITEMS

Substitute items which are included in the bid shall be described in and provided as part of the supporting information for the bid. Any substitute item, or exception to the Construction Drawings and Technical Specifications, must be discussed with the Engineer for approval prior to submittal of the supporting information for the bid.

6. CONSTRUCTION SCHEDULE

Time is of the essence and the Contractor's proposed schedule will be considered in the bid evaluation. The Contractor is required to complete all work and demobilize all personnel and equipment by the date indicated in the construction schedule agreed upon with the Receiver.

7. REQUIRED SUBMITTALS

All requested information and required submittals shall be provided as part of the supporting information for the bid. In particular, the supporting information for the bid shall include, as applicable:

(1) Resumes of the Contractor’s designated Project Manager and Site Supervisor.

(2) The Contractor's and his sub-contractors' demonstrated experience in similar type projects, which must include dewatering, excavating, moisture conditioning, and compacting gypsum.

(3) The name of any proposed sub-contractors. Résumés of each sub-contractor's designated Project Manager and/or Site Supervisor must also be included.

(4) The grassing Contractor's demonstrated experience with grassing by sodding and seeding/hydroseeding in similar type projects; and résumés of the designated Project Manager and Site Supervisor.

(5) The Contractor's proposed methods for surface water control, and routing of water to the areas designated by the Receiver.

(6) Résumés of the HDPE geomembrane Installation Supervisor and Master Seamer(s)/Welder(s) to be assigned to this project.

(7) A preliminary layout plan indicating the proposed HDPE geomembrane panel configuration, identifying seams, anchor trenches, and other details of the geomembrane installation.

(8) The name of the HDPE pipe and fittings manufacturer and supplier, and product trade names and/or product numbers.

(9) The name of the HDPE pipe installer, and certification that the welding technician(s) have been qualified by the pipe manufacturer.

(10) Specification sheets for the HDPE fittings and appurtenances, and a certification confirming compliance with the Specifications for this project.

(11) The name of the concrete uniform section mat manufacturer and supplier, and product trade name and/or product number.

(12) Proposed construction schedule for the project using Microsoft Project or a compatible software in the form of a bar chart showing the sequence of construction activities, and proposed start/completion dates

(13) The Contractor's Lump Sum prices summarized on the attached Schedule A.

(14) The Contractor's independent materials quantity take-off summarized on the attached Schedule B.

(15) The Contractor's Health and Safety Plan (HASP or similar), specific for the Project, identifying hazards, safety concerns and risks involved in the work.

(16) Job Safety Analysis (JSA or similar) for all components of the work. Additional JSA's shall be submitted, as needed, after construction has commenced.

In the interest of completion of the construction within the specified time, the Contractor is encouraged to submit thorough and complete submittals as required by the Specifications soon after the bid award.

8. METHOD OF PAYMENT

The lump sum fixed price contract to be entered into by the Receiver with the successful bidder will supersede any clause contained below if it is deemed to be in conflict with the contract.

The contract will also include a clause for the Time and Material scope related to the Subgrade Repairs.

8.1 Time and Materials Rates

The Contractor shall provide a comprehensive list of rates for all equipment, materials and labor proposed for use in this project. These rates shall apply to any T&M work performed at the site for the duration of the project. The rates shall be all-inclusive, covering overhead, profit, and any other applicable costs

All Time and Material quantities for payment will be reported by electronic means in format approved by the Receiver on a daily basis.

8.2 General

Payment will be made at the lump sum or unit rate prices (as applicable) provided on the Bid Form. No measurement for payment will be made for any lump sum part of the work.

No additional payment will be made on additional work required to re-grade or re-compact gypsum or soil materials to meet the Specification requirements, replace or repair defective or damaged HDPE geomembrane, non-woven geotextile, HDPE pipe and fittings, concrete uniform section mat, aggregate, bollard, or any other materials required to complete the work, or for additional work required to make repairs necessitated by damage caused by the Contractor's operation. No payment will be made for work performed outside the limits of work authorized by the Receiver.

No measurement for payment will be made for any ancillary work item, which shall include, but is not limited to: (i) surveying; (ii) incidental removal of trash/debris within the limits of construction; (iii) construction, maintenance, and removal if directed by the Receiver, of access roads and ramps; (iv) protection of all existing structures, facilities, utilities, equipment, geomembrane, pipes, culverts, manholes, drains, drain cleanouts, monitor wells, piezometers, and any other Receiver equipment or property near and/or within the project site during construction; (v) repair to any Receiver facilities, utilities, monitor wells, piezometers, equipment or property damaged by the Contractor; (vi) hauling and spraying water to control dusting; (vii) construction and maintenance of staging areas; (viii) earthwork required to restore disturbed ground surfaces as a result of construction activities; (ix) installation of traffic control barriers and signage; (x) maintenance of surfaces to receive HDPE geomembrane until accepted by the Geomembrane Installer; (xi) maintenance of completed work until accepted by the Receiver; (xii) sodding of areas disturbed by the Contractor, as designated by the Receiver, and (xiii) final site clean-up. Payment for all ancillary work will be made at the lump sum prices bid for Ancillary Items on the Bid Form.

If the actual quantity of any item varies from the estimated quantity because of unknown conditions or other reasons, the Contractor shall be entitled to no additional allowance above the lump sum price bid on the Bid Form by reason of any amount of overrun or underrun of quantities for any items of work. Under no circumstances or conditions will the Contractor be paid anything on account of anticipated profits or on account of work that is not actually performed.

Partial payment shall be requested monthly by the Contractor for the estimated portion of each item completed and tentatively accepted by the Receiver. Final payment will only be made after all work has been successfully completed, inspected, and accepted.

Any work deemed outside the scope of work herein contracted, or any part thereof, must be pre-approved by the Receiver. The Contractor shall not claim extra compensation for work performed outside the scope of the Contract without prior written approval from the Receiver.

8.3 Mobilization and Demobilization

Payment for mobilization will be made for the entire lump sum amount shown on the Bid Form upon completing the mobilization required to perform the work. The lump sum amount for mobilization shall include all costs of whatsoever nature associated with all other subsequent mobilizations that may be required for performance and completion of the work. Similarly, payment for demobilization will be made for the entire lump sum amount shown on the Bid Form upon final demobilization from the site. The lump sum amount shall include all costs of whatsoever nature associated with all previous demobilizations that may be implemented during performance of the work.

Measurement for payment for additional mobilization and demobilization, if requested by the Receiver, will be based on an occurrence basis.

8.4 Site Preparation and Earthwork with Gypsum

No measurement for payment will be made for removal of unsuitable materials, debris, gypsum sediment, etc. No measurements for payment of earthwork construction and associated activities will be made. Efforts, however, will be made to adjust the design grade to maintain gypsum cut and fill balance within the designated construction area. Payments for earthwork, dewatering and surface water controls, fine grading, maintenance of completed surfaces, and drain installation will be made at the applicable lump sum price bid shown on the Bid Form. The lump sum price on the Bid Form shall reflect all other related incidental or ancillary work shown on the Drawings, and/or required by the Specifications.

No measurements for payment will be made for any of ancillary work items, which shall include but are not limited to: (i) setup and maintenance of an on-site construction office and a staging area for materials storage; (ii) setup and maintenance of erosion and sedimentation controls; (iii) protection and security of construction and staging areas; (iv) protection of previously installed HDPE geomembrane; (v) verify and, if necessary, modify existing access roads or propose alternate access roads, for hauling gypsum or unsuitable materials, that will be used by the Contractor; (vi) removal of any obstructions as well as construction/modification and maintenance of access roads to allow vehicular traffic into and out of the construction area; (vii) surveying to document that the grades, cover system (including geomembrane, and soil cover), drain systems and stormwater structures and associated piping have been installed to the lines, grades, and

dimensions shown on the Drawings; (viii) hauling and spraying fresh water to control dusting; (ix) backfilling of any temporary construction dewatering ditches; (x) maintenance of all completed work items until the entire construction has been accepted by the Receiver; (xi) repair of any disturbed areas outside the designated construction area, and any Receiver's facilities, equipment, or properties that have been damaged by the Contractor; (xii) disposal of any excess gypsum fill at on-site locations designated by the Receiver; (xiii) cleanup of the construction and staging areas as well as removal of erosion and sedimentation controls, and (xv) installing a water line or using water trucks for washing and cleaning of Contractor's tools and equipment inside the footprints of the gypsum stack or lined containment areas designated by the Receiver.

Payment for all ancillary work items will be made at the lump sum price bid for ancillary items shown on the Bid Form.

8.5 Demolition

No measurements for payment for removal of the two metal formwork cofferdams and three steel plates and disposal in the material's storage area and for abandonment of the existing inlet structure in the southwest corner of the pond will be made.

Payment for the demolition scope will be made at the applicable lump sum price bid shown on the Bid Form. The lump sum price on the Bid Form shall reflect all other related incidental and ancillary work items shown on the Drawings and/or required by the Specifications.

8.6 Subgrade Repairs

Measurements for payment for subgrade repairs will be made.

Payment for the subgrade repairs will be made at the applicable time and materials rates submitted with the bid.

8.7 Gypsum Excavation and Fill Placement

No measurements for payment for placement and compaction of gypsum fill below the HPDE geomembrane will be made. The estimated gypsum quantities for such purpose listed on the Bid Form are based upon the dimensions shown on the Drawings. Payment for the compacted gypsum fill will be made at the applicable lump sum price bid shown on the Bid Form. The lump sum price on the Bid Form shall reflect all other related incidental and ancillary work items shown on the Drawings and/or required by the Specifications.

No measurements for payment will be made for ancillary work items which shall include, but shall not be limited to: (i) surveying and (ii) disposal of excess gypsum fill in the NGS-N pond or as otherwise directed by the Receiver.

8.8 Geomembrane Installation

The estimated quantities shown on the Bid Form do not account for geomembrane buried in anchor trenches, seam overlaps, excess geomembrane material due to wrinkles, wasted materials, geomembrane needed for testing and repairs, all of which are considered incidental and ancillary items of work specifically excluded from estimated quantities on the Bid Form.

Payment for the HDPE geomembrane installation, dewatering and surface water control, maintenance, re-grading and re-compaction of surfaces to receive the geomembrane, will be made in accordance with the applicable lump sum price included in the Bid Form.

No measurements for payment will be made for ancillary work items which shall include, but shall not be limited to: (i) surveying; (ii) welding seams; (iii) cutting and replacing existing geomembrane with new geomembrane; (iv) temporary ballast loading; (v) testing and repairs; (vi) site clean-up, etc.

Payment for all ancillary geomembrane work items will be made at the lump sum price bid for ancillary items shown on the Bid Form.

8.9 Slope Drain System Installation

The estimated quantities shown on the Bid Form do not account for geotextile/geonet geocomposite overlaps, excess geocomposite material due to wrinkles or slopes, wasted materials, geocomposite needed for testing and repairs, all of which are considered incidental and ancillary items of work specifically excluded from estimated quantities on the Bid Form.

Payment for the geocomposite installation, covered under the main contract item as shown in Design Drawings, and associated surface water controls will be made at the applicable lump sum price bid shown on the Bid Form.

No measurements for payment will be made for ancillary work items, which shall include, but shall not be limited to: (i) surveying; (ii) tying overlaps; (iii) temporary ballast loading; (iv) testing and repairs; (v) site clean-up, etc.

Payment for all ancillary geocomposite work items will be made at the lump sum price bid for ancillary items shown on the Bid Form.

8.10 Toe Drain System Installation

No measurements for payment for installation of the toe drain system along the inside toe of the perimeter dike will be made. The estimated material quantities listed on the Bid Form are based upon the dimensions shown on the Drawings, without accounting for the increased area of sloping surfaces, which are considered incidental and ancillary items of work specifically excluded from estimated quantities on the Bid Form.

Payment for the toe drain installation will be made at the applicable lump sum price bid shown on the Bid Form. The lump sum price on the Bid Form shall reflect all other related incidental and ancillary work items shown on the Drawings and/or required by the Specifications.

8.11 Stormwater Drainage System Construction

No measurements for payment will be made for the installation of the stormwater drainage system, including gravel drain system, inlet structure, pipes, fittings and erosion control mats. The estimated material quantities for such purpose listed on the Bid Form are based upon the dimensions shown on the Drawings, without accounting for the increased area of sloping

surfaces, which are considered incidental and ancillary items of work specifically excluded from estimated quantities on the Bid Form.

Payment for the stormwater drainage system will be made at the applicable lump sum price bid shown on the Bid Form. The lump sum price on the Bid Form shall reflect all other related incidental and ancillary work items shown on the Drawings and/or required by the Specifications.

8.12 Geomembrane Cover Placement

No measurements for payment for placement and compaction of a minimum 2-foot-thick protective soil cover atop the HDPE geomembrane will be made, including borrowing, moisture conditioning, and hauling of soil borrow material from the borrow areas approved by the Receiver. The thickness of the protective soil cover will be more than 2 feet at certain locations associated with the stormwater system, as indicated in the Drawings.

Payment for geomembrane protective cover placement will be made at the applicable lump sum price provided in the Bid Form. The lump sum prices shall reflect al other related incidental and ancillary work shown on the Drawings and/or required by the Specifications. The contractor will be responsible for any damage caused to the geomembrane during installation of the soil cover.

8.13 Grassing

No measurements for payment of grassing by either sodding or seeding/hydroseeding will be made.

No measurements for payment will be made for any other ancillary work item, which shall include, but shall not be limited to: (i) surveying; (ii) watering; (iii) material staging, preparation, conditioning, or handling; (iv) preparation of staging areas; (v) mulching; (vi) fertilizing; (vii) maintenance; (viii) site clean-up, etc.

Payment for will be made at the lump sum price bid for ancillary items shown on the Bid Form.

8.14 Light Traffic Access Road

No measurements for payment of installation of the light traffic access road will be made. **This scope will only be executed if confirmed by the Receiver before the time of construction**.

No measurements for payment will be made for any other ancillary work item, which shall include, but shall not be limited to: (i) surveying; (ii) materials staging and preparation (iii) maintenance; (iv) site clean-up, etc.

Payment for will be made at the lump sum price bid for ancillary items shown on the Bid Form.

8.15 Raising of Access Road (H&H Project #8)

No measurements for payment for placement and compaction of earther fill will be made, including borrowing, moisture conditioning, and hauling of soil borrow material from the borrow areas approved by the Receiver.

Payment for earthen fill placement will be made at the applicable lump sum price provided in the Bid Form. The lump sum prices shall reflect al other related incidental and ancillary work shown on the Drawings and/or required by the Specifications. The contractor will be responsible for any damage caused during installation of the fill.

8.16 Safety

No measurement for payment will be made for safety training and compliance. Payment for the safety will be made at the applicable lump sum prices provided on the Bid Form. The lump sum prices on the Bid Form shall reflect all other related incidental or ancillary work for safety shown on the Drawings and required by the Specifications and The Receiver Site Safety Rules.

8.17 Progress Payments

Progress payments shall be requested monthly by the Contractor based on estimated quantities of completed portions of the work, subject to review and approval by the Receiver.

SCHEDULE A
BID FORM
CLOSURE OF NGS-S POND

Item	Description	Unit	Unit Price/Amount
A. MOBILIZATION AND DEMOBILIZATION			
A1	Mobilization	Lump Sum	$_____
A2	Demobilization	Lump Sum	$_____
A3	Additional mobilization/demobilization if requested by the Receiver	Each	$_____
B. SITE PREPARATION			
B1	Construction office, surveying, access roads construction and maintenance, site preparation - parking lot, laydown yard, on-site trailer/office area, dust control measures, erosion and sedimentation controls, dust control, site cleanup.	Lump Sum	$_____
C. DEMOLITION			
C1	Removal of two metal formwork cofferdams and three steel plates and disposal in the material's storage area indicated in the Drawings.	Lump Sum	$_____
C2	Abandon the existing inlet structure in the southwest corner of the pond	Lump Sum	$_____
D. SURFACE WATER CONTROL			
D1	Surface water removal and control, including pumps, pipes, etc., as needed	Lump Sum	$_____
E. SUBGRADE REPAIRS			
E1	Repair the gypsum subgrade at two locations with metal formwork cofferdams and metal plates (southwest corner of pond)	T&M	Include Comprehensive T&M Rates
E2	Repair the gypsum subgrade at the location with metal plate (inner slope at southeast corner)	T&M	Include Comprehensive T&M Rates
E3	Repair the subgrade crack in inner slope of the east dike. Includes excavation of subgrade, installation of high-strength woven geotextile, filling with either gypsum slurry or flowable fill	T&M	Include Comprehensive T&M Rates
E4	Repair any additional cracks, voids, or subgrade damage. Includes excavation of subgrade, installation of high-strength woven geotextile, filling with either gypsum slurry or flowable fill	T&M	Include Comprehensive T&M Rates
E5	Ancillary items (surveying, sampling, testing and repairs, site cleanup, etc.)	T&M	Include Comprehensive T&M Rates
F. EARTHWORK WITH GYPSUM			
F1	Excavating, transporting, pulverizing, moisture conditioning, placing, compacting, and grading gypsum to achieve design grades	Lump Sum	$_____
F2	Ancillary items (surveying, access roads construction and maintenance, disposal of excess gypsum fill, etc.)	Lump Sum	$_____
F3	Additional earthwork (cut and fill) outside the design scope, if requested by the Receiver	Unit Rate ($/CY)	$_____

SCHEDULE A
BID FORM (continued)
CLOSURE OF NGS-S POND

G. GEOMEMBRANE			
G1	Installation of 60-mil textured HDPE Geomembrane	Lump Sum	$_____
G2	Ancillary items (field-locating and tying-in to existing geomembranes, connection to geomembrane penetration plates, surveying, welding geomembrane seams, anchor trenches, temporary ballast, sampling, testing and repairs, temporary, site cleanup, etc.)	Lump Sum	$_____
H. SLOPE DRAIN SYSTEM INSTALLATION			
H1	Installation of geotextile/geonet geocomposite on the inside slopes of the perimeter dike	Lump Sum	$_____
H2	Installation of geotextile-wrapped gravel drain along the inside toe of the perimeter dike	Lump Sum	$_____
H3	Ancillary items (surveying, anchor trenches, temporary ballast, sampling, testing and repairs, site cleanup, etc.)	Lump Sum	$_____
I. STORMWATER DRAINAGE SYSTEM			
I1	Stormwater Drainage System (HDPE pipes, fittings, inlet structure, geomembrane penetrations, gravel aprons, etc.)	Lump Sum	$_____
I2	Erosion protection features (concrete apron, concrete weir, filter point mat)	Lump Sum	$_____
I4	Ancillary items (surveying, site cleanup, etc.)	Lump Sum	$_____
J. GEOMEMBRANE COVER PLACEMENT			
J1	Excavating, transporting, moisture conditioning, placing, and compacting 2-foot soil cover on top of the HDPE geomembrane.	Lump Sum	$_____
J2	Ancillary items (area preparation, surface water control, material stockpiling, homogenization as needed and moisture conditioning, surveying, access roads, erosion and sedimentation controls, dust control, site cleanup, disposal of excess materials, regrading of borrow and other disturbed areas, etc.)	Lump Sum	$_____
K. GRASSING			
K1	Grassing of slopes by sod. Includes materials and installation.	Lump Sum	$_____
K2	Grassing of flat areas by seed/hydroseed. Includes materials and installation.	Lump Sum	$_____
K3	Grassing by sod above quantity assumed in Lump Sum and if requested by The Receiver. Includes materials and installation.	Unit Rate ($/acre)	$_____
K4	Grassing by seed/hydroseed above quantity assumed in Lump Sum and if requested by The Receiver. Includes materials and installation.	Unit Rate ($/acre)	$_____

SCHEDULE A
BID FORM (continued)
CLOSURE OF NGS-S POND

L. LIGHT TRAFFIC ROAD CAP (CONDITIONAL)			
L1	Erosion control along crest dike roads (crushed concrete/ FDOT #67 stone).	Lump Sum	$_____
M. RAISING OF ACCESS ROAD (H&H PROJECT #8)			
M1	Excavating, transporting, pulverizing, moisture conditioning, placing, compacting, and grading soil to achieve design grades	Lump Sum	$_____
M2	Grassing by sod. Includes materials and installation.	Lump Sum	$_____
M3	Ancillary items (surveying, access roads maintenance, etc.)	Lump Sum	$_____
M4	Additional earthwork outside the design scope, if requested by the Receiver	Unit Rate ($/CY)	$_____
N. SAFETY TRAINING AND COMPLIANCE			
N1	Safety Training and Compliance	Lump Sum	$_____
TOTAL LUMP SUM AMOUNT (Excluding Amounts in Rows A3, F3, J3, J4, M3)			$_____

END OF SCHEDULE A

SCHEDULE B
CONTRACTOR'S MATERIALS QUANTITY TAKE-OFF
CLOSURE OF NGS-S POND

Material	Unit	Estimated Quantity from Drawings	Adjusted Quantity to be Purchased or Hauled*
Earthwork			
Cut Quantity - Gypsum	yd^3	_____	_____
Fill Quantity to Achieve Design Geomembrane Grade - Gypsum	yd^3	_____	_____
Fill Quantity - Soil	yd^3	_____	_____
Fill Quantity for H&H Project #8 - Soil	yd^3	_____	_____
HDPE Geomembrane			
60-mil Textured Geomembrane	ft^2	_____	_____
Anchor Trench	ft	_____	_____
Seaming to Existing Geomembrane	ft	_____	_____
Sandbags	each	_____	_____
Geocomposite and Non-Woven Geotextile			
Double-Sided Geocomposite (300-mil geonet with 10-oz/yd^2 non-woven geotextile on both sides)	ft^2	_____	_____
12-oz/yd^2 Non-Woven Geotextile (stormwater underdrain)	ft^2	_____	_____
12-oz/yd^2 Non-Woven Geotextile (toe drain)	ft^2	_____	_____
12-oz/yd^2 Non-Woven Geotextile - Other	ft^2	_____	_____
Grassing			
Sod – NGS-S	ft^2	_____	_____
Seed/Hydroseed – NGS-S	ft^2		
Sod – H&H Project #8	ft^2	_____	_____
Aggregates			
Fine Sand (Sand Tailings)	yd^3	_____	_____
Hard, Durable FDOT No. 7 Gravel (stormwater underdrain)	yd^3	_____	_____
Hard, Durable FDOT No. 57 Gravel (stormwater underdrain)	yd^3	_____	_____
Hard, Durable FDOT No. 67 Gravel/Crushed Concrete (crest road capping aggregate)	yd^3	_____	_____

SCHEDULE B
CONTRACTOR'S MATERIALS QUANTITY TAKE-OFF (continued)
CLOSURE OF NGS-S POND

Material	Unit	Estimated Quantity from Drawings	Adjusted Quantity to be Purchased or Hauled*
HDPE Pipes			
6-inch Diameter DR 17 or DR 21 Slotted Pipe – Stormwater Underdrain	ft	_____	_____
20-inch Diameter DR 17 Solid Stormwater Outlet Pipe	ft	_____	_____
48-inch Diameter DR 26 Stormwater Manhole	each	_____	_____
Erosion Protection			
10" Filter Point Mat	ft^2	_____	_____
4"-Thick Reinforced Concrete Apron	ft^2	_____	_____

* Adjusted earthwork quantities shall account for bulking after excavation, shrinkage associated with dewatering and compaction. Adjusted pipes, aggregates, geomembrane, geocomposite and geotextile quantities shall account for waste, overlaps, wrinkles, geomembrane and geocomposite buried in anchor trenches, increased areas due to sloping surfaces, and materials used for testing and repairs, etc.

- Items highlighted in blue will be supplied by The Receiver in the adjusted quantities specified by the selected Contractor. All other materials required for construction, whether they are listed or not listed on this Schedule, shall be supplied by the Contractor.
- The material quantities provided on this Schedule are solely for informational purpose. This is a lump sum bid. No measurements of material quantities will be made during construction and used for payment purposes.

END OF ATTACHMENT II

ATTACHMENT III-A

CONSTRUCTION DRAWINGS

CLOSURE OF NGS-S POND

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT PHOSPHOGYPSUM STACK SYSTEM
MANATEE COUNTY, FLORIDA

CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM MANATEE COUNTY, FLORIDA

FOR
DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410 TAMPA, FL 33606

SEPTEMBER 2025

Prepared By
Ardaman & Associates, Inc.
Orlando, Florida

8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

THESE DRAWINGS ARE FOR BIDDING PURPOSES. MATERIALS SHALL NOT BE ORDERED OR WORK STARTED BEFORE RECEIVING DRAWINGS MARKED "REVISION 0 - ISSUED FOR CONSTRUCTION". THE DRAWINGS MAY BE REVISED LATER TO CHANGE THE LOCATION OR ARRANGEMENT OF THE WORK, PROVIDE ADDITIONAL DETAILS, OR INCLUDE ADDITIONAL INFORMATION OR CHANGES IN SOME FEATURES OF THE WORK, SUCH REVISIONS SHALL NOT BE DEEMED CAUSE FOR A PRICE CHANGE UNLESS IT CAN BE SHOWN THAT THE CONTRACTOR'S WORK HAS CHANGED MATERIALLY.

This item has been electronically signed and sealed by Mohamad Al-hawaree on the date adjacent to the seal using a SHA authentication code.

Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

MOHAMAD AL-HAWAREE, P.E.
Florida License No. 58537

ARDAMAN & ASSOCIATES, INC. FILE NO.
21-13-0031C

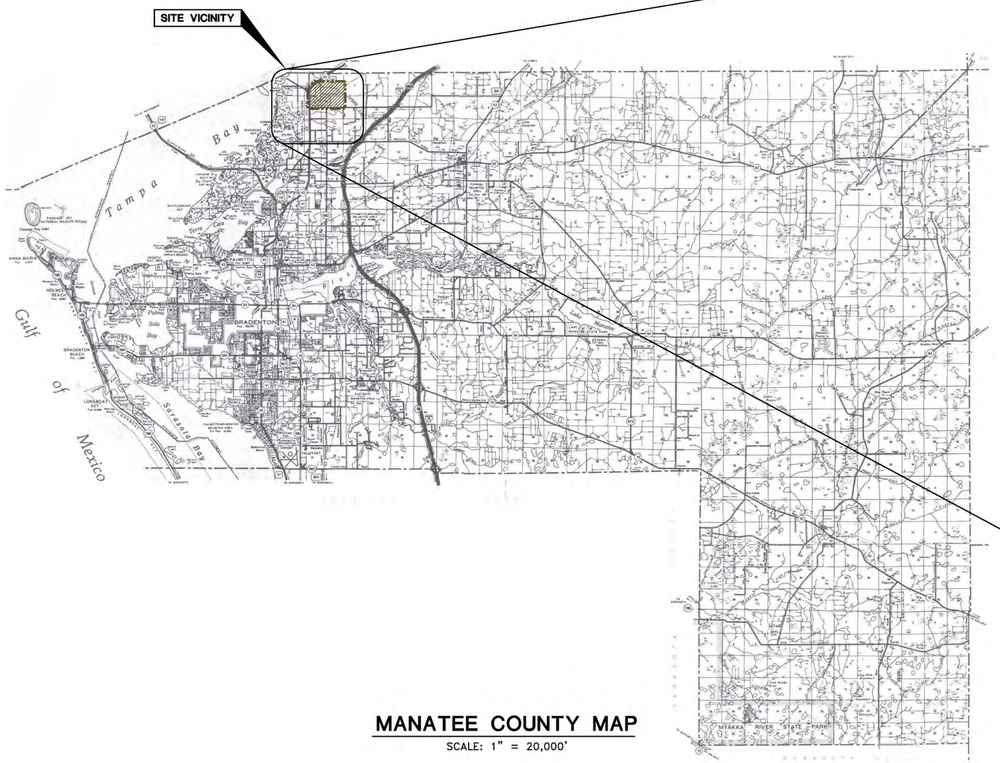
This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

P:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\1 COVER SHEET.dwg 2025/09/30 12:35 PM, by wersh.almujaanedu



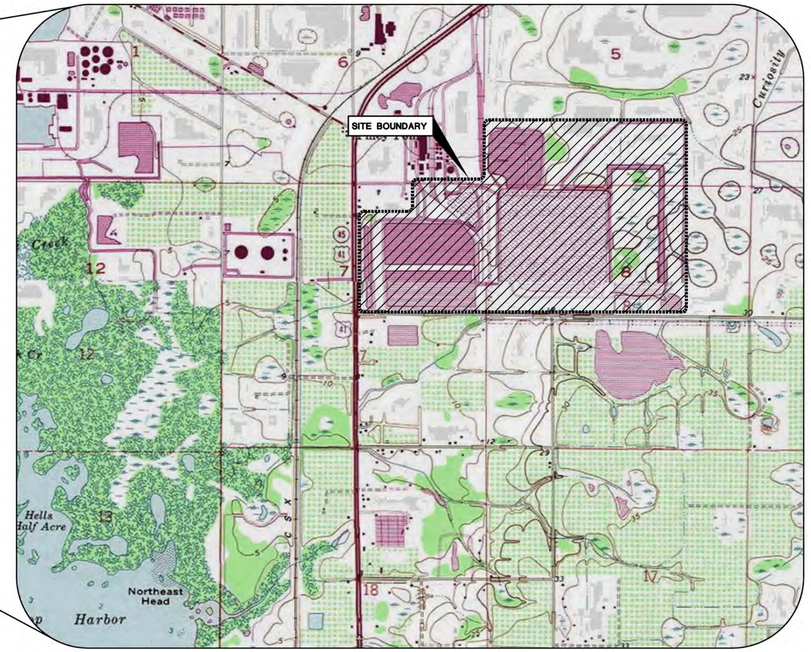
FLORIDA STATE MAP

NOT TO SCALE



MANATEE COUNTY MAP

SCALE: 1" = 20,000'



TOWNSHIP 33 SOUTH
RANGE 18 EAST

OBTAINED FROM U.S.G.S. QUADRANGLE MAPS:
COCKROACH BAY, FLORIDA (PHOTOREVISED 1981)
PALMETTO, FLORIDA (PHOTOREVISED 1987)

SITE VICINITY MAP

SCALE: 1" = 4000'

INDEX OF DRAWING

Sheet Number	Sheet Title
1	COVER SHEET
2	INDEX OF DRAWINGS AND PROJECT LOCATION MAPS
3	GENERAL NOTES, ABBREVIATIONS AND SYMBOLS
4	AERIAL PHOTOGRAPH OF PINEY POINT FACILITY
5	TOPOGRAPHIC SURVEY OF PINEY POINT FACILITY
6	TOPOGRAPHIC SURVEY OF NGS-S
7	ACCESS ROAD, STAGING AREA AND BORROW AREA MAP
8	EXISTING LINER PLAN
9	EXISTING LINER PLAN AFTER PARTIAL LINER REMOVAL (BY OTHERS)
10	LINER SUBGRADE REPAIR PLAN
11	LINER SUBGRADE PLAN
12	LINER LAYOUT PLAN
13	SLOPE DRAIN SYSTEM PLAN
14	SOIL COVER AND FINAL GRADING PLAN
15	STORMWATER TREATMENT SYSTEM DETAILS
16	NORTHWEST AND NORTHEAST RAMP SUBGRADE DETAILS
17	NORTHWEST AND NORTHEAST RAMP FINAL GRADE DETAILS
18	CROSS SECTIONS A AND B
19	CROSS SECTIONS C AND D
20	CROSS SECTIONS E AND F
21	CROSS SECTION G AND H
22	CROSS SECTION I AND J
23	NEW STORMWATER INLET STRUCTURE AND TREATMENT UNDERDRAIN DETAILS
24	LINER PENETRATION PLATE DETAILS FOR OUTLET PIPE
25	CONCRETE OVERFLOW WEIR DETAILS
26	MISCELLANEOUS DETAILS 1
27	MISCELLANEOUS DETAILS 2

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

CONSTRUCTION DRAWINGS FOR
CLOSURE OF NGS-S AT PINEY POINT
PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

INDEX OF DRAWINGS AND PROJECT LOCATION MAPS

DRAWING NO. **2**

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\2 INDEX OF DRAWINGS AND PROJECT LOCATION MAPS.dwg 2025/09/30 12:35 PM, Al Mujahadi, Sonah

ABBREVIATIONS

A

A	ANCHOR
AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
ADAPT	ADAPTER
AR'D	AROUND
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS

B

BOTT	BOTTOM
BF.V.	BUTTERFLY VALVE
B.F.	BLIND FLANGE
B.V.	BALL VALVE

C

℄	CENTERLINE
CLR	CLEAR
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUATION OR CONTINUOUS
COR	CORNER
CORR	CORRUGATED
CR	COUNTY ROAD

D

DIA	DIAMETER
DISCH	DISCHARGE
DWG	DRAWING
△	CURVE ANGLE

E

E	EAST
EA	EACH
ECC	ECCENTRIC
EL	ELEVATION (feet, NGVD)
ELL	ELBOW
EW	EACH WAY
EX	EXISTING
EXP	EXPANSION
EXT	EXTENSION

F

FAB	FABRICATED
FG	FINISH GRADE
FIN	FINISH
FLG	FLANGE
FLG'D	FLANGED
FT	FOOT

G

GALV	GALVANIZED
GR	GRADE

H

H	HIGH
HDPE	HIGH DENSITY POLYETHYLENE
HORIZ	HORIZONTAL
HP	HIGH POINT
HWY	HIGHWAY

I

ID	INSIDE DIAMETER
INV	INVERT

L

L	LENGTH OF ARC
LBS	POUNDS
LF	LINEAR FOOT
LG	LENGTH OR LONG
LLV	LONG LEG VERTICAL
LR	LONG RADIUS
LT	LEFT

M

MAT'L	MATERIAL
MAX	MAXIMUM
MB	MECHANICAL BOLT
MEG	MEET EXISTING GRADE
MIN	MINIMUM

N

N	NORTH
NGS-S	NEW GYPSUM STACK – SOUTH COMPARTMENT
NGVD	NATIONAL GEODETIC VERTICAL DATUM OF 1929
NO.	NUMBER
NTS	NOT TO SCALE

O

OC	ON CENTERS
O/E	OR EQUAL
OZ	OUNCE

P

PC	POINT OF CURVATURE
PE	PLAIN END
PERF	PERFORATED
PI	POINT OF INTERSECTION
PL	PLATE
PP	POWER POLE
PPL	POLYPROPYLENE
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECTION
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
P.V.	PLUG VALVE
PVC	POLYVINYL CHLORIDE

R

R	RADIUS
RCP	REINFORCED CONCRETE PIPE
REQ'D	REQUIRED
RR	RAILROAD
RT	RIGHT

S

S	SLOPE OR SOUTH
SCH	SCHEDULE
SCR'D	SCREWED
SDR	STANDARD DIMENSION RATIO
SPEC	SPECIFICATIONS
SS	STAINLESS STEEL
STA	STATION
STL.	CARBON STEEL
STL RL	RUBBER-LINED CARBON STEEL
S.W.	STORMWATER

T

T	TANGENT
TEMP	TEMPORARY
TEXT	TEXTURED
THK	THICK
THR'D	THREADED
TOC	TOP OF CONCRETE
TOL	TOP OF LINER
TOS	TOE OF SLOPE
TYP	TYPICAL

U

UON	UNLESS OTHERWISE NOTED
UNREINF'D	UNREINFORCED

V

VAR	VARIES
VER	VERIFY
VERT	VERTICAL

W

W	WEST OR WIDE
W/	WITH
W.S.	WATER STOP
W/S	WATER SURFACE

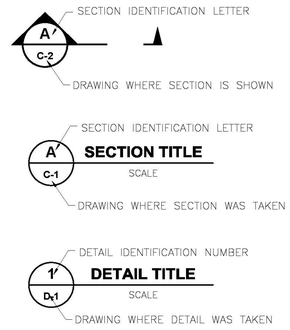
Y

YD^2	SQUARE YARD

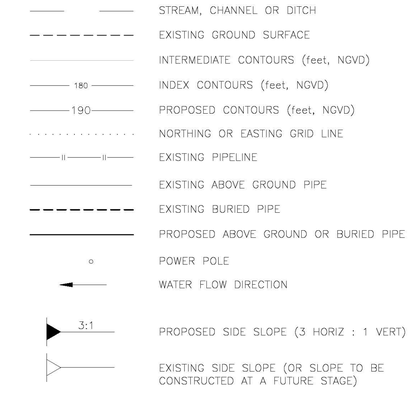
GENERAL NOTES

1. THE CONTRACTOR SHALL CAREFULLY EXAMINE AND INSPECT THE CONSTRUCTION SITE AND ITS SURROUNDING AREAS PRIOR TO BID SUBMITTAL TO FAMILIARIZE HIMSELF WITH THE LATEST SITE CONDITIONS AND TO INDEPENDENTLY VERIFY THE EFFORTS THAT WILL BE REQUIRED TO COMPLETE THE PROPOSED CONSTRUCTION.
2. THE CONTRACTOR SHALL INDEPENDENTLY VERIFY CONSTRUCTION MATERIAL QUANTITIES BASED ON THE LATEST SITE CONDITIONS, THE PROVIDED TOPOGRAPHIC SURVEY, ANY ADDITIONAL TOPOGRAPHIC SURVEYS PERFORMED BY THE CONTRACTOR FOR VERIFICATION AND THE CONSTRUCTION DRAWINGS.
3. THE EXISTING AND DESIGN ELEVATIONS ON ALL DRAWINGS ARE BASED ON A 1-FOOT INTERVAL TOPOGRAPHIC CONTOUR MAP CREATED FROM A LIDAR SURVEY PERFORMED ON MAY 01, 2025 BY SURVTECH, INC. THE CONTRACTOR SHALL REALIZE THAT SETTLEMENT, SHRINKAGE AND EXCAVATION MAY HAVE OCCURRED SINCE THE SURVEY WAS PERFORMED AND, THEREFORE, SHALL INDEPENDENTLY VERIFY THE LATEST TOPOGRAPHIC CONDITIONS PRIOR TO BID SUBMITTAL AND PRIOR TO CONSTRUCTION.
4. THE WATER ELEVATIONS SHOWN ON THE DRAWINGS ARE VALID ONLY FOR THE DATES OF THE SURVEYS. WATER LEVELS ARE EXPECTED TO VARY WITH RAINFALL AND INFILTRATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND WATER TRANSFER FROM THE CONSTRUCTION AREA TO ONSITE LOCATIONS DESIGNATED BY THE OWNER, AS NECESSARY, TO KEEP THE CONSTRUCTION AREA DEWATERED AND WELL-DRAINED UNTIL CONSTRUCTION HAS BEEN COMPLETED.
5. THE CONTRACTOR SHALL SCHEDULE AND COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE RECEIVER, OTHER CONTRACTORS AND SUBCONTRACTORS THAT ARE PERFORMING TASKS AT OR NEAR THE CONSTRUCTION SITE.
6. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FIELD-VERIFY BENCHMARK LOCATIONS AND ELEVATIONS TO CONFIRM THAT THE TOPOGRAPHIC MAP ELEVATIONS ARE CONSISTENT WITH THE CONTRACTOR'S SURVEYED BENCHMARK ELEVATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EARTHWORK OPERATIONS, INCLUDING ANY REQUIRED DEWATERING ACTIVITIES, TO ACHIEVE THE DESIGN GRADE FOR PLACEMENT OF THE LINER SYSTEM BY THE LINER INSTALLER AND TO ACHIEVE THE FINAL DESIGN GRADE AFTER PLACEMENT OF THE LINER COVER SOILS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TIMELY REPAIR OR REPLACEMENT OF STRUCTURES, EQUIPMENT, UTILITIES, PIPELINES, EXISTING LINER, OR ANY FACILITIES AND/OR OTHER ON-GOING OR COMPLETED CONSTRUCTION ITEMS DAMAGED BY THE CONTRACTOR AND/OR THEIR SUBCONTRACTOR'S OPERATIONS AND/OR PERSONNEL.
9. THE CONTRACTOR SHALL CLEAN UP THE WORK SITE AS MAY BE NEEDED, BOTH AT THE END OF EACH WORK DAY AND AT THE END OF THE PROJECT IN ORDER TO MAINTAIN THE SITE IN A CLEAN AND SAFE CONDITION.

DRAWING SYMBOLS



LEGEND



SYMBOLS



OTHER SYMBOLS AS NOTED ON THE DRAWINGS

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
PD	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

CONSTRUCTION DRAWINGS FOR
CLOSURE OF NGS-S AT PINEY POINT
PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

GENERAL NOTES, ABBREVIATIONS AND SYMBOLS

DRAWING NO. 3

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\3 GENERAL NOTES, ABBREVIATIONS AND SYMBOLS.dwg 2025/09/30 12:35 PM Al Mujtahedu, Sarah



N

0 200 400

SCALE: 1"=200'

AERIAL PHOTOGRAPH FROM ARDAMAN AND ASSOCIATES, INC.

DATE OF PHOTOGRAPH: SEPTEMBER 02, 2025

LEGEND

APPROXIMATE LIMITS OF CONSTRUCTION

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

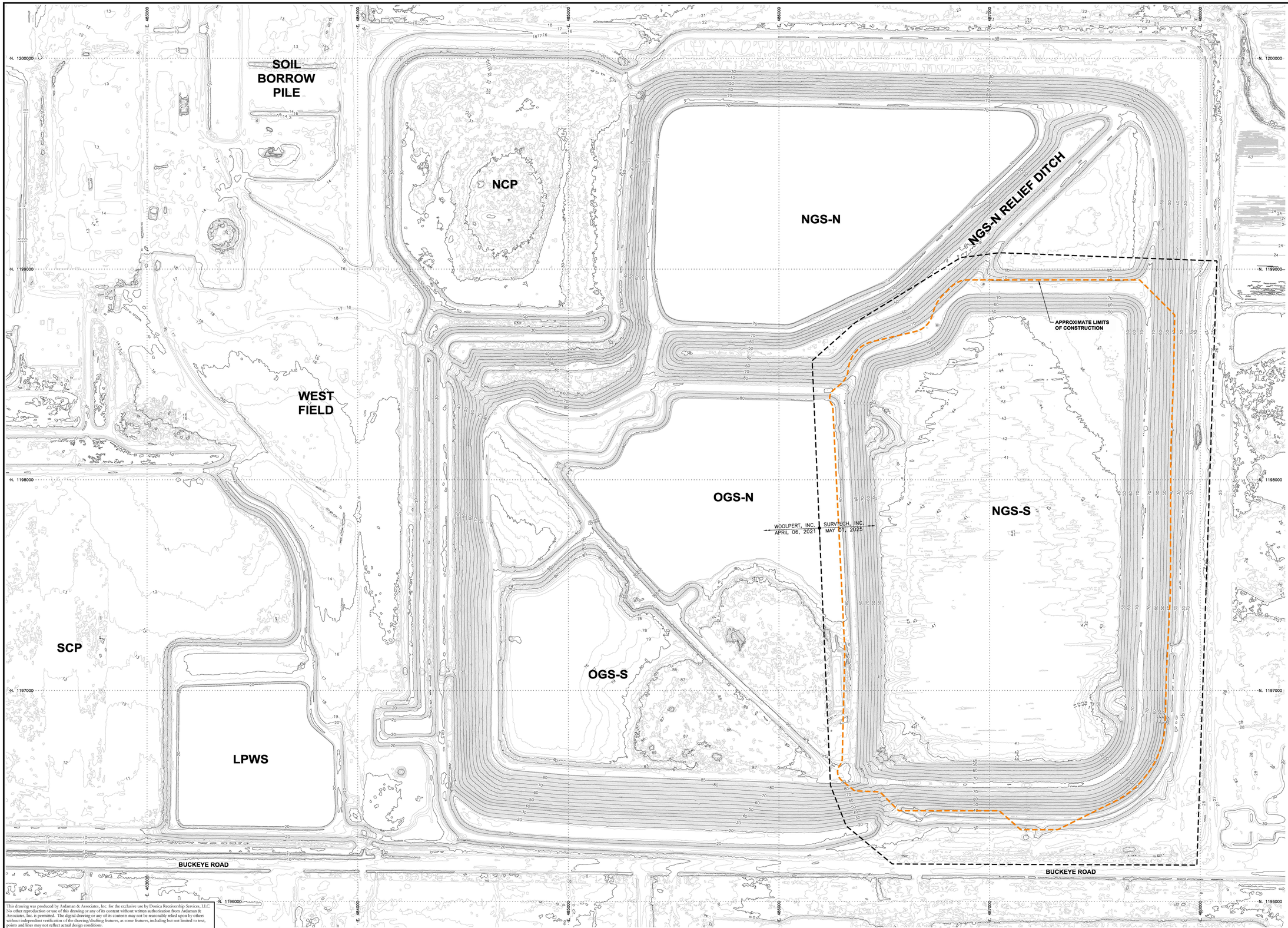
CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

AERIAL PHOTOGRAPH OF PINEY POINT FACILITY

DRAWING NO. **4**

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\4 AERIAL PHOTOGRAPH OF PINEY POINT FACILITY.dwg 2025/09/30 12:35 PM, Al Mujaheau, Sarah



N

0 200 400

SCALE: 1"=200'

TOPOGRAPHY BASED ON LIDAR SURVEY BY WOOLPERT, INC.

DATED APRIL 6, 2021
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

NGS-S TOPOGRAPHY BASED ON LIDAR SURVEY BY SURVTECH, INC.

DATED MAY 01, 2025
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

LEGEND

APPROXIMATE LIMITS OF CONSTRUCTION

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

TOPOGRAPHIC SURVEY OF PINEY POINT FACILITY

DRAWING NO. **5**

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\5 TOPOGRAPHIC SURVEY OF PINEY POINT FACILITY.dwg 2025/09/30 12:36 PM, Al Mujaahedu, Sarah

OGS-N
GEOTEXTILE TUBES AREA

OGS-N

WOOLPERT, INC.
APRIL 06, 2021
SURVTECH, INC.
MAY 01, 2025

℄ OF DIKE

NGS-N

NGS-N RELIEF DITCH

NGS-S

APPROXIMATE LIMITS
OF CONSTRUCTION

℄ OF DIKE

℄ OF DIKE

N. 1196500
N. 1197000
N. 1197500
N. 1198000
N. 1198500
N. 1199000

E. 486500
E. 487000
E. 487500
E. 488000

N

0 100 200
SCALE: 1"=100'

TOPOGRAPHY BASED ON LIDAR SURVEY BY WOOLPERT, INC.

DATED APRIL 6, 2021
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

NGS-S TOPOGRAPHY BASED ON LIDAR SURVEY BY SURVTECH, INC.

DATED MAY 01, 2025
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

LEGEND

APPROXIMATE LIMITS OF CONSTRUCTION

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
PO	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

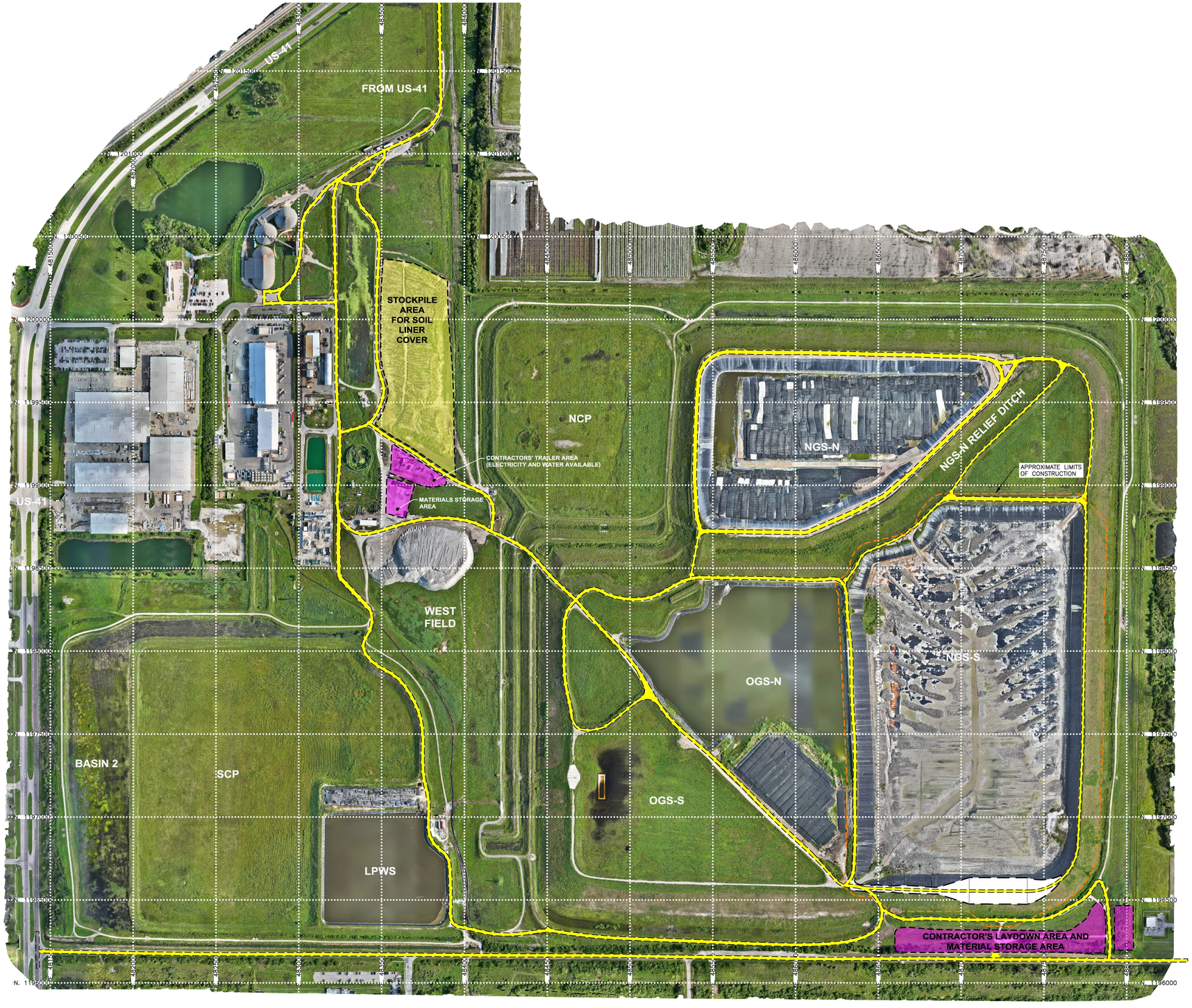
CONSTRUCTION DRAWINGS FOR
CLOSURE OF NGS-S AT PINEY POINT
PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

TOPOGRAPHIC SURVEY OF NGS-S

DRAWING NO. 6

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\8 TOPOGRAPHIC SURVEY OF NGS-S.dwg 2025/09/30 12:36 PM, Al Mujahadu, Sarah



AERIAL PHOTOGRAPH FROM ARDAMAN AND ASSOCIATES, INC.

DATE OF PHOTOGRAPH: SEPTEMBER 02, 2025

LEGEND

- CONTRACTOR'S ACCESS ROADS & STOCKPILE OF SOIL COVER MATERIAL
- APPROXIMATE LIMITS OF CONSTRUCTION
- CONTRACTOR'S LAYDOWN AREAS, TRAILER AREAS AND NON-POTABLE WATER SOURCE
- SOIL/GYPSUM BORROW AREAS

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

ACCESS ROAD, STAGING AREA AND BORROW AREA MAP

DRAWING NO. **7**

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\7 ACCESS ROAD, STAGING AREA AND BORROW AREA MAP.dwg 2025/09/30 12:37 PM, Al Mujcheda, Sarah

OGS-N
GEOTEXTILE TUBES AREA

OGS-N

NGS-N

NGS-S

NGS-N RELIEF DITCH

WOOLPERT, INC.
APRIL 06, 2021

SURVTECH, INC.
MAY 01, 2025

℄ OF DIKE

EXISTING FLUME COMPRISED OF 80-MIL SMOOTH HDPE LINER (TO BE COVERED WITH 60-MIL TEXTURED HDPE LINER EXTRUSION WELDED TO SURFACE)

EXISTING WIND BALLAST TRENCH EVERY 5 LINER PANELS (APPROX.) 100-FEET APART) (TYP.)

APPROXIMATE LIMITS OF CONSTRUCTION

GYPSUM BORROW AREA FOR OGS-N GEOTUBES AREA CLOSURE CONTRACT

N: 1196475.68
E: 487048.37
EL: 56.8

N: 1196634.82
E: 487048.91
EL: 55.2'

N: 1196474.18
E: 487399.15
EL: 56.8

N: 1196634.34
E: 487399.69
EL: 55.2'

S=10%

S=1.0%

3:1

EL. 46.9'

EL. 44.9'

E. 486500

E. 487000

E. 487500

E. 488000

N. 1195500

N. 1196000

N. 1196500

N. 1197000

N. 1197500

N. 1198000

N. 1198500

N. 1199000

A 18 · B 18 · C 19 · D 19 · E 20 · F 20 · G 21 · H 21 · I 22 · J 22

N

0 100 200
SCALE: 1"=100'

TOPOGRAPHY BASED ON LIDAR SURVEY BY WOOLPERT, INC.

DATED APRIL 6, 2021
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

NGS-S TOPOGRAPHY BASED ON LIDAR SURVEY BY SURVTECH, INC.

DATED MAY 01, 2025
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

LEGEND

- APPROXIMATE LIMITS OF CONSTRUCTION
- EXISTING 80-MIL SMOOTH HDPE LINER
- EXISTING 80-MIL TEXTURED HDPE LINER
- BREAKLINE WITHIN EXISTING HDPE LINER

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

EXISTING LINER PLAN

DRAWING NO. 8

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\8 EXISTING LINER PLAN.dwg 2025/09/30 12:37 PM, Al Mujahedu, Sarah

OGS-N
GEOTEXTILE TUBES AREA

OGS-N

NGS-N

NGS-S

WOOLPERT, INC.
APRIL 06, 2021

SURVTECH, INC.
MAY 01, 2025

℄ OF DIKE

EXISTING FLUME COMPRISED OF 80-MIL SMOOTH HDPE LINER (TO BE COVERED WITH 60-MIL TEXTURED HDPE LINER EXTRUSION WELDED TO SURFACE)

NGS-N RELIEF DITCH

APPROXIMATE LIMITS OF CONSTRUCTION

GYPSUM BORROW AREA FOR OGS-N GEOTUBES AREA CLOSURE CONTRACT

N. 1196754.78
E. 486360.00

N. 1196754.72
E. 486526.08

N. 1196475.68
E. 487048.37
EL. 56.8'

N. 1196634.82
E. 487048.91
EL. 55.2'

N. 1196474.18
E. 487399.15
EL. 56.8'

N. 1196634.34
E. 487399.69
EL. 55.2'

N. 1196872.47
E. 487569.32

N. 1196872.47
E. 487699.83

N. 1197371.05
E. 487596.06

N. 1197371.07
E. 487721.21

N. 1197686.04
E. 487606.42

N. 1197686.04
E. 487726.72

N. 1198685.56
E. 486675.22

N. 1198649.06
E. 486671.66

N. 1198547.52
E. 486711.10

N. 1198703.24
E. 486705.42

N. 1198688.88
E. 486739.42

N. 1198609.53
E. 486810.15

EL. 46.9'

EL. 44.9'

N. 1198777.15
E. 487580.68

N. 1198721.61
E. 487640.04

N. 1198885.30
E. 487670.62

N. 1198883.10
E. 487701.05

N. 1198861.58
E. 487727.42

N. 1198841.51
E. 487728.71

S=10%

S=1.0%

3±:1

3.5±:1

E. 486500

E. 487000

E. 487500

E. 488000

N. 1196500

N. 1197000

N. 1197500

N. 1198000

N. 1198500

N. 1199000

A 18

B 18

C 19

D 19

E 20

F 20

G 21

H 21

I 22

J 22

N

0 100 200
SCALE: 1"=100'

TOPOGRAPHY BASED ON LIDAR SURVEY BY WOOLPERT, INC.

DATED APRIL 6, 2021
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

NGS-S TOPOGRAPHY BASED ON LIDAR SURVEY BY SURVTECH, INC.

DATED MAY 01, 2025
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

LEGEND

- APPROXIMATE LIMITS OF CONSTRUCTION
- EXISTING 80-MIL SMOOTH HDPE LINER
- EXISTING 80-MIL TEXTURED HDPE LINER
- BREAKLINE WITHIN EXISTING HDPE LINER

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C
SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

EXISTING LINER PLAN AFTER PARTIAL LINER REMOVAL (BY OTHERS)

DRAWING NO. 9

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\9 EXISTING LINER PLAN AFTER PARTIAL LINER REMOVAL (BY OTHERS).dwg 2025/09/30 12:38 PM, Al Mujtahedu, Sarah

OGS-N
GEOTEXTILE TUBES AREA

OGS-N

NGS-N

NGS-S

NGS-N RELIEF DITCH

WOOLPERT, INC.
APRIL 06, 2021

SURVTECH, INC.
MAY 01, 2025

℄ OF DIKE

EXISTING FLUME COMPRISED OF 80-MIL SMOOTH HDPE LINER (TO BE COVERED WITH 60-MIL TEXTURED HDPE LINER EXTRUSION WELDED TO SURFACE)

N. 1196754.78
E. 486360.00

SUBGRADE DEPRESSION 3
(REMOVE 10'X14'X8' STEEL FORMWORK COFFERDAM AND 8'X12' STEEL PLATE AND REPAIR LINER SUBGRADE AS NEEDED)

N. 1196755.84
E. 486518.80

N. 1196771.32
E. 486511.40

N. 1196754.72
E. 486526.08

APPROXIMATE LIMITS OF SUBGRADE REPAIRS MADE IN 2011 (FOR INFORMATION PURPOSES ONLY)

SUBGRADE DEPRESSION 1
(REMOVE 16'X20'X8' STEEL FORMWORK COFFERDAM AND 10'X14' STEEL PLATE AND REPAIR LINER SUBGRADE AS NEEDED)

N. 1196758.84
E. 486620.81

N. 1196785.38
E. 486625.24

N. 1196746.27
E. 486680.31

ABANDON EXISTING INLET STRUCTURE
(REMOVE STEEL TRASH CAGE, GROUT OUTLET PIPE TO KNIFE GATE VALVE AT DOWNSTREAM TOE AND THEN SEAL UPPER SURFACE WITH FLOWABLE FILL OR CEMENT GROUT)
(SEE DETAILS 1 & 2, THIS DWG.)

N. 1196475.68
E. 487048.37
EL. 56.8'

N. 1196634.82
E. 487048.91
EL. 55.2'

S=10%

N. 1196474.18
E. 487399.15
EL. 56.8'

N. 1196634.34
E. 487399.69
EL. 55.2'

GYPSUM BORROW AREA FOR OGS-N GEOTUBES AREA CLOSURE CONTRACT

N. 1196872.47
E. 487569.32

N. 1196965.48
E. 487602.67

N. 1196955.48
E. 487612.67

N. 1196872.47
E. 487699.83

10 FOOT SQUARE STEEL PLATE NEAR TOE OF SLOPE (REMOVE STEEL PLATE & LINER, REPAIR LINER SUBGRADE AS NEEDED AND THEN WELD IN 15' X 15' PATCH OF NEW 60-MIL TEXTURED HDPE LINER)

315.0'

N. 1197371.05
E. 487596.06

N. 1197686.04
E. 487606.42

N. 1197371.07
E. 487721.21

N. 1197686.04
E. 487726.72

15.0'

SUBGRADE CRACKS/VOIDS WITHIN THIS AREA TO BE REPAIRED (SEE DETAILS 27 AND 31, DWG. NO. 27)

N. 1198777.15
E. 487580.68

N. 1198721.61
E. 487640.04

N. 1198885.30
E. 487670.62

N. 1198883.10
E. 487701.05

N. 1198861.58
E. 487727.42

N. 1198841.51
E. 487728.71

N. 1198685.56
E. 486675.22

N. 1198649.06
E. 486671.66

N. 1198547.52
E. 486711.10

N. 1198703.24
E. 486705.42

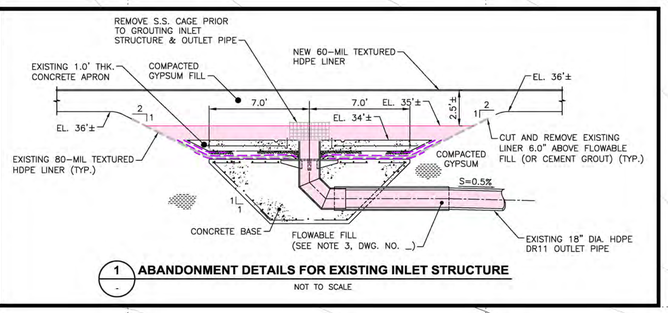
N. 1198688.88
E. 486739.42

N. 1198609.53
E. 486810.15

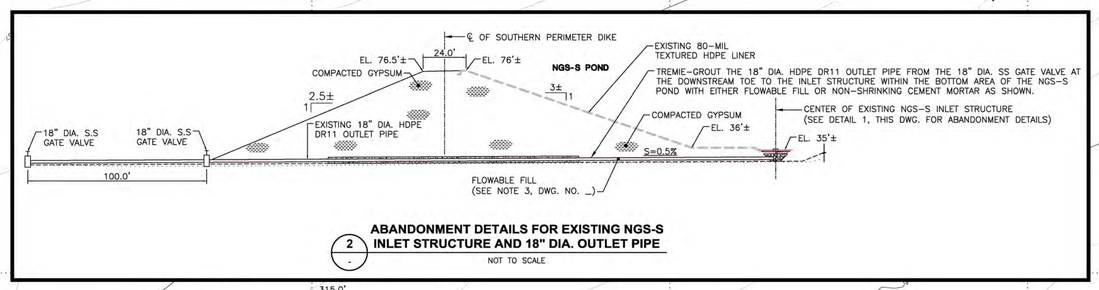
EL. 46.9'

EL. 44.9'

APPROXIMATE LIMITS OF CONSTRUCTION



1 ABANDONMENT DETAILS FOR EXISTING INLET STRUCTURE
NOT TO SCALE



2 ABANDONMENT DETAILS FOR EXISTING NGS-S INLET STRUCTURE AND 18" DIA. OUTLET PIPE
NOT TO SCALE

N

0 100 200
SCALE: 1"=100'

TOPOGRAPHY BASED ON LIDAR SURVEY BY WOOLPERT, INC.

DATED APRIL 6, 2021
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

NGS-S TOPOGRAPHY BASED ON LIDAR SURVEY BY SURVTECH, INC.

DATED MAY 01, 2025
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

LEGEND

- APPROXIMATE LIMITS OF CONSTRUCTION
- LOCATION OF ELEMENTS TO BE REPAIRED, REMOVED AND/OR ABANDONED
- EXISTING 80-MIL SMOOTH HDPE LINER
- EXISTING 80-MIL TEXTURED HDPE LINER
- BREAKLINE WITHIN EXISTING HDPE LINER
- SURVEYED POINT DENOTING EITHER CRACK/VOID LOCATION OR FEATURE TO BE ABANDONED

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
PO	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

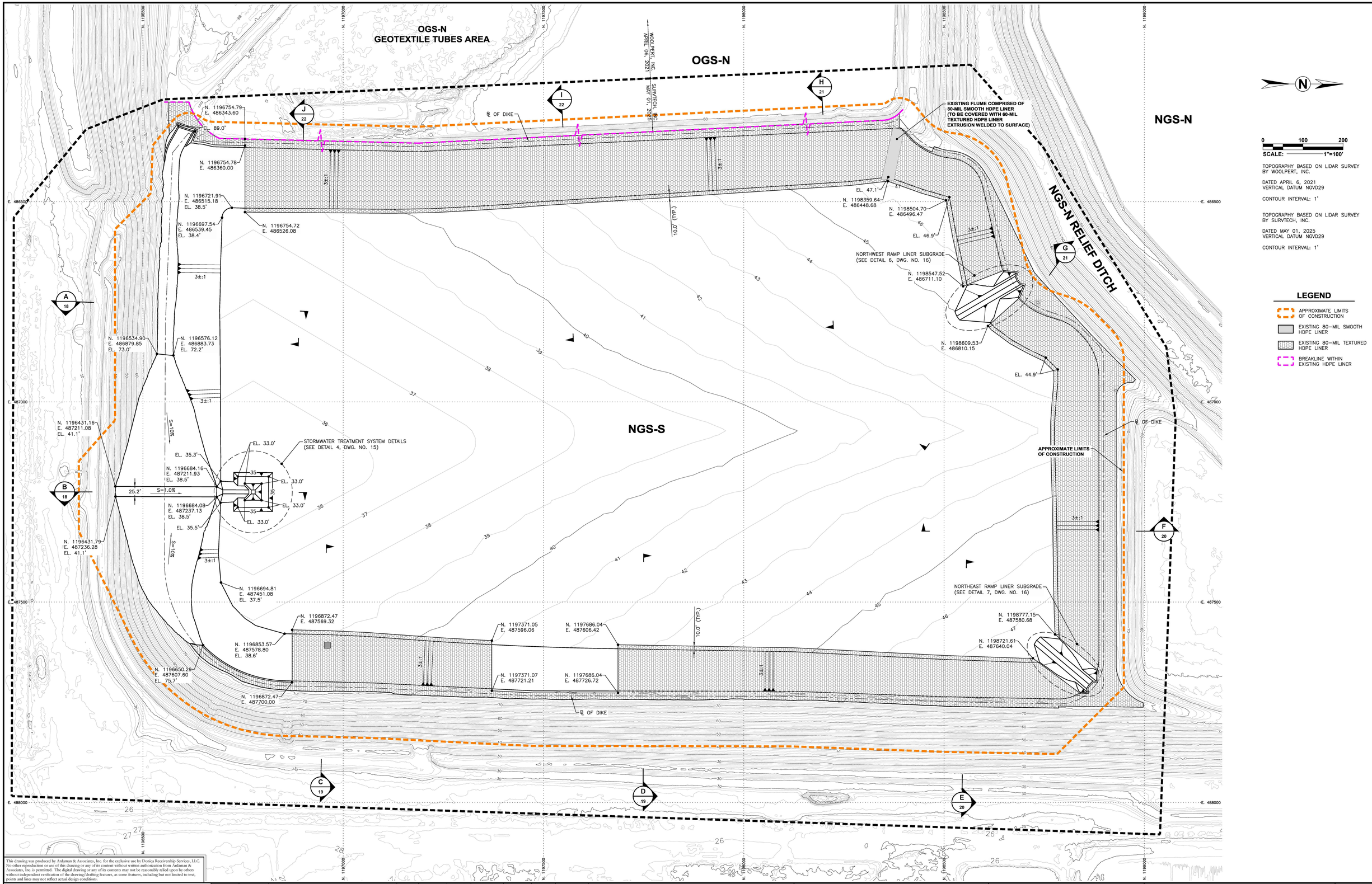
CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

LINER SUBGRADE REPAIR PLAN

DRAWING NO. 10

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\10 LINER SUBGRADE REPAIR PLAN.dwg 2025/09/30 12:39 PM, Al Wujudhedu, Sarah



0 100 200
SCALE: 1"=100'

TOPOGRAPHY BASED ON LIDAR SURVEY BY WOOLPERT, INC.

DATED APRIL 6, 2021
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

TOPOGRAPHY BASED ON LIDAR SURVEY BY SURVTECH, INC.

DATED MAY 01, 2025
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

LEGEND

- APPROXIMATE LIMITS OF CONSTRUCTION
- EXISTING 80-MIL SMOOTH HDPE LINER
- EXISTING 80-MIL TEXTURED HDPE LINER
- BREAKLINE WITHIN EXISTING HDPE LINER

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
PO	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

LINER SUBGRADE PLAN

DRAWING NO. 11

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\11 LINER SUBGRADE PLAN.dwg 2025/09/30 12:39 PM, M Mujtaheb, Sarah

OGS-N
GEOTEXTILE TUBES AREA

OGS-N

NGS-N

NGS-S

NGS-N RELIEF DITCH

WOOLPERT, INC. APRIL 06, 2021
SURVTECH, INC. MAY 01, 2025

EXISTING FLUME COMPRISED OF 80-MIL SMOOTH HDPE LINER (TO BE COVERED WITH 60-MIL TEXTURED HDPE LINER EXTRUSION WELDED TO SURFACE)

℄ OF DIKE

N. 1196754.79
E. 486343.60
EL. 89.0'

N. 1196754.78
E. 486360.00

N. 1196721.91
E. 486515.18
EL. 38.5'

N. 1196697.54
E. 486539.45
EL. 38.4'

N. 1196754.72
E. 486526.08

N. 1196534.90
E. 486879.85
EL. 73.0'

N. 1196576.12
E. 486883.73
EL. 72.2'

N. 1196431.16
E. 487211.08
EL. 41.1'

NEW 80-MIL TEXTURED HDPE LINER

EXISTING 80-MIL TEXTURED HDPE LINER

EL. 35.3'

N. 1196684.16
E. 487211.93
EL. 38.5'

NEW STORMWATER INLET STRUCTURE (SEE DETAIL 10, DWG. NO. 23)

EL. 33.0'

EL. 33.0'

EL. 33.0'

N. 1196684.08
E. 487237.13
EL. 38.5'

EL. 35.5'

20" DIA. HDPE DR17 90° SWEEP

N. 1196431.79
E. 487236.28
EL. 41.1'

PERIMETER DITCH AREA LINER SUBGRADE (SEE DETAIL 3, DWG. NO. 15)

N. 1196694.81
E. 487451.08
EL. 37.5'

N. 1196583.97
E. 487569.55
EL. 74.3'±

N. 1196636.67
E. 487583.28
EL. 73.7'±

N. 1196650.29
E. 487607.60
EL. 75.7'

N. 1196872.47
E. 487700.00

N. 1196872.47
E. 487569.32

15' X 15' (MIN.) PATCH OF NEW 60-MIL TEXTURED HDPE LINER

N. 1196853.57
E. 487578.80
EL. 38.6'

N. 1197371.05
E. 487596.06

N. 1197371.07
E. 487721.21

N. 1197686.04
E. 487606.42

N. 1197686.04
E. 487726.72

N. 1198359.64
E. 486448.68

EL. 47.1'

N. 1198504.70
E. 486496.47

EL. 46.9'

N. 1198547.52
E. 486711.10

N. 1198609.53
E. 486810.15

EL. 44.9'

N. 1198777.15
E. 487580.68

N. 1198721.61
E. 487640.04

APPROXIMATE LIMITS OF CONSTRUCTION

℄ OF DIKE

3±:1

S=10%

10.0' (TYP.)

A 18
B 18
C 19
D 19
E 20
F 20
G 21
H 21
I 22
J 22

E. 486500
E. 487000
E. 487500
E. 488000
N. 1196500
N. 1197000
N. 1197500
N. 1198000
N. 1198500
N. 1199000

N

0 100 200
SCALE: 1"=100'

TOPOGRAPHY BASED ON LIDAR SURVEY BY WOOLPERT, INC.

DATED APRIL 6, 2021
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

TOPOGRAPHY BASED ON LIDAR SURVEY BY SURVTECH, INC.

DATED MAY 01, 2025
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

LEGEND

- APPROXIMATE LIMITS OF CONSTRUCTION
- NEW 60-MIL TEXTURED HDPE LINER (APPROX. AREA = 58.1 AC)
- EXISTING 80-MIL TEXTURED HDPE LINER
- BREAKLINE WITHIN EXISTING HDPE LINER

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

LINER LAYOUT PLAN

DRAWING NO. 12

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\12 LINER LAYOUT PLAN.dwg 2025/09/30 12:40 PM, Al Mojaheau, Sarah

OGS-N
GEOTEXTILE TUBES AREA

OGS-N

NGS-N

NGS-S

NGS-N RELIEF DITCH

WOOLPERT, INC. APRIL 06, 2021
SURVTECH, INC. MAY 01, 2025

NEW 60-MIL TEXTURED HDPE LINER EXTRUSION WELDED TO SURFACE OF FLUME

℄ OF DIKE

GRAVEL TOE DRAIN (SEE DETAIL 28, DWG. NO. 27)

14.5' WIDE (MIN.) GEOCOMPOSITE DRAIN PANEL RUNNING CONTINUOUSLY FROM THE PERIMETER DIKE CREST TO THE TOE OF SLOPE (SEE DETAILS 23, 24, 28, AND 29, DWG. NO. 27)

APPROXIMATE LIMITS OF CONSTRUCTION

INSTALL BALLAST OR ANCHOR TRENCH ALONG EDGE OF GEOCOMPOSITE

N. 1196570.27 E. 486348.13 EL. 89.0'
N. 1196534.90 E. 486879.85 EL. 73.0'
N. 1196576.12 E. 486883.73 EL. 72.2'
N. 1196694.30 E. 487193.26
N. 1196675.27 E. 487199.27
N. 1196674.69 E. 487251.10
N. 1196693.62 E. 487257.36
N. 1198651.98 E. 486670.06
N. 1198553.53 E. 486689.95
N. 1198690.88 E. 486738.14
N. 1198632.11 E. 486817.89
N. 1198787.82 E. 487592.20
N. 1198738.30 E. 487649.88
N. 1198891.40 E. 487592.20
N. 1198736.47 E. 487745.59

EL. 38.5' EL. 38.4' EL. 41.07' EL. 41.06' EL. 38.5' EL. 33.3' EL. 33.0' EL. 33.0' EL. 38.5' EL. 33.0' EL. 33.0' EL. 35.5' EL. 37.5' EL. 38.6' EL. 75.7' EL. 47.1' EL. 46.9' EL. 44.9'

3±:1 S=10% S=1.0% 25.2'

A 18 B 18 C 19 D 19 E 20 F 20 G 21 H 21 I 22 J 22

N. 1195500 N. 1196000 N. 1196500 N. 1197000 N. 1197500 N. 1198000 N. 1198500 N. 1199000
E. 486500 E. 487000 E. 487500 E. 488000

N

0 100 200
SCALE: 1"=100'

TOPOGRAPHY BASED ON LIDAR SURVEY BY WOOLPERT, INC.
DATED APRIL 6, 2021
VERTICAL DATUM NGVD29
CONTOUR INTERVAL: 1'

TOPOGRAPHY BASED ON LIDAR SURVEY BY SURVTECH, INC.
DATED MAY 01, 2025
VERTICAL DATUM NGVD29
CONTOUR INTERVAL: 1'

LEGEND

- APPROXIMATE LIMITS OF CONSTRUCTION
- TEXTURED HDPE LINER
- BREAKLINE WITHIN EXISTING HDPE LINER
- GEOCOMPOSITE SLOPE DRAIN (APPROX. AREA = 16.8 AC)
- GRAVEL TOE DRAIN (APPROX. LENGTH = 5,860 LF)

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

SLOPE DRAIN SYSTEM PLAN

DRAWING NO. 13

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\13 SLOPE DRAIN SYSTEM PLAN.dwg 2025/09/30 12:41 PM, Al Muzached, Sarah

OGS-N
GEOTEXTILE TUBES AREA

OGS-N

NGS-N

NGS-S

NGS-N RELIEF DITCH

WOOLPERT, INC.
APRIL 06, 2021

SURVTECH, INC.
MAY 01, 2025

LIGHT ACCESS ROAD
(SEE DETAIL 20, DWG. NO. 26)

℄ OF DIKE

GRAVEL TOE DRAIN
(SEE DETAIL 29, DWG. NO. 27)

NORTHWEST RAMP FINAL GRADE
(SEE DETAIL 8, DWG. NO. 17)

NORTHEAST RAMP FINAL GRADE
(SEE DETAIL 9, DWG. NO. 17)

APPROXIMATE LIMITS
OF CONSTRUCTION

N. 1196540.52
E. 486880.54
EL. 73.2'

N. 1196576.78
E. 486884.21
EL. 74.8'

4" THK. REINFORCED CONCRETE
APRON OVER WEIR SURFACE
(SEE DETAIL 14, DWG. NO. 25)

20" DIA. HDPE DR17
OUTLET PIPE

N. 1196684.66
E. 487211.94
EL. 40.5'

48" DIA. HDPE DR26 STORMWATER
INLET STRUCTURE
(SEE DETAIL 10, DWG. NO. 23)

N. 1196437.52
E. 487211.20
EL. 43.0'

N. 1196437.44
E 487236.19
EL. 43.0'

PROTECTIVE APRON COMPRISED OF
#57 HARD, DURABLE GRAVEL

10" ARMORFORM FILTER POINT MAT (TYP.)
(SEE DETAIL 21, DWG. NO. 26)

N. 1196684.39
E. 487237.03
EL. 40.5'

STORMWATER TREATMENT SYSTEM DETAILS
(SEE DETAILS 3, 4AND 5, DWG. NO. 15)

N. 1196637.42
E. 487573.43
EL. 75.7'

N. 1196651.01
E. 487607.87
EL. 77.8'

N. 1196589.45
E. 487577.12
EL. 75.3'

N. 1196618.84
E. 487584.28
EL. 75.7'

N. 1196646.36
E. 487607.37
EL. 77.8'

S=15%
S=1.0%
S=10%
52.7'
25.0'
50'
60.5'
3±:1

A 18 · B 18 · C 19 · D 19 · E 20 · F 20 · G 21 · H 21 · I 22 · J 22

N. 1196500 · N. 1197000 · N. 1197500 · N. 1198000 · N. 1198500 · N. 1199000
E. 486500 · E. 487000 · E. 487500 · E. 488000

N

0 100 200
SCALE: 1"=100'

TOPOGRAPHY BASED ON LIDAR SURVEY
BY WOOLPERT, INC.

DATED APRIL 6, 2021
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

TOPOGRAPHY BASED ON LIDAR SURVEY
BY SURVTECH, INC.

DATED MAY 01, 2025
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

LEGEND

- APPROXIMATE LIMITS OF CONSTRUCTION
- PROTECTIVE TREATMENT DRAIN APRON & GRAVEL TOE DRAIN COMPRISED OF #57 HARD, DURABLE GRAVEL
- 4" THK. REINFORCED CONCRETE APRON (APPROX. AREA = 119,880 FT²)
- 10" ARMORFORM FILTERPOINT MAT (APPROX. AREA = 16,550 FT²)

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
PO	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25
FILE NO.: 21-13-0031C			SCALE: AS SHOWN		
APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--					

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

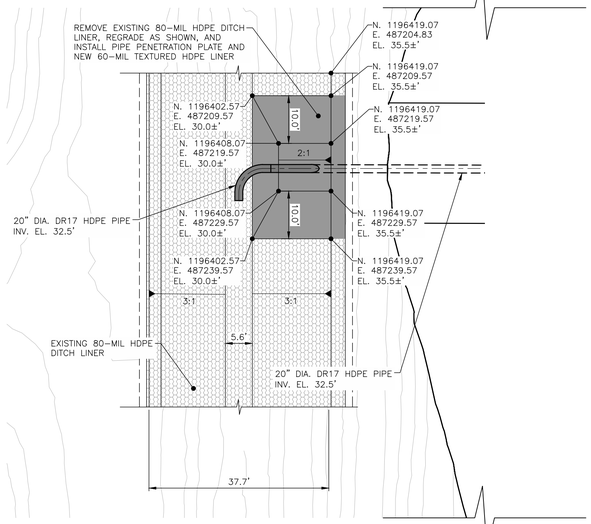
CONSTRUCTION DRAWINGS FOR CLOSURE
OF NGS-S AT PINEY POINT
PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

SOIL COVER AND FINAL GRADING PLAN

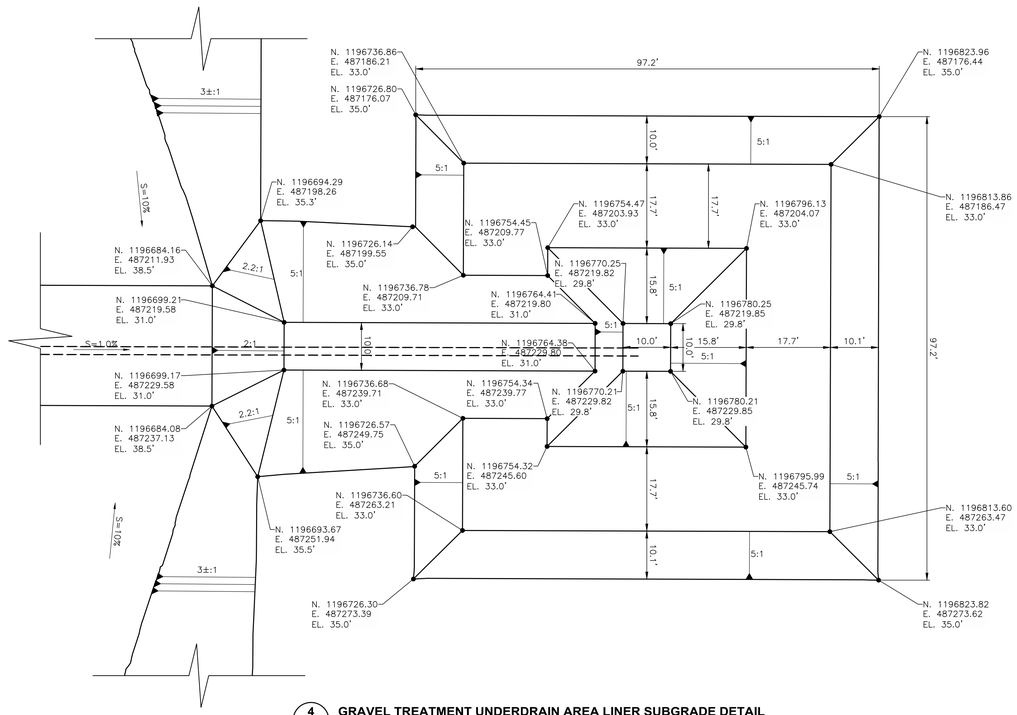
DRAWING NO. 14

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\14 SOIL COVER AND FINAL GRADING PLAN.dwg 2025/09/30 2:04 PM, FloresHerdoiza, Angello



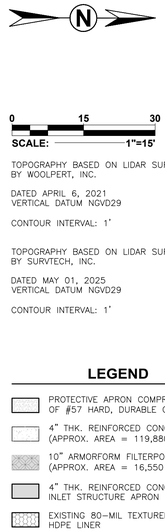
3 — **PERIMETER DITCH DISCHARGE AREA LINER LAYOUT DETAIL**

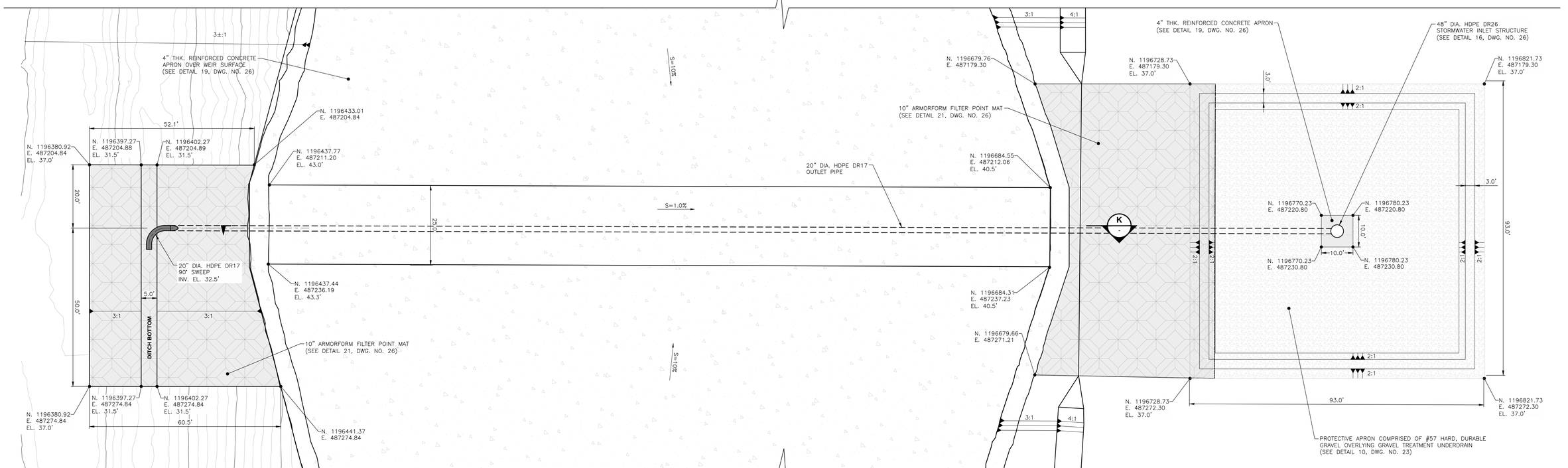
SCALE: 1" = 15'



4 — **GRAVEL TREATMENT UNDERDRAIN AREA LINER SUBGRADE DETAIL**

SCALE: 1" = 15'





5 — **STORMWATER TREATMENT SYSTEM PLAN VIEW**

SCALE: 1" = 15'

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25
FILE NO.: 21-13-0031C			SCALE: AS SHOWN		
APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--					

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

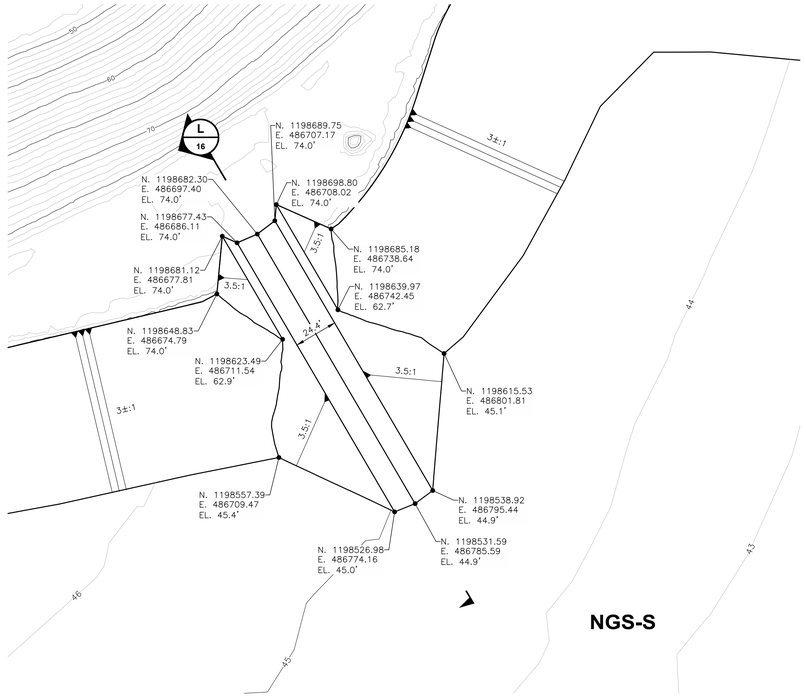
CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

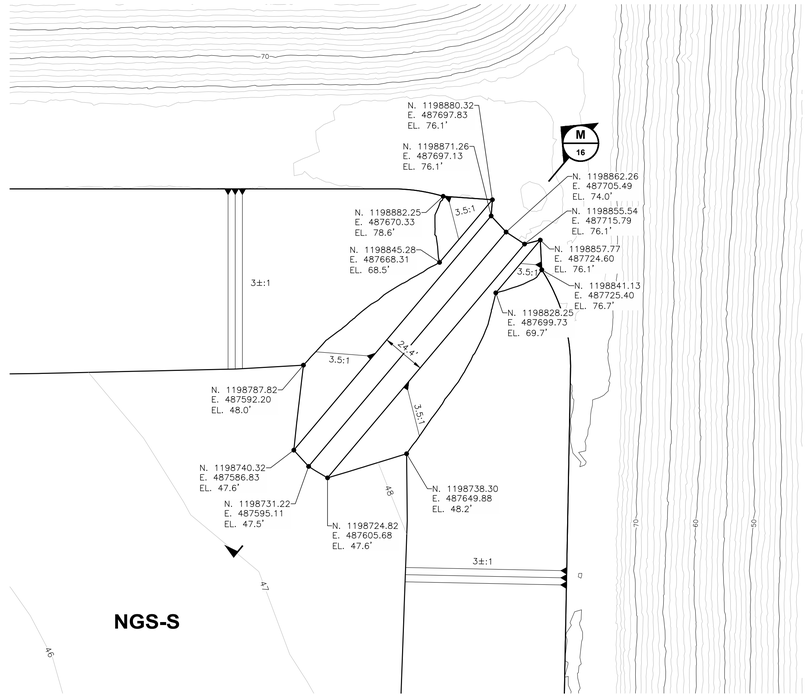
STORMWATER TREATMENT SYSTEM DETAILS

DRAWING NO. **15**

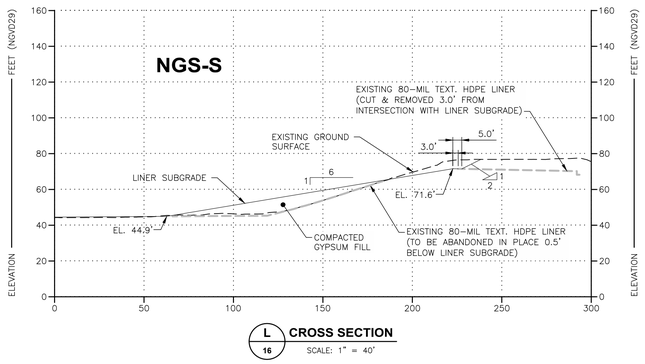
R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\15 STORMWATER TREATMENT SYSTEM DETAILS.dwg 2025/09/30 2:55 PM, Florestherbozia, Angello



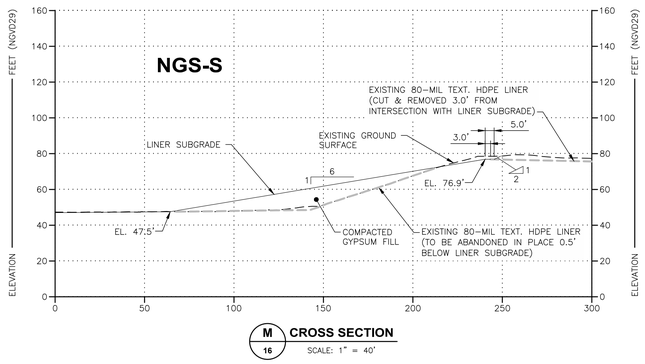
6 NORTHWEST RAMP LINER SUBGRADE PLAN VIEW
SCALE: 1" = 40'



7 NORTHEAST RAMP LINER SUBGRADE PLAN VIEW
SCALE: 1" = 40'



L 16 CROSS SECTION
SCALE: 1" = 40'



M 16 CROSS SECTION
SCALE: 1" = 40'

N

0 40 80
SCALE: 1"=40'

TOPOGRAPHY BASED ON LIDAR SURVEY BY SURVTECH, INC.

DATED MAY 01, 2025
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

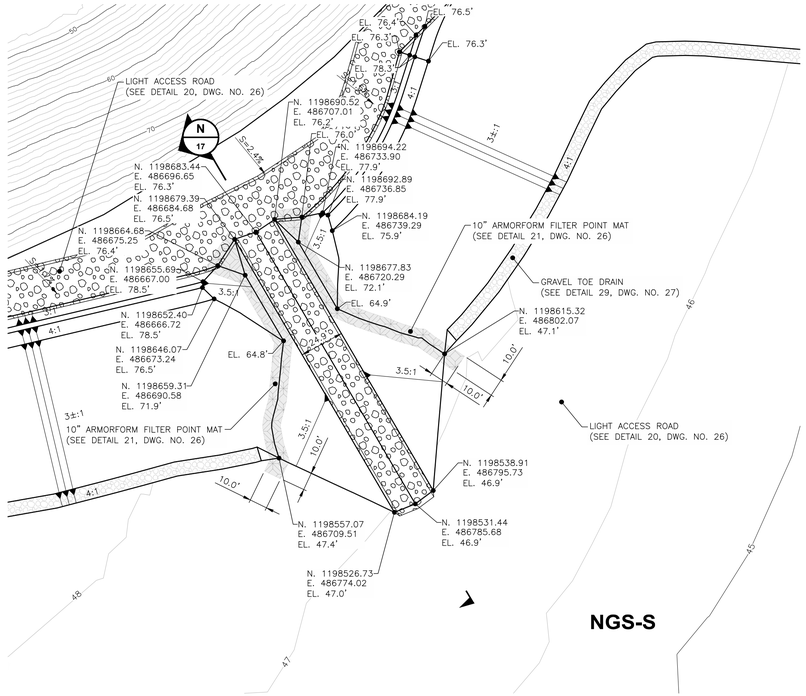
DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

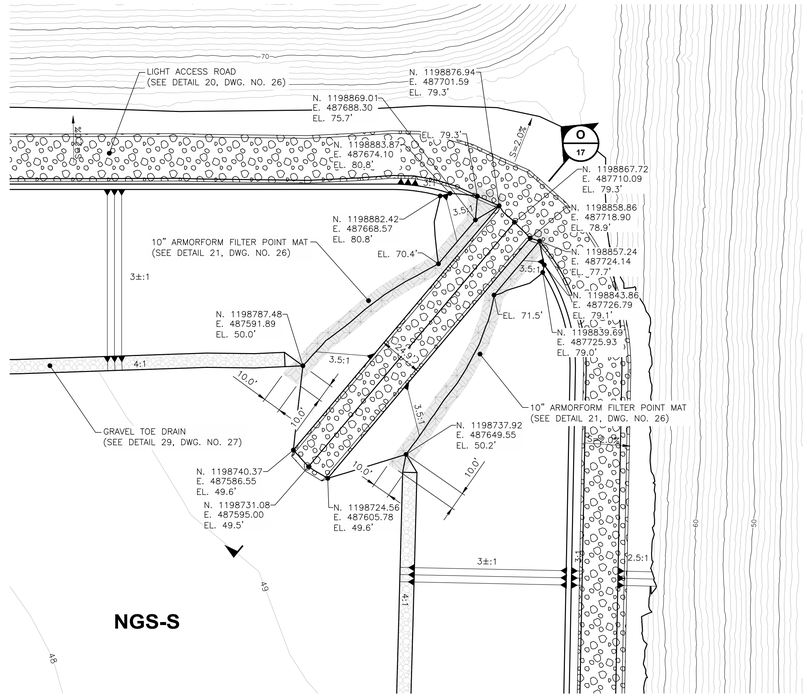
NORTHWEST AND NORTHEAST RAMP SUBGRADE DETAILS

DRAWING NO. 16



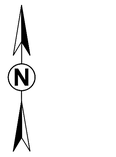
8 — NORTHWEST RAMP LINER FINAL GRADE PLAN VIEW

SCALE: 1" = 40'



9 — NORTHEAST RAMP LINER FINAL GRADE PLAN VIEW

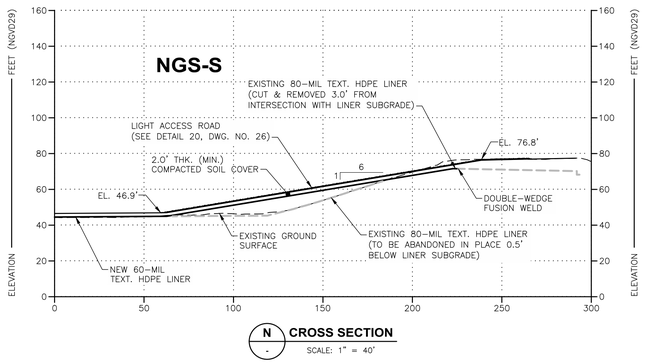
SCALE: 1" = 40'



TOPOGRAPHY BASED ON LIDAR SURVEY BY SURVTECH, INC.

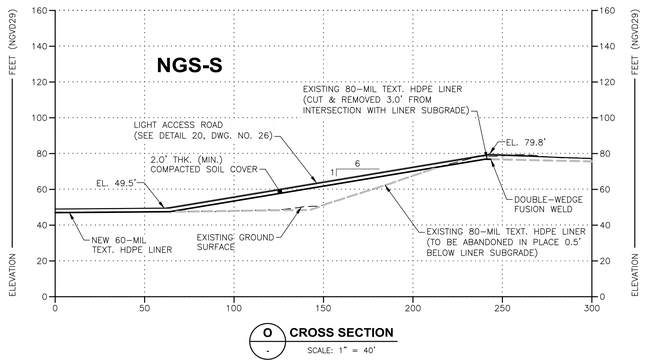
DATED MAY 01, 2025
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'



N — CROSS SECTION

SCALE: 1" = 40'



O — CROSS SECTION

SCALE: 1" = 40'

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C — SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

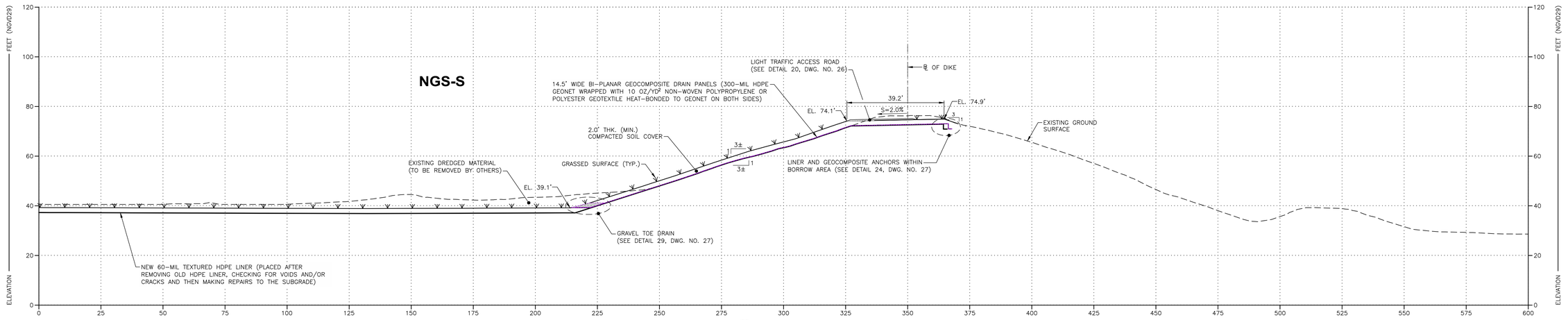
CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

NORTHWEST AND NORTHEAST RAMP FINAL GRADE DETAILS

DRAWING NO. 17

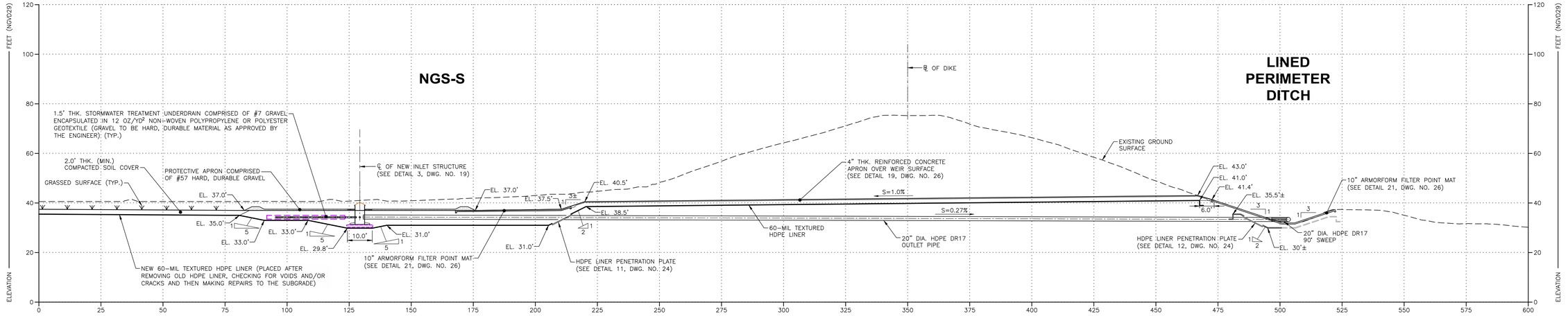
R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\17 NORTHWEST AND NORTHEAST RAMP FINAL GRADE DETAILS.dwg 2025/09/30 2:56 PM, FloresHerdoiza, Angelo



A | CROSS SECTION

SCALE: 1" = 20'

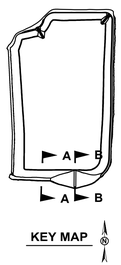
8	9
10	11
12	13
14	



B | CROSS SECTION

SCALE: 1" = 20'

8	9
10	11
12	13
14	



KEY MAP

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 38537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

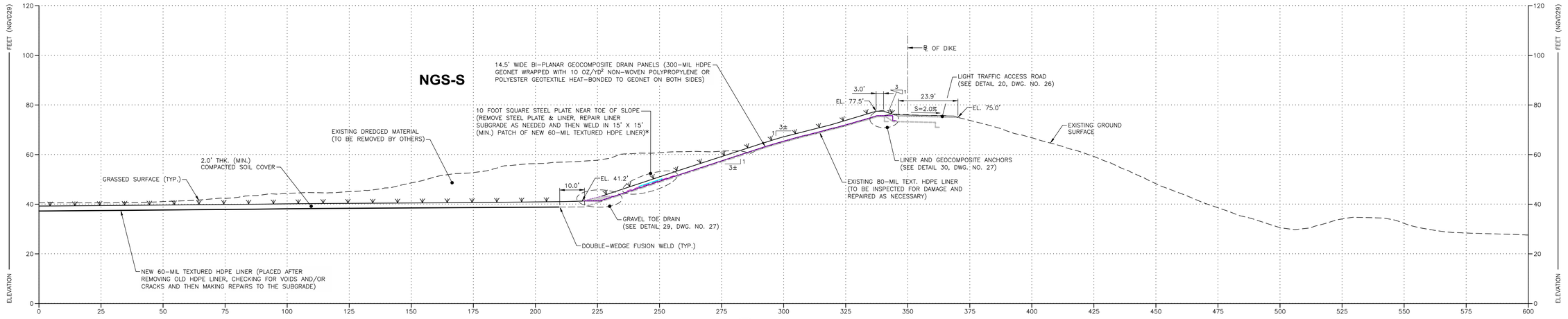
CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

CROSS SECTIONS A AND B

DRAWING NO. **18**

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\GROSS SECTIONS.dwg 2025/09/30 3:11 PM, Florestenbrocks, Angelo

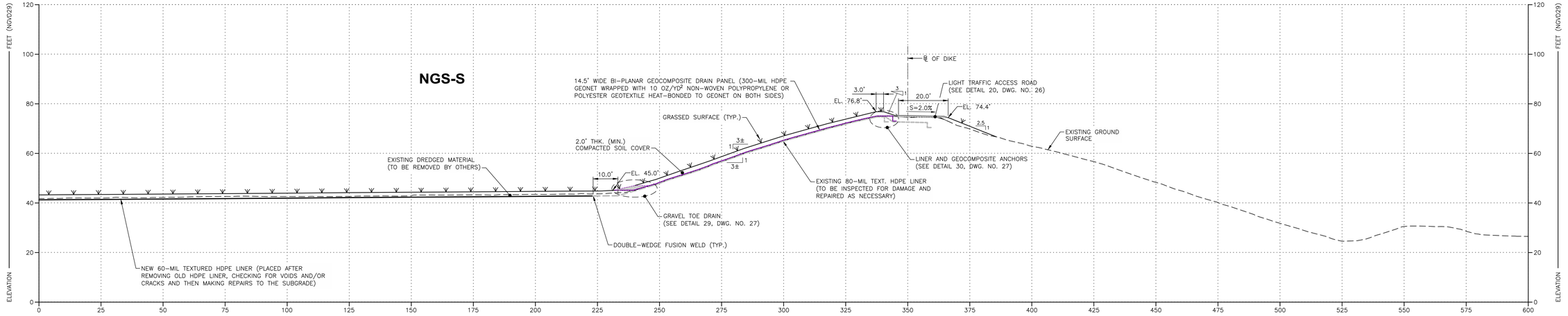


*LOCATION OF PLATE TO BE FIELD-VERIFIED

C CROSS SECTION

SCALE: 1" = 20'

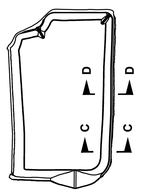
8	9
10	11
12	13
14	



D CROSS SECTION

SCALE: 1" = 20'

8	9
10	11
12	13
14	



KEY MAP

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 38537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
PO	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

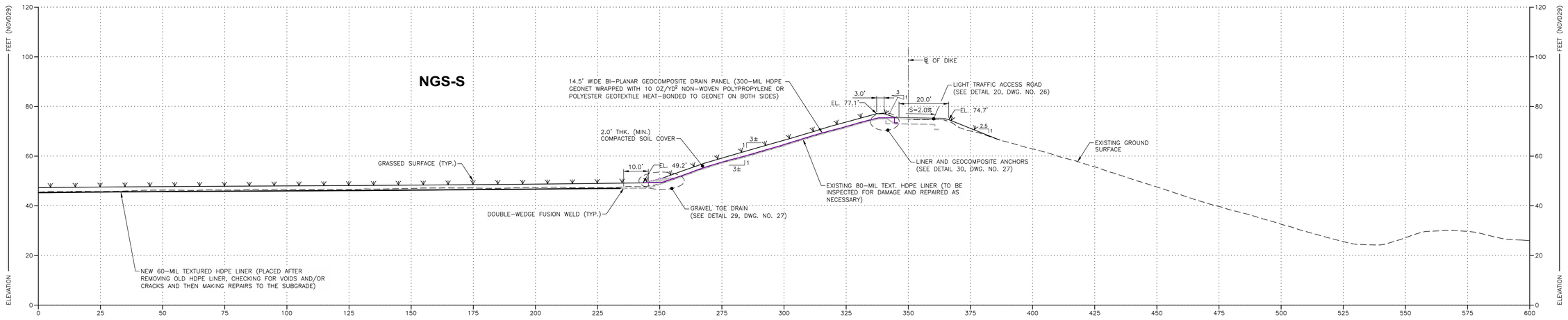
CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

CROSS SECTIONS C AND D

DRAWING NO. **19**

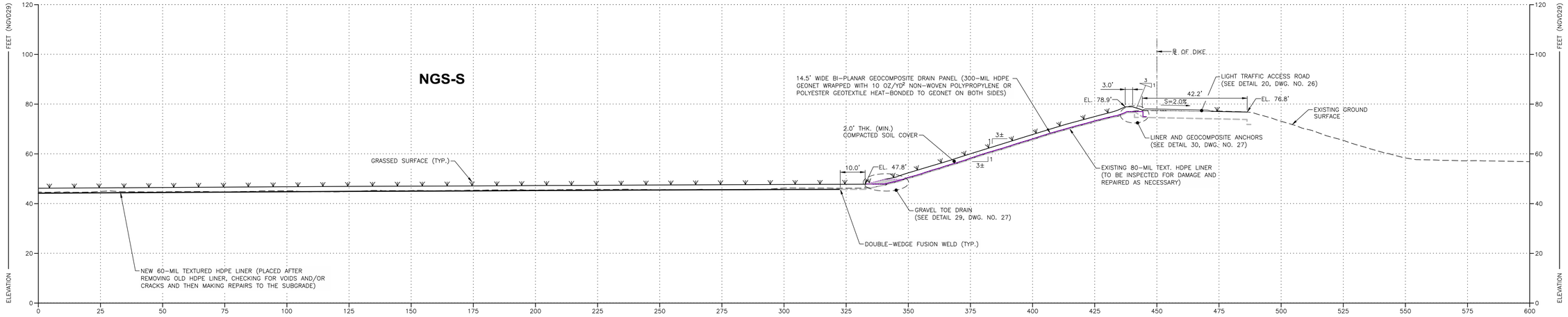
R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\CROSS SECTIONS.dwg 2025/09/30 3:12 PM, Florescherdavis, Angelo



E **CROSS SECTION**

SCALE: 1" = 20'

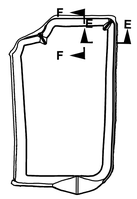
8	9
10	11
12	13
14	



F **CROSS SECTION**

SCALE: 1" = 20'

8	9
10	11
12	13
14	



KEY MAP

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

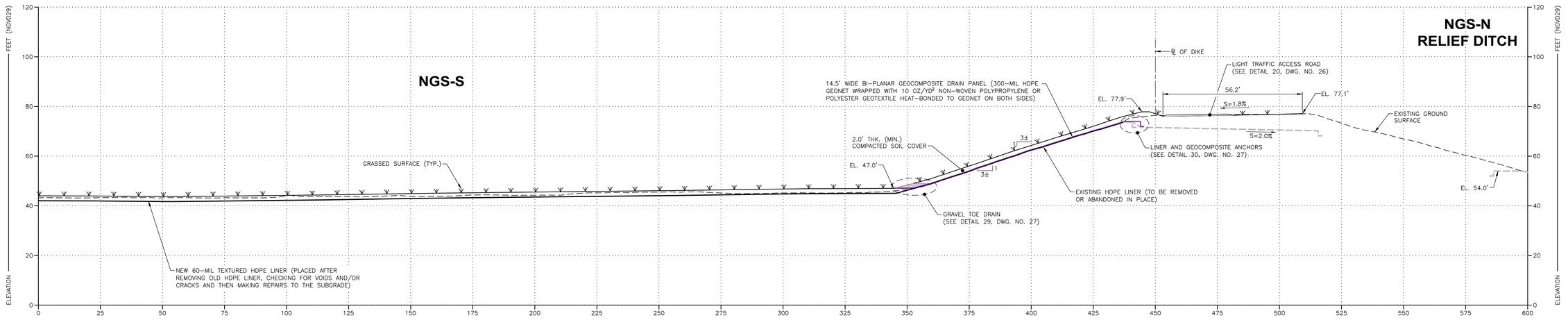
CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

CROSS SECTIONS E AND F

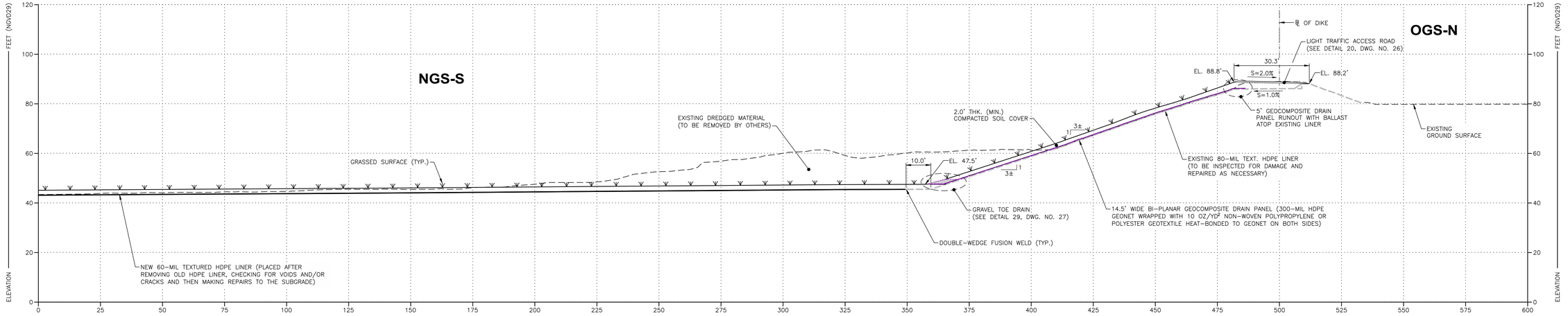
DRAWING NO. **20**

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\GROSS SECTIONS.dwg 2025/09/30 3:13 PM, Florestenbrdcss, Angelo



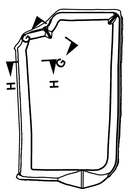
G CROSS SECTION

SCALE: 1" = 20'



H CROSS SECTION

SCALE: 1" = 20'



KEY MAP

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 38537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

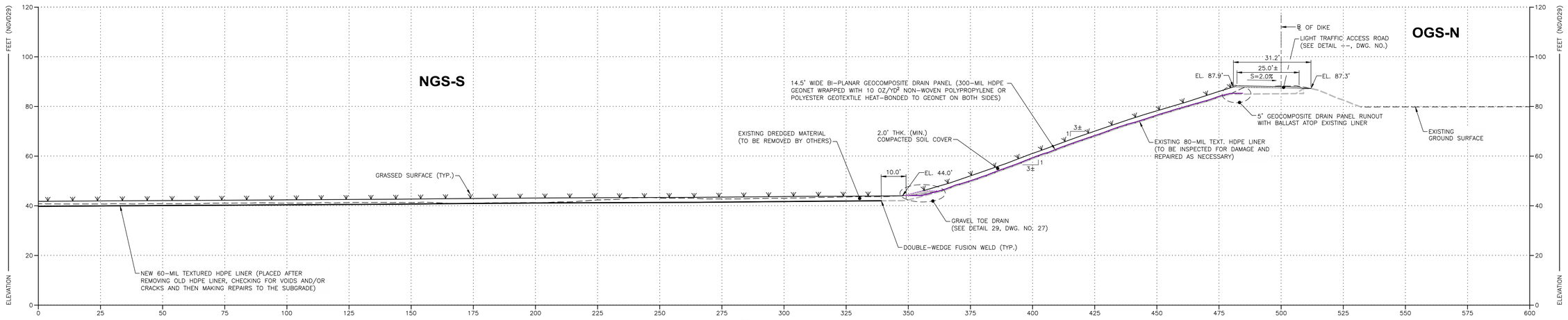
CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

CROSS SECTION G AND H

DRAWING NO. **21**

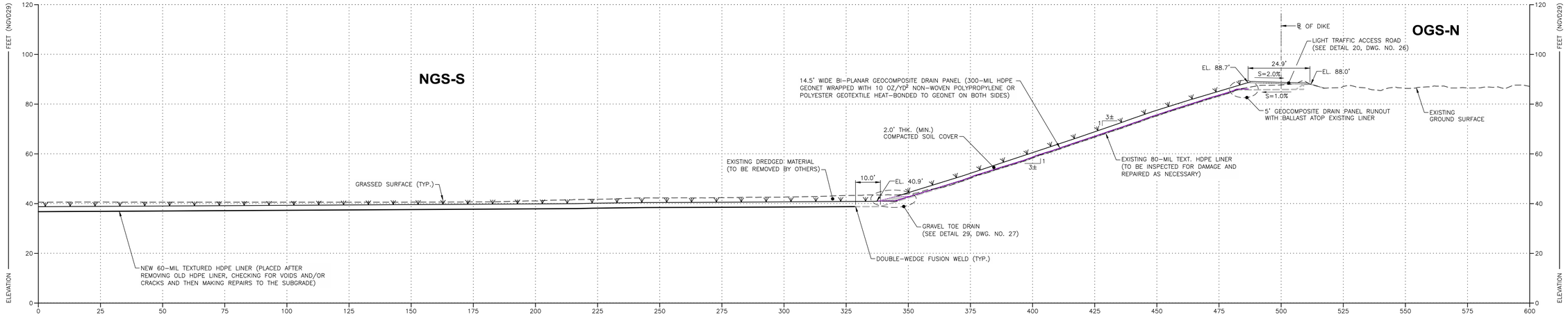
R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\CROSS SECTIONS.dwg 2025/09/30 3:14 PM, Florestenbrdzis, Angelo



I | 8 | 9 | 10 | 11 | 12 | 13 | 14

CROSS SECTION

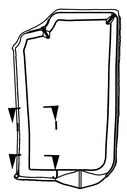
SCALE: 1" = 20'



J | 8 | 9 | 10 | 11 | 12 | 13 | 14

CROSS SECTION

SCALE: 1" = 20'



KEY MAP

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

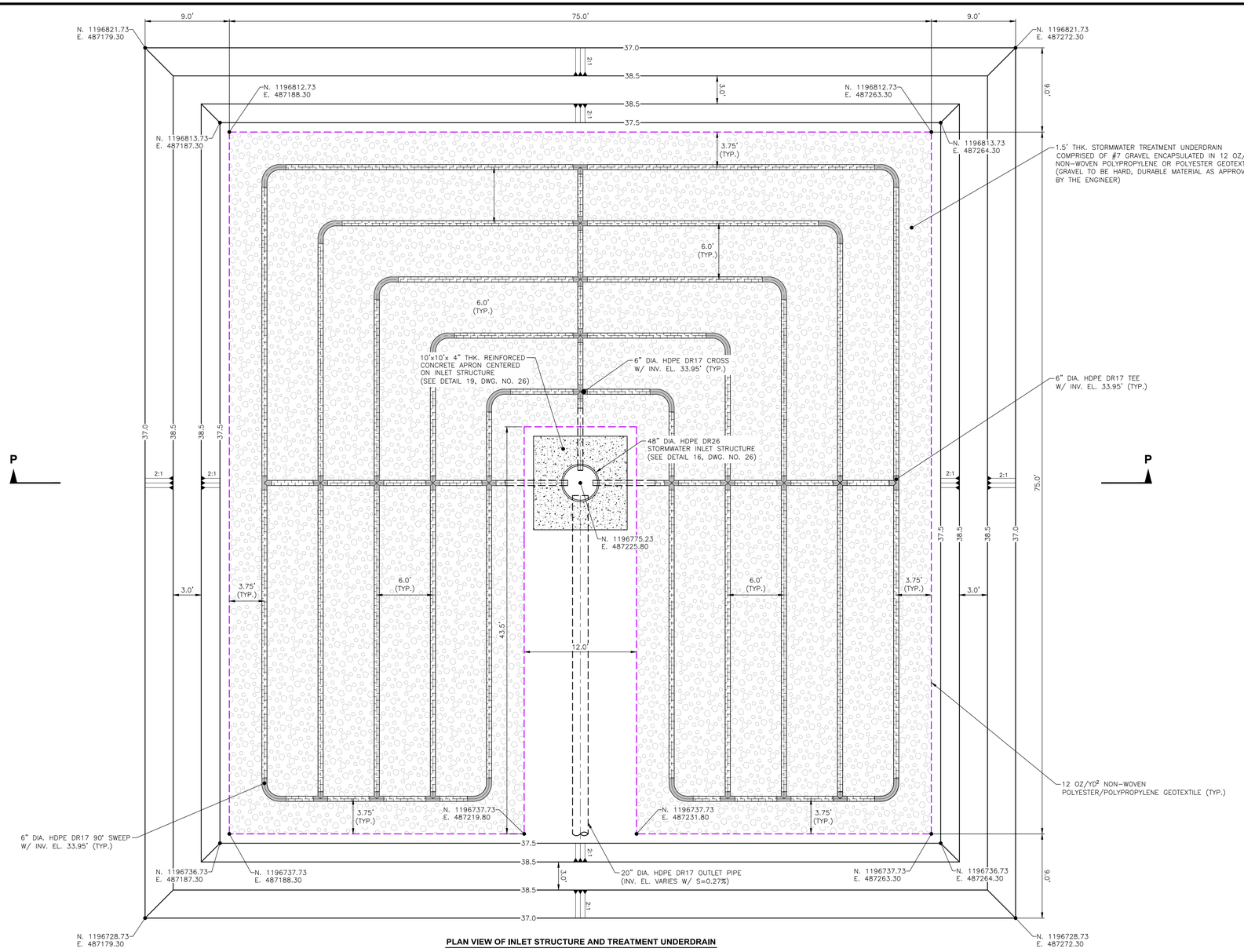
CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

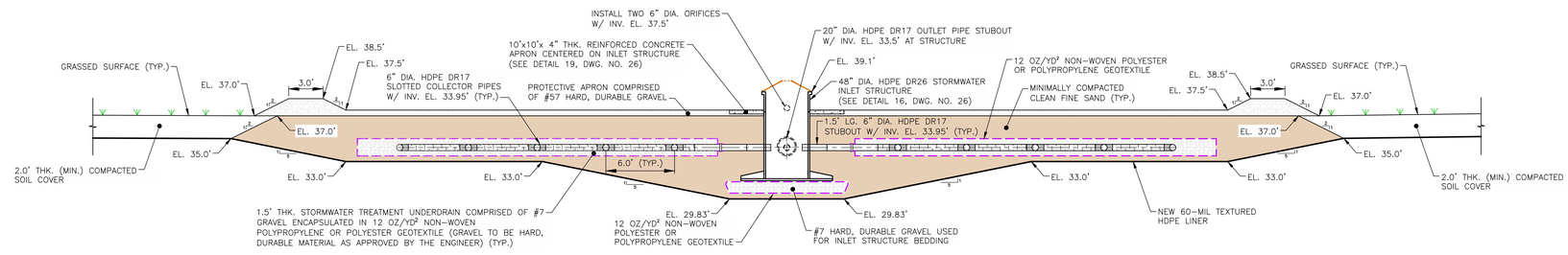
CROSS SECTION I AND J

DRAWING NO. **22**

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\GROSS SECTIONS.dwg 2025/09/30 3:19 PM, Florestenbrocks, Angelo



PLAN VIEW OF INLET STRUCTURE AND TREATMENT UNDERDRAIN



INLET STRUCTURE AND TREATMENT UNDERDRAIN PROFILE P-P

10 / 14 15 NEW STORMWATER INLET STRUCTURE AND TREATMENT AND UNDERDRAIN DETAILS

SCALE: 1" = 6'

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

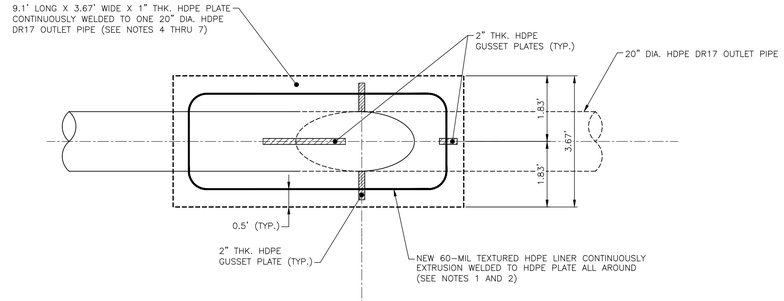
CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

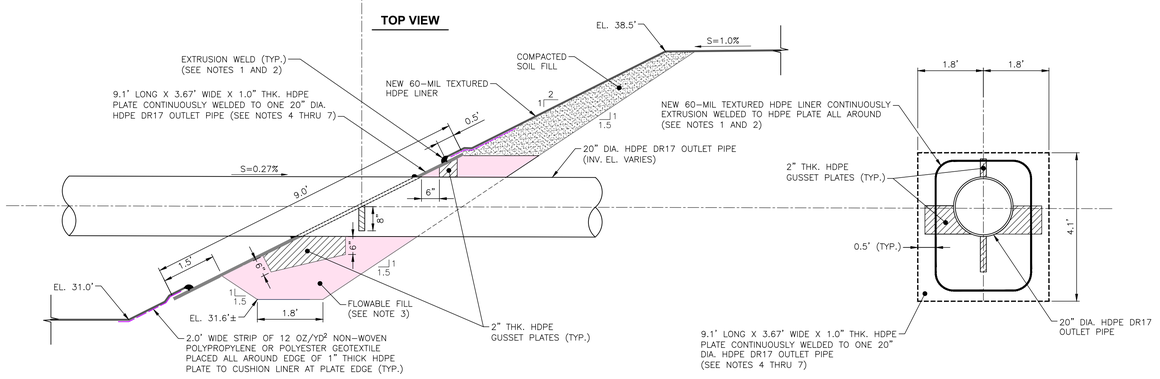
NEW STORMWATER INLET STRUCTURE AND TREATMENT UNDERDRAIN DETAILS

DRAWING NO. **23**

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\23 NEW STORMWATER INLET STRUCTURE AND TREATMENT UNDERDRAIN DETAILS.dwg 2025/09/30 2:57 PM, Al Muyaheed, Sarah



TOP VIEW

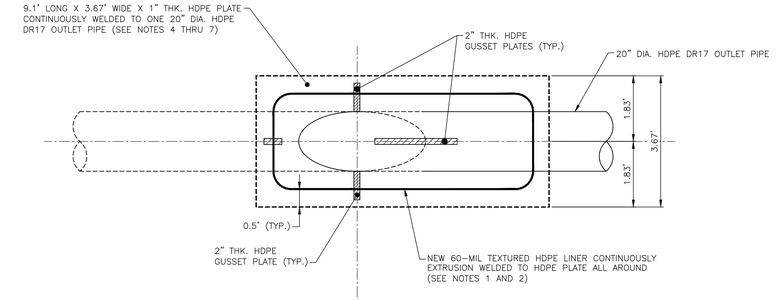


SIDE VIEW

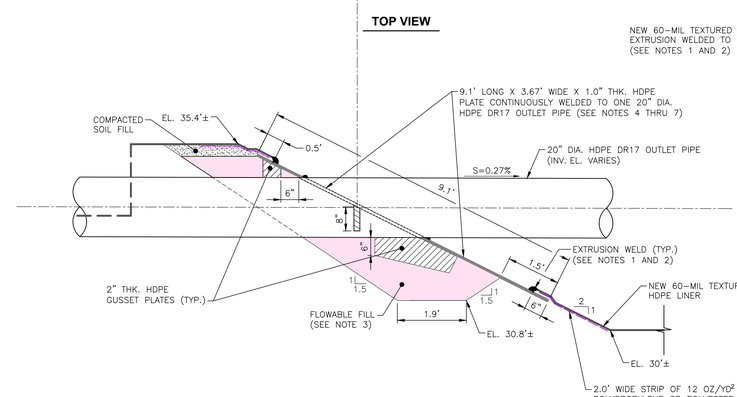
FRONT VIEW

11 NGS-S HDPE LINER PENETRATION PLATE DETAIL FOR 20-INCH DIA. OUTLET PIPE

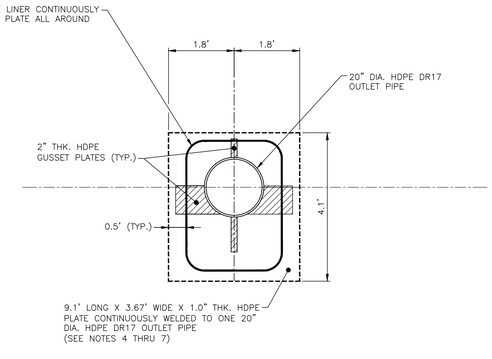
SCALE: 1" = 2'



TOP VIEW



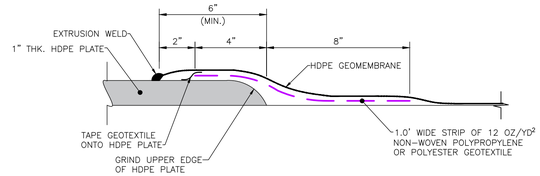
SIDE VIEW



FRONT VIEW

12 PERIMETER DITCH HDPE LINER PENETRATION PLATE DETAIL FOR 20-INCH DIA. OUTLET PIPE

SCALE: 1" = 2'



13 HDPE GEOMEMBRANE TO HDPE PLATE CONNECTION DETAIL

NOT TO SCALE

NOTES:

1. THE UPPER EDGE ALONG THE PERIMETER OF EACH HDPE PLATE SHALL BE MECHANICALLY GROUND TO CREATE A "ROUNDED OVER" SMOOTH CONDITION. THIS WILL HELP TO PROTECT THE GEOMEMBRANE AS IT TRANSITIONS FROM COMPACTED GYPSUM AND/OR SOIL TO THE HDPE PLATE.
2. A GEOMEMBRANE SHEET SHALL BE CENTERED OVER EACH HDPE PLATE TO INSURE THAT NO SEAMS OCCUR WITHIN THE LOCATION OF THE PLATE.
3. WHEN USING FLOWABLE FILL AS A FILL OPTION, ALL ASPECTS OF ITS DELIVERY AND PLACEMENT SHOULD BE CLOSELY MONITORED BY A REPRESENTATIVE OF THE ENGINEER. PREPARATION OF THE FILL AREAS SHOULD ALSO BE CLOSELY MONITORED AND CAREFULLY DOCUMENTED BY A REPRESENTATIVE OF THE ENGINEER. PROPER PREPARATION OF THE DESIGNATED FILL AREAS IS AS IMPORTANT AS A GOOD MIX DESIGN. PRIOR TO PLACEMENT OF THE FLOWABLE FILL, EACH HDPE PLATE NEEDS TO BE ADEQUATELY ANCHORED AND/OR WEIGHTED ALONG BOTH ITS SIDES AND BOTTOM EDGE TO EFFECTIVELY RESIST THE PRESSURES GENERATED BY THE FILL. ADDITIONALLY, FLOWABLE FILL SHOULD NEVER BE POURED IN AMBIENT TEMPERATURES AT OR BELOW 40 DEGREES FAHRENHEIT.
4. THE HDPE LINER PENETRATION PLATE AND THE HDPE BOTTOM PLATE SHALL BOTH BE FABRICATED FROM A SINGLE SHEET OF HDPE PLATE (I.E., NOT BY WELDING MULTIPLE SHEETS/PIECES TOGETHER).
5. ALL JOINTS BETWEEN THE HDPE PIPE, PLATE AND GUSSETS SHALL BE CONTINUOUSLY EXTRUSION WELDED ON ALL SIDES.
6. THE PLATE OPENING FOR THE PIPE SHALL BE BEVELED ON BOTH THE TOP AND BOTTOM.
7. COPPER WIRE SHALL BE PLACED WITHIN THE PIPE-TO-PLATE WELDS FOR SPARK TESTING.

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to, text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

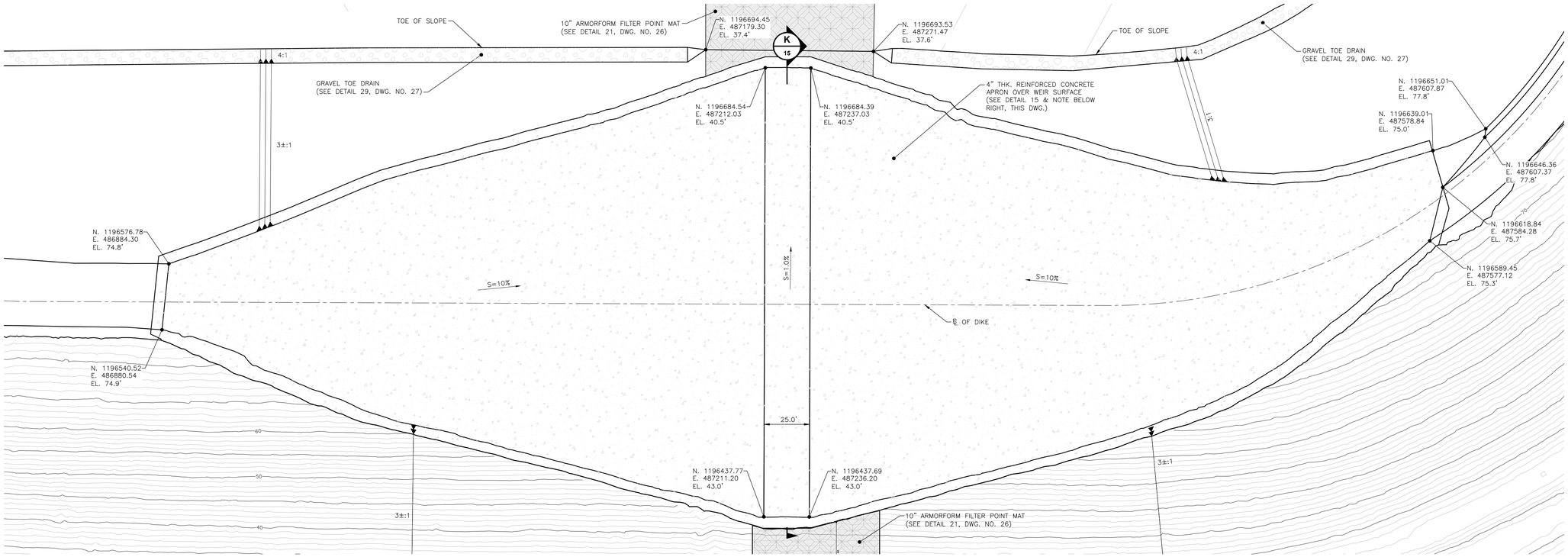
CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

LINER PENETRATION PLATE DETAILS FOR OUTLET PIPE

DRAWING NO. 24

R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\24 LINER PENETRATION PLATE DETAILS FOR OUTLET PIPE.dwg 2025/09/30 2:57 PM, Al Mujtahedu, Sarah



14 - **CONCRETE OVERFLOW WEIR DETAILS**

SCALE: 1" = 30'

N

0 30 60

SCALE: 1"=30'

TOPOGRAPHY BASED ON LIDAR SURVEY BY WOOLPERT, INC.

DATED APRIL 6, 2021
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

TOPOGRAPHY BASED ON LIDAR SURVEY BY SURVTECH, INC.

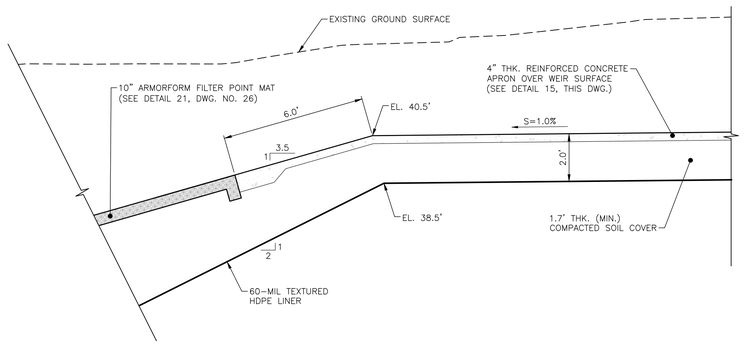
DATED MAY 01, 2025
VERTICAL DATUM NGVD29

CONTOUR INTERVAL: 1'

LEGEND

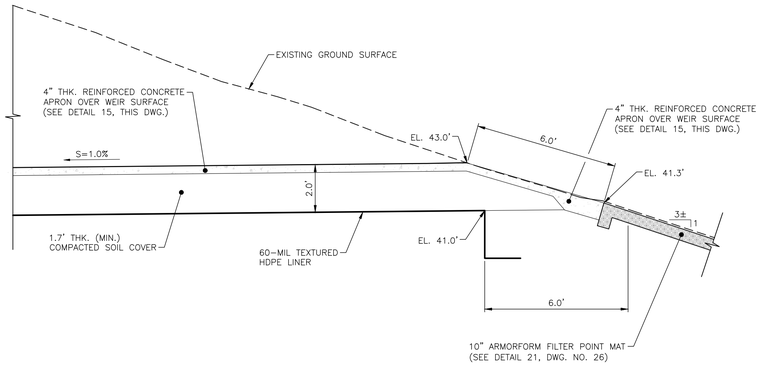
- 4" THK. REINFORCED CONCRETE APRON (APPROX. AREA = 119,880 FT²)
- 10" ARMORFORM FILTERPOINT MAT (APPROX. AREA = 16,550 FT²)

NOTE:
CONTROL JOINTS SHALL BE ADDED TO THE REINFORCED CONCRETE OVERFLOW APRON TO HELP MINIMIZE RANDOM CRACKING. THESE JOINTS SHALL BE AT LEAST ONE INCH DEEP AND CAN EITHER BE FORMED IN PLACE OR SAW-CUT WITHIN 6 TO 12 HOURS OF THE POUR. THEY SHOULD BE SPACED BETWEEN 12 AND 15 FEET APART IN BOTH DIRECTIONS (90 DEGREES APART). THE LAYOUT OF THE CONTROL JOINTS SHALL BE APPROVED BY THE ENGINEER PRIOR TO THE FIRST POUR.



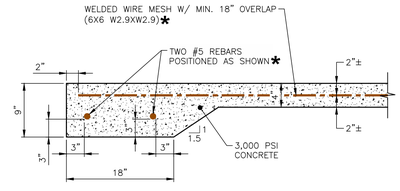
K 15 25 - **PROFILE OF INSIDE BOTTOM EDGE OF WEIR**

SCALE: 1" = 3'



K 15 25 - **PROFILE OF OUTSIDE BOTTOM EDGE OF WEIR**

SCALE: 1" = 3'



15 - **REINFORCEMENT DETAILS FOR OVERFLOW WEIR CONCRETE APRON**

SCALE: 1" = 1'

* ALL WWM AND REBAR SHALL BE SUFFICIENTLY SUPPORTED TO MAINTAIN THEIR POSITIONS AS SHOWN ABOVE DURING POURING OF THE CONCRETE.

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

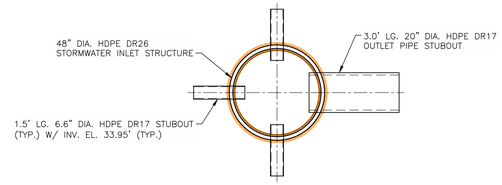
CONSTRUCTION DRAWINGS FOR CLOSURE OF NGS-S AT PINEY POINT PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

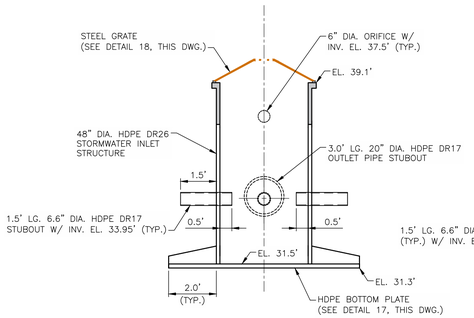
CONCRETE OVERFLOW WEIR DETAILS

DRAWING NO. 25

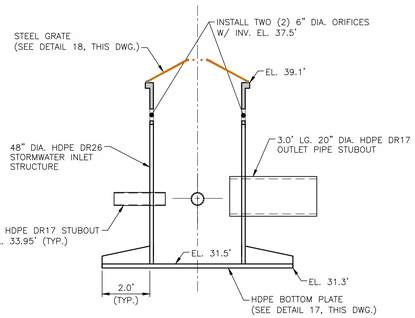
R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\25 CONCRETE OVERFLOW WEIR DETAILS.dwg 2025/09/30 2:58 PM, Al Mujaiheu, Sarah



PLAN VIEW OF STORMWATER INLET STRUCTURE WITH STUBOUTS



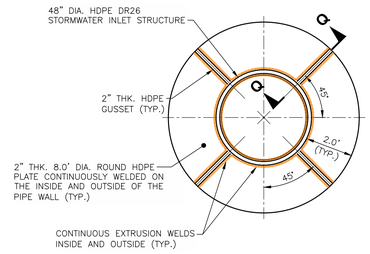
EAST-WEST PROFILE



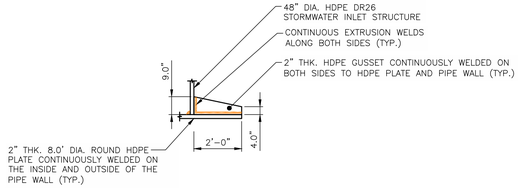
NORTH-SOUTH PROFILE

16 NEW NGS-S STORMWATER INLET STRUCTURE DETAILS

SCALE: 1" = 3'



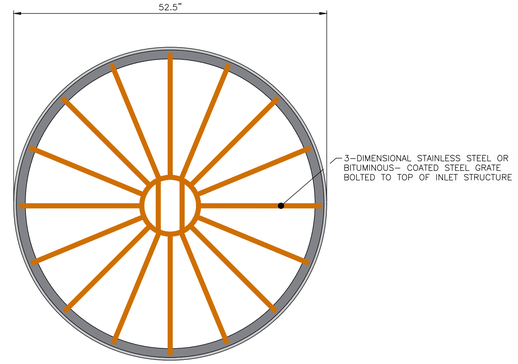
PLAN VIEW OF HDPE BOTTOM PLATE



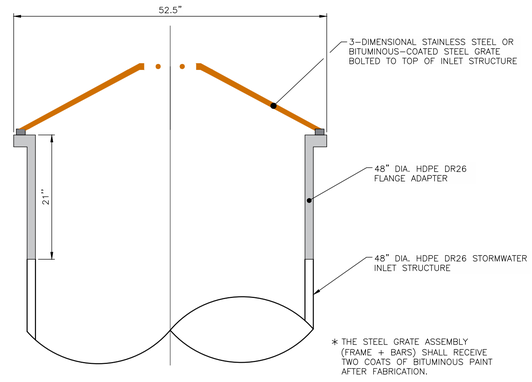
GUSSET PLATE PROFILE Q-Q

17 BOTTOM PLATE DETAILS FOR NEW STORMWATER INLET STRUCTURE

SCALE: 1" = 3'



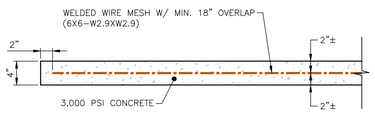
PLAN VIEW



PROFILE

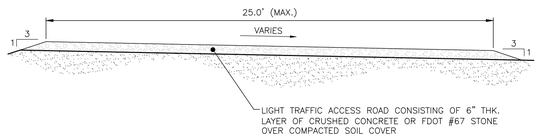
18 STEEL GRATE DETAIL

SCALE: 1" = 1'



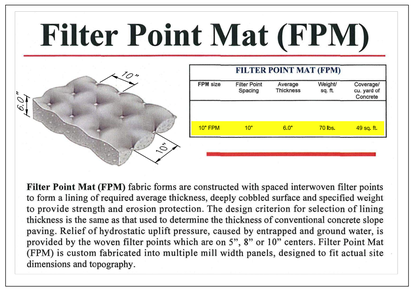
19 4-INCH THK. REINFORCED CONCRETE APRON DETAILS

SCALE: 1" = 1'



20 LIGHT ACCESS ROAD DETAIL

SCALE: 1" = 4'



21 10-INCH ARMORFORM (OR EQUIVALENT) FILTER POINT MAT DETAILS

SCALE: 1" = 1'

NOTES:

1. THE UPPER EDGE ALONG THE PERIMETER OF THE INLET STRUCTURE'S HDPE LINER PLATE SHALL BE MECHANICALLY GROUND TO CREATE A "ROUNDED OVER" SMOOTH CONDITION. THIS WILL HELP TO PROTECT THE GEOMEMBRANE AS IT TRANSITIONS FROM COMPACTED GYPSUM AND/OR SOIL TO THE HDPE PLATE.
2. A GEOMEMBRANE SHEET SHALL BE CENTERED OVER EACH HDPE PLATE TO INSURE THAT NO SEAMS OCCUR WITHIN THE LOCATION OF THE PLATE.
3. WHEN USING FLOWABLE FILL AS A FILL OPTION, ALL ASPECTS OF ITS DELIVERY AND PLACEMENT SHOULD BE CLOSELY MONITORED BY A REPRESENTATIVE OF THE ENGINEER. PREPARATION OF THE FILL AREAS SHOULD ALSO BE CLOSELY MONITORED AND CAREFULLY DOCUMENTED BY A REPRESENTATIVE OF THE ENGINEER. PROPER PREPARATION OF THE DESIGNATED FILL AREAS IS AS IMPORTANT AS A GOOD MIX DESIGN. PRIOR TO PLACEMENT OF THE FLOWABLE FILL, ADDITIONALLY, FLOWABLE FILL SHOULD NEVER BE POURED IN AMBIENT TEMPERATURES AT OR BELOW 40 DEGREES FAHRENHEIT.
4. THE HDPE LINER PLATE AND THE HDPE BOTTOM PLATE SHALL BOTH BE FABRICATED FROM A SINGLE SHEET OF HDPE PLATE (I.E., NOT BY WELDING MULTIPLE SHEETS/PIECES TOGETHER).
5. ALL JOINTS BETWEEN THE HDPE PIPE, THE HDPE LINER PLATE, THE HDPE BOTTOM PLATE AND THE HDPE GUSSETS SHALL BE CONTINUOUSLY EXTRUSION WELDED ON ALL SIDES.
6. THE LINER PLATE OPENING FOR THE PIPE SHALL BE BEVELED ON BOTH THE TOP AND BOTTOM.
7. COPPER WIRE SHALL BE PLACED WITHIN ALL PIPE-TO-PLATE WELDS FOR SPARK TESTING.

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Mosaic Fertilizer, LLC.
No other reproduction or use of this drawing without written authorization from Ardaman & Associates, Inc. is permitted.
The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

John E. Garfanger Ph.D., State of Florida, Professional Engineer, License No. 19782.

This item has been digitally signed and sealed by John E. Garfanger on the date indicated adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
P0	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: XX on -/-/-

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

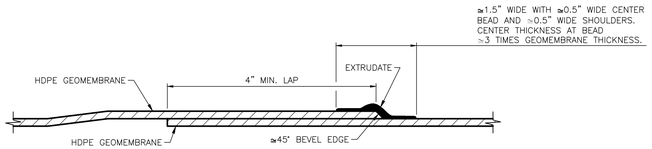
DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

CONSTRUCTION DRAWINGS FOR
CLOSURE OF NGS-S AT PINEY POINT
PHOSPHOGYPSUM STACK SYSTEM

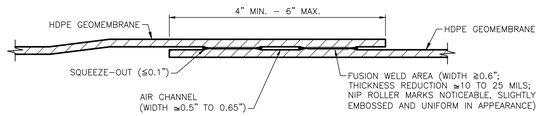
MANATEE COUNTY, FLORIDA

MISCELLANEOUS DETAILS 1

DRAWING NO. 26



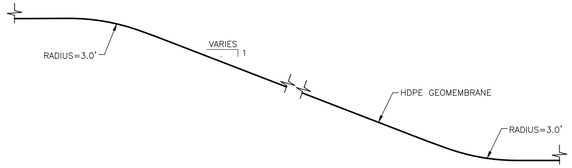
TYPICAL EXTRUSION FILLET WELD



TYPICAL DOUBLE-WEDGE FUSION WELD

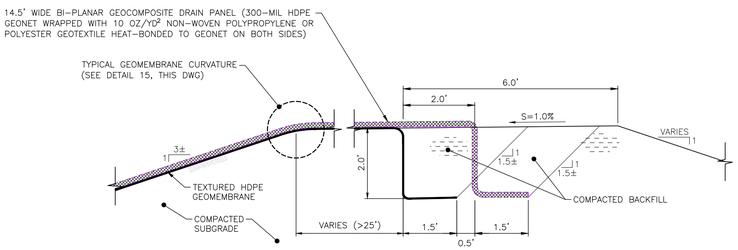
22 - GEOMEMBRANE FUSION AND EXTRUSION WELD DETAILS

SCALE: 1" = 1'



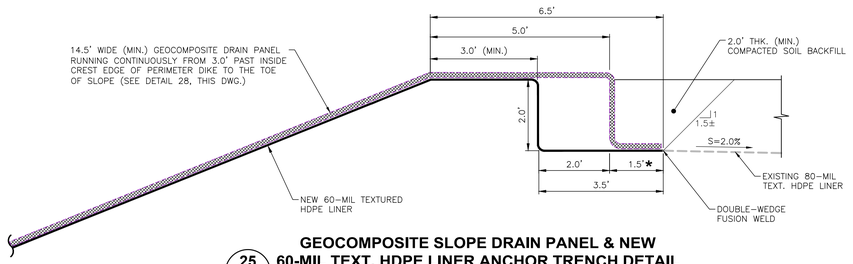
23 - TYPICAL TOP AND TOE OF SLOPE GEOMEMBRANE CURVATURE DETAIL

NOT TO SCALE



24 - TYPICAL GEOMEMBRANE & GEOCOMPOSITE SLOPE DRAIN PANEL ANCHOR TRENCH DETAIL WITHIN BORROW AREA

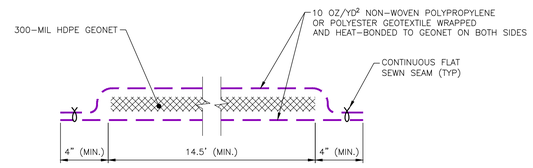
SCALE: 1" = 2'



25 - GEOCOMPOSITE SLOPE DRAIN PANEL & NEW 60-MIL TEXT. HDPE LINER ANCHOR TRENCH DETAIL

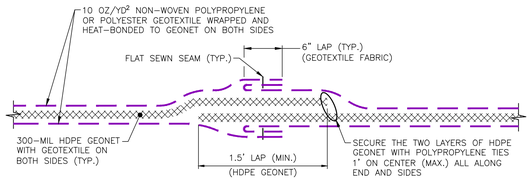
SCALE: 1" = 2'

★ EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGING THE NEW 60-MIL TEXT. HDPE LINER BEYOND THE LINER ANCHOR TRENCH.



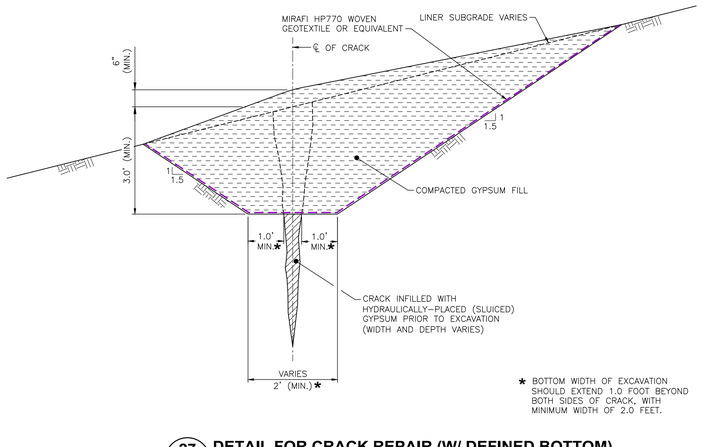
26 - GEOCOMPOSITE STRIP DETAIL-SIDE SEAMS

NOT TO SCALE



28 - GEOCOMPOSITE END-TO-END CONNECTION DETAIL

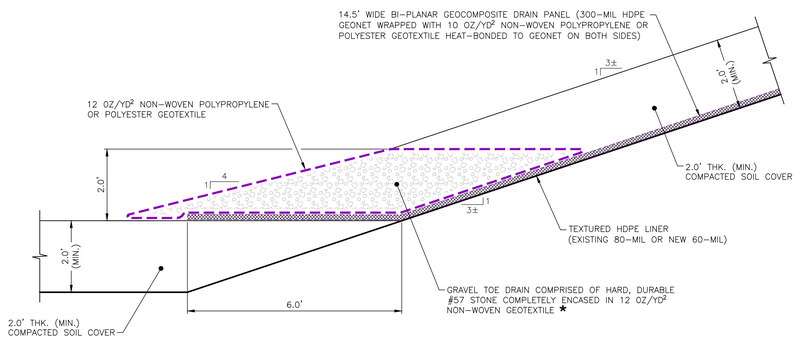
SCALE: 1" = 2'



★ BOTTOM WIDTH OF EXCAVATION SHOULD EXTEND 1.0 FOOT BEYOND BOTH SIDES OF CRACK, WITH MINIMUM WIDTH OF 2.0 FEET.

27 - DETAIL FOR CRACK REPAIR (W/ DEFINED BOTTOM)

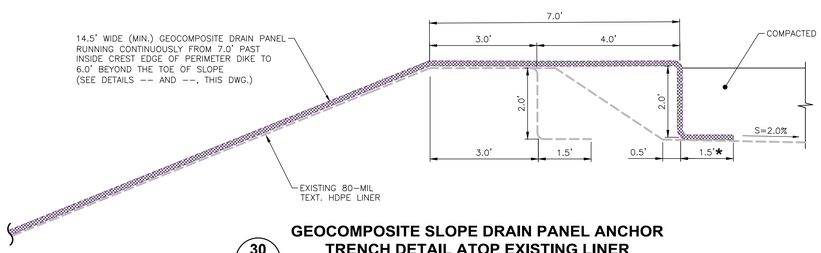
SCALE: 1" = 2'



29 - GRAVEL TOE DRAIN DETAIL

SCALE: 1" = 2'

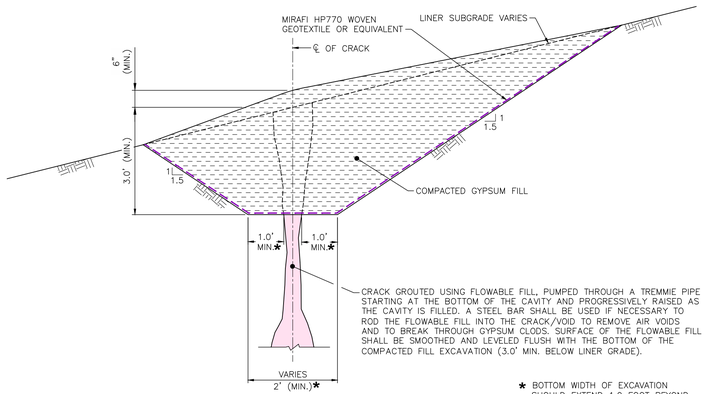
★ ONCE THE COMPACTED SOIL COVER HAS BEEN PLACED ON THE SLOPES ABOVE THE GRAVEL TOE DRAIN AND GRASSING OPERATIONS HAVE BEEN COMPLETED, THE 12 OZ/YD² NON-WOVEN GEOTEXTILE EXPOSED AT THE TOE CAN BE CUT AND REMOVED.



30 - GEOCOMPOSITE SLOPE DRAIN PANEL ANCHOR TRENCH DETAIL ATOP EXISTING LINER

SCALE: 1" = 2'

★ EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGING THE EXISTING 80-MIL TEXT. HDPE LINER BEYOND THE LINER ANCHOR TRENCH.



★ BOTTOM WIDTH OF EXCAVATION SHOULD EXTEND 1.0 FOOT BEYOND BOTH SIDES OF CRACK, WITH MINIMUM WIDTH OF 2.0 FEET.

31 - DETAIL FOR CRACK REPAIR (UNDEFINED BOTTOM)

SCALE: 1" = 2'

This drawing was produced by Ardaman & Associates, Inc. for the exclusive use by Donica Receivership Services, LLC. No other reproduction or use of this drawing or any of its content without written authorization from Ardaman & Associates, Inc. is permitted. The digital drawing or any of its contents may not be reasonably relied upon by others without independent verification of the drawing/drafting features, as some features, including but not limited to text, points and lines may not reflect actual design conditions.

Mohamad Al-Hawaree, State of Florida, Professional Engineer, License No. 58537.

This item has been digitally signed and sealed by Mohamad Al-Hawaree on the date adjacent to the signature.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION	DATE	DESCRIPTION	APPR'D
PO	09/30/25	ISSUED FOR BID	RR

	NAME	DATE		NAME	DATE
DESIGNED BY	WS	08/04/25	CHECKED BY	RR	09/29/25
DRAWN BY	AFH	08/04/25	CHECKED BY	RR	09/29/25

FILE NO.: 21-13-0031C SCALE: AS SHOWN

APPROVED BY: MOHAMAD AL-HAWAREE on --/--/--

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

CONSTRUCTION DRAWINGS FOR
CLOSURE OF NGS-S AT PINEY POINT
PHOSPHOGYPSUM STACK SYSTEM

MANATEE COUNTY, FLORIDA

MISCELLANEOUS DETAILS 2

DRAWING NO. 27

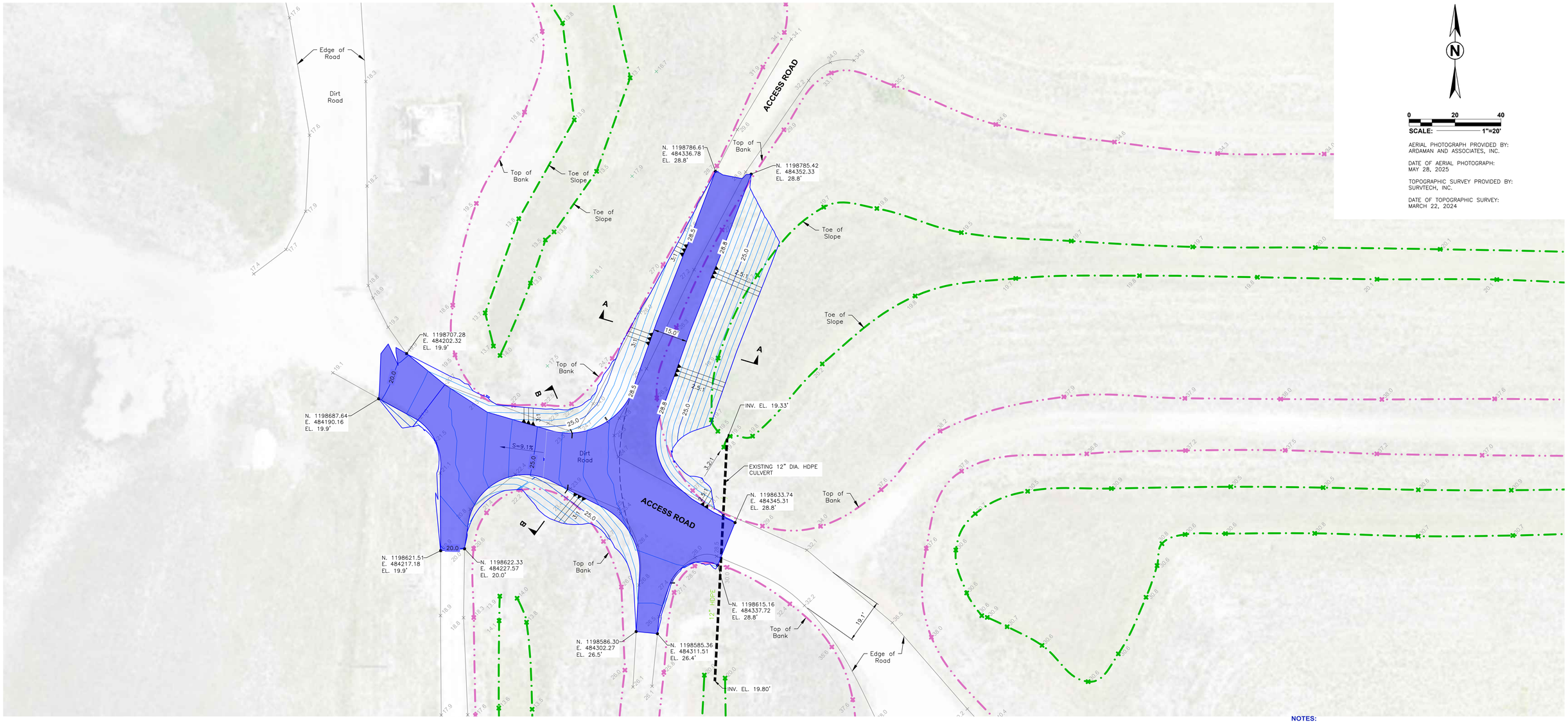
R:\Corporate\21\21-13-0031C\NGS-S CLOSURE DESIGN_Current Sheet Set\27 MISCELLANEOUS DETAILS 2.dwg 2025/09/30 2:58 PM Al Mojaheau, Sarah

ATTACHMENT III-B

CONSTRUCTION DRAWINGS

H&H PROJECT #8

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT PHOSPHOGYPSUM STACK SYSTEM
MANATEE COUNTY, FLORIDA

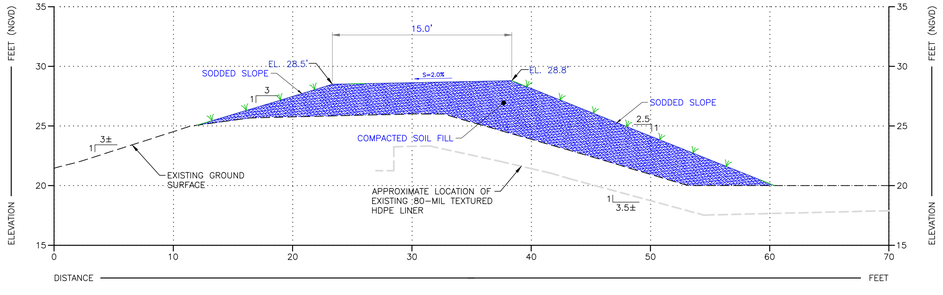


AERIAL PHOTOGRAPH PROVIDED BY:
ARDAMAN AND ASSOCIATES, INC.

DATE OF AERIAL PHOTOGRAPH:
MAY 28, 2025

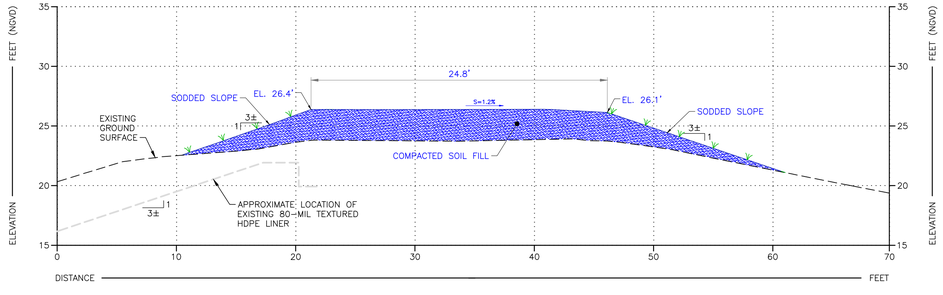
TOPOGRAPHIC SURVEY PROVIDED BY:
SURVTECH, INC.

DATE OF TOPOGRAPHIC SURVEY:
MARCH 22, 2024



CROSS SECTION A-A

SCALE: 1" = 6'



CROSS SECTION B-B

SCALE: 1" = 6'

NOTES:

1) BEFORE ANY FILL IS PLACED WITHIN THE SUBJECT CONSTRUCTION AREA, ALL GRASS AND OTHER ORGANICS SHALL BE REMOVED FROM THE EXISTING SURFACES AND PROPERLY DISPOSED OF AS DIRECTED BY THE RECEIVERSHIP AND/OR ENGINEER.
2) THE 2.5 HORIZONTAL TO 1.0 VERTICAL SLOPE ON CROSS SECTION A-A SHALL BE TERMINATED A MINIMUM OF 5.0 FEET FROM THE NORTHERN END OF THE 12" DIA. HDPE CULVERT.
3) ALL SOIL FILL SHALL BE COMPACTED TO A DRY DENSITY EQUAL TO OR GREATER THAN 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698) WITHIN ±2 PERCENT OF THE OPTIMUM WATER CONTENT.
4) ALL FINISHED SLOPE SURFACES SHALL BE SODDED.
5) RE-ESTABLISH ROAD CAP MATERIAL ON ALL NEWLY CREATED TRAFFICABLE ACCESS ROADS.
6) ALL PROPOSED IMPROVEMENTS ARE DRAWN IN BLUE.

RAISE ACCESS ROAD TO ELEVATION 28.8' (NGVD 29)

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants

DONICA RECEIVERSHIP SERVICES, LLC
301 W. PLATT ST., #A 410
TAMPA, FL 33606

SECTION 5.4. OF THE REVISIONS TO THE 2022 CONCEPTUAL STORMWATER MANAGEMENT SYSTEM REPORT OF AUGUST 28, 2024, IMPROVEMENT RECOMMENDATIONS.

DRAWN BY:	CHECKED BY:	DATE:
SA	DTC	08/12/25

FILE NO.	APPROVED BY:	FIGURE:
21-13-0031C1	RR	ITEM 8

R:\Corporate\21\21-13-0031C1\H & H RELATED ITEMS\8 RAISE THE ROAD TO ELEVATION 28.5-FEET (NGVD29)\NO. 8 - RAISE THE ROAD TO ELEVATION 28.5 FEET - WORKING SC - REV 01.dwg 2025/08/12 6:04 PM, by sarah.almujadhedu

ATTACHMENT IV

TECHNICAL SPECIFICATIONS AND CONSTRUCTION QUALITY ASSURANCE PLAN

CLOSURE OF NGS-S POND

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT PHOSPHOGYPSUM STACK SYSTEM
MANATEE COUNTY, FLORIDA

TECHNICAL SPECIFICATIONS AND CONSTRUCTION QUALITY ASSURANCE PLAN

PINEY POINT STACK SYSTEM CLOSURE

Donica Receivership Services, LLC
Piney Point Facility
Manatee County, Florida

Prepared By:

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
C.A.N.: 5950

Mohamad Al-hawaree, P.E., P.Eng.
President, Senior Consultant
Florida License No. 58537

Revision	Date	Description
P0	10/06/2025	Issued for Bid – NGS-S Closure

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

TABLE OF CONTENTS

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

SECTION 1 LIST OF SPECIFICATION SECTIONS **1**
SECTION 2 INTENT **1**
SECTION 3 CONSTRUCTION DRAWINGS **1**
SECTION 4 CONTRACTORS UNDERSTANDING **1**

4.1 Conditions and Nature of Work 1
4.2 Safety 2
4.3 Surveying and Layout of the Work 2
4.4 Site Access 3
4.5 Materials 4
4.6 Installation of the Receiver-Supplied Material 4
4.7 Protection of Existing Facilities 5
4.8 Workmanship 5
4.9 Rejected Work 5
4.10 Retesting 5
4.11 Weather 5

SECTION 5 GENERAL PROVISIONS **1**

5.1 Access, Inspection and Testing 1
5.2 Engineering Data 2
5.3 Drawings and Specifications 2
5.4 Right to Change Location and Drawings 3
5.5 As-Built Drawings 3
5.6 Disposal of Gypsum and Soils 3
5.7 Demolition of Existing Structures and Disposal of Debris 3
5.8 Daily and Final Clean-Up 4
5.9 Water Supply 4
5.10 Contractor's Facilities and Utilities 4

SECTION 6 EARTHWORK WITH SOIL AND GYPSUM **1**

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

6.1 Description of Work 1
6.2 Referenced Standards 2
6.3 Clearing, Grubbing, and Stripping 3
6.4 Source of Gypsum Borrow 3
6.5 Source of Earthen Borrow 4
6.6 Source of Sand Tailings (If Needed) 4
6.7 Layout of the Work 4
6.8 Grading Tolerances 5

6.8.1 Vertical Tolerances 5
6.8.2 Horizontal Tolerances 5

6.9 Material Requirements 5

6.9.1 Random Gypsum Fill 5
6.9.2 Select Gypsum Fill 6
6.9.3 General Soil Fill 6
6.9.4 Select Soil Fill 7
6.9.5 Clean Sand Tailings Fill 7

6.10 Dewatering and Surface Water Control 8
6.11 Ditches and Flat Areas Grading 9

6.11.1 Stormwater Conveyance Channels, Toe Runoff Collection Ditch, Mid-slope Swales and Flat Top Areas 9
6.11.2 Dewatering Ditches and Dike Restoration 9
6.11.3 Compaction Criteria 10

6.12 Dust Control 10
6.13 Dike Construction and Side Slopes Grading 11

6.13.1 Construction Procedure 11
6.13.2 Compaction Criteria 12

6.14 Gypsum Cracks Repair 12
6.15 Preparation of Surfaces to Receive Liner 13

6.15.1 Construction 13
6.15.2 Compaction Criteria 13
6.15.3 Maintenance 13

6.16 Placement of Soil Cover Over Liner 14

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

6.16.1 Construction Procedure 14
6.16.2 Compaction Criteria 15

6.17 Pipe Bedding and Trench Backfill 16

6.17.1 Trench Backfill (Slope/Trench Drain) 16
6.17.2 Trench Drain Cap and Fill above Backfilled Trench (Slope/Trench Drain) 16
6.17.3 Pipe Bedding and Backfill 16

6.18 Updating Cut and Fill Quantities 17
6.19 Quality Control Inspection and Testing 17
6.20 Submittals 19

SECTION 7 HDPE LINER MATERIALS 1

7.1 Description of Work 1
7.2 Referenced Standards 1

7.2.1 Geomembrane Standards 1
7.2.2 Soils Standards 3

7.3 Material Requirements 3

7.3.1 Base Resin 4
7.3.2 Welding Rod 5
7.3.3 Physical Appearance of Liner Sheets 5
7.3.4 Smooth Liner Physical Properties 5
7.3.5 Textured Liner Physical Properties 8
7.3.6 Frictional Characteristics 9

7.4 Manufacturing and Factory Quality Control Inspection and Testing 10

7.4.1 Minimum Sheet Dimensions 10
7.4.2 Marking and Packaging 11
7.4.3 Factory Inspection and Spark Testing 11
7.4.4 Factory Quality Control Testing and Monitoring 12

7.5 Quality Assurance Testing 14

7.5.1 Sampling by Liner Manufacturer 14
7.5.2 Quality Assurance Testing by Engineer 15
7.5.3 Sampling by Liner Contractor 16

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

7.6 Material Warranty....16
7.7 Submittals....16

SECTION 8 HDPE LINER INSTALLATION 1

8.1 Description of Work.... 1
8.2 Referenced Standards.... 2
8.3 Surface Water Control and Base Maintenance.... 2
8.4 Liner Handling and Installation.... 3

8.4.1 On-Site Storage.... 3
8.4.2 Handling and Panel Placement.... 3
8.4.3 Field Seams.... 4
8.4.4 Anchor Trenches.... 9
8.4.5 Temporary Ballast Loading.... 9
8.4.6 Liner Penetrations....10
8.4.7 Repairs....11
8.4.8 Liner Protection....11
8.4.9 Fuel and Oil Spill Clean-Up....11

8.5 Inspection and Field Testing by Liner Contractor....12

8.5.1 Initial Qualifying Welds....12
8.5.2 Daily Qualifying Welds....12
8.5.3 Non-Destructive Testing of Welds....13
8.5.4 Sampling and Destructive Testing....14
8.5.5 Visual Inspection....15
8.5.6 Quality Assurance Forms....15
8.5.7 Certification....15

8.6 Quality Control Inspection and Testing by Engineer....15

8.6.1 Base Maintenance and Repair during Liner Installation....15
8.6.2 Liner Installation....16
8.6.3 Destructive Testing....17

8.7 Insurance....17
8.8 Warranty....18
8.9 As-Built Drawings....18
8.10 Submittals....18

SECTION 9 HDPE PIPE AND FITTINGS 1

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

9.1 Description of Work 1
9.2 Referenced Standards 1
9.3 Material Requirements 3

9.3.1 Base Resin 3
9.3.2 Physical Appearance 3
9.3.3 Physical Properties 4
9.3.4 Pipe Sizes 4
9.3.5 Slotted Pipe 5
9.3.6 Fabricated Fittings 5
9.3.7 Molded Fittings 6
9.3.8 Electrofusion Fittings 6
9.3.9 Cold Bends 6
9.3.10 HDPE Plate for Liner Penetrations 7
9.3.11 Approved Manufacturers 7
9.3.12 Marking and Packaging 7

9.4 Storage and Handling 7
9.5 Joint Requirements and Pressure Testing 8
9.6 Laying and Installation 10

9.6.1 HDPE Pipe and Fittings 10
9.6.2 Pipe Vents 10
9.6.3 Pipe Seepshields 11
9.6.4 Liner Pipe Penetrations 11
9.6.5 HDPE Structures 11

9.7 Protection and Repairs 11
9.8 Quality Assurance Monitoring and Testing 11
9.9 Submittals 13

SECTION 10 CORRUGATED HDPE PIPES AND FITTINGS 1

10.1 Description of Work 1
10.2 Referenced Standards 1
10.3 Material Requirements 2

10.3.1 Base Resin 2
10.3.2 Physical Appearance 2
10.3.3 Perforations 3

10.4 Storage and Handling 3
10.5 Pipe Fitting and Joint Requirements 3

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

10.6 Laying and Installation 4

10.6.1 Geocomposite-Wrapped Pipe Installation 5

10.7 Protection and Repairs 5
10.8 Quality Assurance Monitoring and Testing 5
10.9 Submittals 6

SECTION 11 AGGREGATES **1**

11.1 Description of Work 1
11.2 Referenced Standards 1
11.3 Material Requirements 2

11.3.1 Silica Gravel 2
11.3.2 Coarse Sand 3
11.3.3 Fine Sand 4
11.3.4 Hard, Durable Coarse Aggregate 5

11.4 Placement and Compaction 6
11.5 Quality Assurance Monitoring and Testing 7
11.6 Submittals 7

SECTION 12 NON-WOVEN GEOTEXTILE **1**

12.1 Description of Work 1
12.2 Referenced Standards 1
12.3 Material Requirements 2
12.4 Factory Quality Control Testing and Inspection 3

12.4.1 Factory Testing 3
12.4.2 Factory Inspection 4
12.4.3 Marking and Packaging 4

12.5 Storage, Handling and Installation 4

12.5.1 Storage and Handling 4
12.5.2 Laying and Installation 4
12.5.3 Field Seams 5
12.5.4 Repairs 6

12.6 Sampling and Inspection by Contractor 6

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

12.6.1 Sampling 6
12.6.2 Visual Inspection 6

12.7 Quality Assurance Monitoring and Testing 6
12.8 Submittals 7

SECTION 13 HIGH-STRENGTH WOVEN GEOTEXTILE 1

13.1 Description of Work 1
13.2 Referenced Standards 1
13.3 Material Requirements 2
13.4 Factory Quality Control Testing and Inspection 3

13.4.1 Factory Testing 3
13.4.2 Factory Inspection 3
13.4.3 Marking and Packaging 3

13.5 Storage, Handling and Installation 4

13.5.1 Storage and Handling 4
13.5.2 Laying and Installation 4
13.5.3 Field Seams 5
13.5.4 Repairs 5

13.6 Sampling and Inspection by Contractor 5

13.6.1 Sampling 5
13.6.2 Visual Inspection 5

13.7 Quality Assurance Monitoring and Testing 6

13.7.1 Sampling by Geotextile Manufacturer 6
13.7.2 Quality Assurance Inspection and Testing by Engineer 6

13.8 Submittals 7

SECTION 14 BI-PLANAR HDPE GEONET-GEOTEXTILE COMPOSITE 1

14.1 Description of Work 1
14.2 Referenced Standards 1
14.3 Material Requirements 3

14.3.1 HDPE Geonet 3

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

14.3.2 Geotextile 4
14.3.3 Geonet-Geotextile Composite 5

14.4 Factory Quality Control Testing and Inspection 6

14.4.1 Factory Testing 6
14.4.2 Factory Inspection 8
14.4.3 Marking and Packaging 8

14.5 Handling and Installation 8

14.5.1 Storage and Handling 8
14.5.2 Laying and Installation 9
14.5.3 Geotextile Field Seams 10
14.5.4 Geotextile Repairs 10
14.5.5 Fill Placement Procedures 11

14.6 Sampling and Inspection by Contractor 11

14.6.1 Sampling 11
14.6.2 Visual Inspection 11

14.7 Quality Assurance Monitoring and Testing 12
14.8 Submittals 13

SECTION 15 GRASSING **1**

15.1 Description of Work 1
15.2 Referenced Standards 1
15.3 General 2
15.4 Ground Preparation and Fertilizer Application 2
15.5 Grassing by Seeding 3
15.6 Mulching 4
15.7 Grassing by Sodding 4
15.8 Watering 5
15.9 Fertilizer 5
15.10 Maintenance 6
15.11 Submittals 6

SECTION 16 CONCRETE EROSION CONTROL MAT **1**

16.1 Description of Work 1
16.2 Referenced Standards 1

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

16.3 Material Requirements 2

16.3.1 Filter Point Lining Fabric 2
16.3.2 Grout 2
16.3.3 Non-Woven Geotextile 2

16.4 Installation Procedures 3
16.5 Quality Assurance Monitoring and Testing 3
16.6 Submittals 4

SECTION 17 CONCRETE AND REINFORCING STEEL 1

17.1 Description of Work 1
17.2 Reference Standards 1
17.3 General Requirements 2

17.3.1 Product Handling 2
17.3.2 Formwork 3
17.3.3 Design and Construction of Forms 3
17.3.4 Removal of Forms 4

17.4 Reinforcing Steel 4
17.5 Cast-in-Place Concrete 5

17.5.1 General 5
17.5.2 Documentation 5
17.5.3 Concrete 6
17.5.4 Preparation 6
17.5.5 Placing Concrete 6
17.5.6 Finishing 7
17.5.7 Curing 7
17.5.8 Hot Weather Requirements 8
17.5.9 Cold Weather Requirements 8
17.5.10 Defective Work 9

17.6 Quality Assurance Monitoring and Testing 9
17.7 Submittals 9

SECTION 18 ANCILLARY ITEMS AND MATERIALS 1

18.1 Referenced Standards 1
18.2 Erosion and Sedimentation Control 2

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

18.2.1 Maintenance 2
18.2.2 Inspection 2

18.3 Stainless Steel Hardware 2
18.4 Excavation Warning Barrier 3
18.5 Steel Inlet Grate 3
18.6 Concrete Rubble Rip-Rap and Coarse Aggregates 3
18.7 Pre-Mix Concrete Bags 3
18.8 Flowable Fill 4

18.8.1 Material Requirements 4
18.8.2 Design Mix Submittal 4
18.8.3 Mixing 4
18.8.4 Placement 4
18.8.5 Inspection and Testing by the Engineer 5

18.9 Submittals 5

SECTION 19 DAILY AND FINAL CLEANUP 1

19.1 House Keeping and Refuse Disposal 1
19.2 Gypsum and Process Water Contaminated Materials 1
19.3 Unused Materials 2
19.4 Restoration of Disturbed Areas 2

SECTION 20 SITE LIMITATIONS 1

20.1 The Receiver's Activities and Other Construction 1
20.2 Contact with Gypsum and Process Water 1
20.3 Existing Facilities 2

SECTION 21 CONSTRUCTION SCHEDULE 1

21.1 Work Hours 1
21.2 Schedule 1
21.3 Construction Duration 1

SECTION 22 FINAL INSPECTION AND ACCEPTANCE 1

22.1 Final Inspection 1
22.2 Letter of Acceptance 1
22.3 Material and Workmanship Warranties 1

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SECTION 23 SCHEDULING AND COORDINATION 1

23.1 Pre-Construction Coordination Meeting 1
23.2 Correspondence with the Receiver 1
23.3 Correspondence with Engineer 2
23.4 Coordination by the Contractor, Subcontractor(s) and Suppliers 2
23.5 Weekly Construction Meetings 3
23.6 Daily Construction Meetings 3

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 1
LIST OF SPECIFICATION SECTIONS

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

Section	Title
1	LIST OF SPECIFICATION SECTIONS
2	INTENT
3	CONSTRUCTION DRAWINGS
4	CONTRACTORS UNDERSTANDING
5	GENERAL PROVISIONS
6	EARTHWORK WITH SOIL AND GYPSUM
7	HDPE LINER MATERIALS
8	HDPE LINER INSTALLATION
9	HDPE PIPE AND FITTINGS
10	CORRUGATED HDPE PIPES AND FITTINGS
11	AGGREGATES
12	NON-WOVEN GEOTEXTILE
13	HIGH-STRENGTH WOVEN GEOTEXTILE
14	BI-PLANAR HDPE GEONET-GEOTEXTILE COMPOSITE
15	GRASSING
16	CONCRETE EROSION CONTROL MAT
17	CONCRETE AND REINFORCING STEEL

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Section	Title
18	ANCILLARY ITEMS AND MATERIALS
19	DAILY AND FINAL CLEANUP
20	SITE LIMITATIONS
21	CONSTRUCTION SCHEDULE
22	FINAL INSPECTION AND ACCEPTANCE
23	SCHEDULING AND COORDINATION

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 2
INTENT

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

The Technical Specifications and Construction Quality Assurance Plan cover multiple activities related to the closure of the phosphogypsum stack system to meet the Florida Department of Environmental Protection's approved Conceptual Closure Plan and the closure requirements of Chapter 62-673, F.A.C.

The scope of work and tasks are described in Section 3 of Attachment I of the Project Manual. Construction Drawings are included in Attachment III and Specifications are included in Attachment IV. Certain sections of the Specifications may not apply depending on the scope of work and the Drawings.

The work shall be executed in conformity with the Drawings and these Specifications and the best acceptable standard practices. Construction shall not commence until the Specifications designated "Revision 0 – Issued for Construction" have been issued for the project.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 3
CONSTRUCTION DRAWINGS

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

Construction Drawings are included in Attachment III of the Project Manual. Construction shall not commence until Drawings designated “Revision 0 - Issued for Construction” have been issued.

The Drawings may be revised later to change the location or arrangement of the work, provide additional details, or include additional information or changes in some features of the work.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 4
CONTRACTORS UNDERSTANDING

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

This Specification contains the following sections

Section	Item
4.1	Conditions and Nature of Work
4.2	Safety
4.3	Surveying and Layout of the Work
4.4	Site Access
4.5	Materials
4.6	Installation of the Receiver-Supplied Material
4.7	Protection of Existing Facilities
4.8	Workmanship
4.9	Rejected Work
4.10	Retesting
4.11	Weather

4.1 Conditions and Nature of Work

It is understood and agreed that the Contractor has, by careful examination and inspection, fully satisfied himself as to the nature and location of the work, conformation and character of the site conditions, construction materials including phosphogypsum and soil, site accessibility and site limitations, surface and subsurface water conditions, character and quality of materials, proximity of existing structures and utilities, kind of equipment and facilities needed for the performance of this work, and general and local conditions which can affect the work covered hereunder.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

It is understood and agreed by the Contractor that all work performed in or on phosphogypsum will be in an acidic environment where the pore water within the phosphogypsum, the phosphogypsum itself, and rainfall runoff from exposed gypsum surfaces can have a pH as low as 1.8 and elevated dissolved solids concentrations. Safety Data Sheets for phosphogypsum and the associated process water will be provided by the Receiver. Contact with process water should be avoided, with appropriate PPE and control measures utilized as required.

Other Contractors may be working for the Receiver on adjacent areas. The Contractor shall coordinate all work with the Receiver to prevent disruption to on-going plant operations adjacent to the construction.

4.2 Safety

The Contractor shall strictly comply with all applicable safety regulations and standards including all federal, state, and local laws, ordinances, rules and regulations, and site-specific safety regulations of the Receiver. The Contractor shall also comply with all OSHA Construction Standard 1926 Subpart P trench safety requirements and with all excavation and trench safety outlined in the Receiver safety regulations.

The Contractor shall submit a Contractor's Health and Safety Plan (HASP or similar), specific for the Project, identifying hazards, safety concerns, and risks involved in the project.

No employee shall work more than 60 hours per week without written approval from the Receiver.

The Contractor shall submit applicable Job Safety Analyses (JSA) associated with activities performed onsite, including but not limited to: earthwork with soil and gypsum; excavations in soil and gypsum; handling, storing, lifting, deploying, and cutting geosynthetic materials and HDPE pipe; field welding HDPE pipe and fittings; field welding HDPE liner; field sewing geotextiles; drain slope and toe installation and handling, placing and compaction of aggregates; dewatering of process water contaminated soils; working around heavy equipment; and traffic control. Additional JSA's may be requested by the Receiver during construction as specific work tasks are observed by the Receiver's representatives.

Refer to the Bid Form for additional Safety requirements.

4.3 Surveying and Layout of the Work

The Receiver will identify permanent survey benchmarks located near and/or within the construction site at the beginning of construction. From these reference points, the Contractor shall provide all horizontal and vertical controls necessary to complete the work to the lines, grades and dimensions shown on the Drawings, or as otherwise revised or approved by the Receiver. It is the responsibility of the Contractor to verify all dimensions prior to fabrication, installation, and/or construction of any item of work. The Contractor shall maintain the survey control system, and shall provide all his alignment and grade control surveying of whatsoever

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

nature.

Wherever settlements are anticipated during construction, project grading and construction shall be completed relative to floating benchmarks established by the Contractor, as approved by the Engineer and the Receiver, at various areas on the stack and within the project site.

All final record as-built surveys shall be conducted under the direct supervision of a Florida Registered Land Surveyor approved by the Receiver.

Record as-built surveys shall be submitted, at a minimum and separately, upon completion of each major project component, including the following: (i) liner subgrade; (ii) dikes and ditches; (iii) drain systems; (iv) gas vent system; (v) liner; (vi) stormwater system; and (vii) soil cover/final grading. As-built survey drawings must have the survey points overlaid on the applicable design drawing and shall be submitted for Owner's approval, signed and sealed by a Florida-licensed surveyor, prior to the commencement of any construction activities that are dependent upon these survey results.

Survey record points within the construction flat areas shall be provided at a maximum grid spacing of 200 feet and at all break points. Survey record points along dikes, drain, drain outlet alignments and stormwater system shall be provided at a maximum spacing of 200 feet and at all break points. Survey record points of each drain outlet discharge shall also be provided. Survey record points of each drain, well, sump/manhole, outlet discharge and stormwater structures shall also be provided. In addition, the Receiver may request that record as-built surveys are provided at other locations within a 48-hour period.

The lines, grades and dimensions shown on the Drawings have been selected based on topographic maps (dated as indicated on the Drawings) of the site and certain simplifying assumptions, and as such are approximate. Final grades, elevations and dimensions are subject to adjustment during construction at the sole discretion of the Engineer, representing the Receiver, pending periodic re-evaluation of fill requirements based on actual shrinkage factors and actual settlement as determined by the Engineer during construction. Any such adjustment shall not constitute a changed condition and shall be undertaken at no additional cost.

Marking devices used during construction for establishing grades atop the HDPE liner shall not, in any way, pose a threat to the integrity of the HDPE liner (i.e., use of sharp or pointy markers is not allowed).

It is the responsibility of the Contractor to verify all dimensions prior to fabrication, installation and/or construction of any item of work.

4.4 Site Access

The Contractor shall, by their own inspection and by careful examination, fully convince himself as to the accessibility of the site for performing the work. The Contractor shall be responsible for

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

constructing and maintaining access roads and work areas during the duration of construction to minimize dust and excessive wear. Any modifications outside the construction limits shall be submitted by the Contractor to the Receiver for approval at least one week prior to making any modifications.

All areas disturbed by the Contractor during construction of temporary access roads, staging areas and lay-down areas shall be re-graded and restored to pre-construction existing conditions, or as otherwise approved by the Receiver.

The laydown yards and access route from the non-potable water source for dust control available for the work is shown on the Drawings.

The Contractor shall be responsible for unloading materials when delivered, handling/storing materials within the lay-down areas, and moving materials from the lay-down areas to the location of construction.

The Contractor shall be responsible for proposing and maintaining safe construction traffic control measures within the project area at all times.

4.5 Materials

Materials supplied by the Contractor shall be new and of the best quality (compliance with specification requirements) for the purpose intended. Defective materials will be rejected by the Receiver, regardless of previous inspections. Replacement of defective materials shall be at the Contractor's expense and the Contractor shall be responsible for any delays and expenses caused by rejection. Should any dispute arise as to the quality or fitness of materials, the decision rests solely with the Receiver, based upon the requirements of the Contract documents.

4.6 Installation of the Receiver-Supplied Material

The Contractor shall assemble and install the materials listed as the Receiver-supplied that are required to complete the work. The Receiver-supplied materials will be received and unloaded by the Receiver and will be placed in temporary storage areas. The Contractor shall be responsible for transporting the material from its temporary storage areas to its final locations. The Contractor shall inspect the materials and immediately report any damages or material shortages to the Receiver. The Contractor shall be fully responsible for all equipment, materials, and other devices which they have accepted and taken into their custody and shall thereafter repair or replace at their expense any damages or losses to such equipment or materials.

The Contractor shall supply (other than those specifically listed as being the Receiver-supplied) and install all equipment or material required for the project and to make the completed work an operating entity, as required by the drawings and specifications, notwithstanding that each and every item required may not be specifically mentioned or specified.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

4.7 Protection of Existing Facilities

The Contractor shall be responsible, at no additional cost to the Receiver, for timely repair or replacement of structures, equipment, utilities, pipelines, monitor wells, piezometers, existing liner, or any facilities and/or other on-going or completed construction item damaged by the Contractor's and/or their Subcontractor's operations and/or personnel.

4.8 Workmanship

The workmanship shall be of the best quality, executed by workers experienced and skilled in the respective duties for which they are employed. In case of dispute, decisions as to the quality or fitness of workmanship shall rest solely with the Receiver.

4.9 Rejected Work

Any defective work, whether result of poor workmanship, or defective products or damage, shall be replaced, or re-executed in accordance with the Contract. If, in the opinion of the Receiver, it is not expedient to correct defective work or work not performed in accordance with the Contract documents, the Receiver may deduct from the Contract price the difference in value between the work performed and that called for in the Contract documents. The value of such deduction shall be determined by the Receiver, and the Contractor shall be notified in writing prior to the work being corrected or finished by others.

4.10 Retesting

When tests on material or completed portions of the work carried out by the Contractor or by the Receiver, or the Engineer, yield results not meeting the requirements of the Contract documents, the Contractor, in addition to carrying out remedial work or replacement of the material, shall provide for retesting of the remedied work or the replacement materials. Retesting shall be at the Contractor's expense. In every case where the Contractor has submitted test results that fail to meet the requirements of the Contract documents, the Contractor shall submit within a practical and reasonable time results of a retest showing that the results are in accordance with the requirements of the Contract documents. If the Contractor fails or refuses to do remedial work or replace unacceptable materials, the Receiver and/or Engineer may refuse to certify the work and the Receiver may refuse to make payments, in addition to any other remedies the Receiver may have to undertake.

4.11 Weather

The Contractor shall not perform work on any item when the weather does not allow them to complete the work safely and in accordance with the Design and these Specifications. When weather conditions change while work is being performed and cause suspension of work, the contractor shall take actions to protect completed work, and maintain safety for all workers.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 5
GENERAL PROVISIONS

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

This Specification contains the following sections.

Section	Item
5.1	Access, Inspection and Testing
5.2	Engineering Data
5.3	Drawings and Specifications
5.4	Right to Change Location and Drawings
5.5	As-Built Drawings
5.6	Disposal of Gypsum
5.7	Demolition of Existing Structures and Disposal of Debris
5.8	Daily and Final Clean-Up
5.9	Water Supply
5.10	Contractor's Facilities and Utilities

5.1 Access, Inspection and Testing

All materials furnished by the Contractor shall be subject to the examination and approval of the Receiver, or the Receiver's representative, at any and all times during the progress of the work and until final completion. As soon as the materials are examined and tested, the Contractor shall immediately remove all rejected materials from the work area to a location such distance therefrom as the Receiver may require. No material shall be used before being examined and approved by the Receiver or the Receiver's representative, but the failure on the part of the Receiver or the Receiver's representative to condemn or reject inferior materials or work shall not be construed to imply an acceptance of the same should their inferiority become evident at any time prior to final acceptance of the work.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

The Contractor shall make necessary arrangements so that the Engineer may secure samples of materials on the job for testing to ascertain whether any material to be included in the work meets the requirements of the Specifications.

The Receiver and the Receiver's representative shall have free access to the work areas at all times. The Contractor shall furnish them with personnel and equipment, as needed, for ascertaining whether the work being performed, or the work which has been completed, is in accordance with the requirements of the Specifications, even to the extent of uncovering, testing, or removing portions of finished work, if such is necessary.

The Receiver may order the Contractor to suspend any work that may be affected, damaged or endangered by climatic conditions. Further, the Receiver may temporarily suspend any work at any time when acceptable results, as defined by the Specifications, cannot be obtained due to inclement weather or other unsatisfactory field conditions.

5.2 Engineering Data

Engineering data for quality assurance will be provided as applicable depending on the project scope.

5.3 Drawings and Specifications

The Drawings and Specifications are intended to be coordinated. Anything shown on the Drawings but not mentioned in the specifications, or vice-versa, or anything not expressly set forth in either, but which is reasonably implied, shall be furnished as though specifically shown and mentioned in both without any extra charge. Should anything be omitted from the Drawings or the Specifications, which is the subject of the work, or should the Contractor find any conflict between the Drawings and the Specifications, it shall be the duty of the Contractor to so notify the Receiver before signing the Contract. Such omissions or conflicts shall be resolved by the Engineer prior to performing the work.

The Contractor shall furnish detailed plans and drawings if required for execution of the work and which are not included in the plans and drawings furnished by the Engineer on behalf of the Receiver.

The Contractor shall submit all drawings and schedules sufficiently in advance of construction to allow ample time for checking, correcting, resubmitting, and rechecking. No claim by the Contractor for delays, arising from his failure in this respect, shall be allowed.

All drawings submitted by the Contractor must bear a stamp of approval by the Contractor as evidence that the drawings have been checked by the Contractor. The approval by the Receiver or Engineer of drawings submitted by the Contractor shall be only for conformance with the design of the project and shall not relieve the Contractor of the responsibility for adherence to the Contract, nor shall it relieve him of the responsibility for any error which may exist.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

5.4 Right to Change Location and Drawings

When additional information regarding the topography, subsurface or pore water, or other conditions become available as a result of excavation, testing or other exploratory work, the Engineer may find it desirable to change the elevation, alignment, dimensions or design of all or a portion of the work to conform to the newly disclosed conditions. Toward this end, the Receiver reserves the right to make such reasonable changes, and the Contractor's operations shall be conducted so as to accommodate reasonable changes without additional expense.

5.5 As-Built Drawings

The Contractor shall maintain one set of prints on the job site at all times for the preparation of the As-Built Drawings. This set shall be in addition to any sets needed and used in the actual construction operation. The As-Built Drawings are to be kept up to date by the Contractor, as approved by the Receiver, or the Receiver's representative, on a daily basis (see also Section 4.3). The plans shall show the actual as-built condition. As-Built Drawings shall be submitted to the Receiver upon final acceptance of the work.

5.6 Disposal of Gypsum and Soils

Gypsum and Soils not suitable for use in construction, as defined in the Specifications, shall be disposed of by the Contractor in designated on-site areas in a manner approved by the Receiver.

5.7 Demolition of Existing Structures and Disposal of Debris

Demolition of existing structures, if needed, must be done to a minimum of five feet below the liner design grade.

Debris from the demolition of structures and or culverts within the footprint of the stack may be placed beneath the liner, with a minimum of 3.0 feet of compacted gypsum cover over the debris prior to installation of the liner. The burial locations shall be on the slopes between the deeper area of the ponds and the perimeter dikes, at locations approved by the Engineer.

Concrete shall be broken into pieces with average diameter of 12 inches or less. Pipe sections shall be cut longitudinally to form two halves and be cut into lengths of five feet or less. The debris shall be placed in lifts of three feet or less and backfilled with gypsum slurry to fill any voids within the demolition material. Gypsum used for preparing the gypsum slurry shall be obtained from stockpiled gypsum excavated from the disposal cell or adjacent areas approved by the Receiver. Only clean gypsum fill will be allowed for gypsum slurry operations. Gypsum fill used in the gypsum slurry shall not contain particles larger than 1/4-inch in diameter to ensure the gypsum slurry can adequately fill any voids that may exist within the compacted landfill materials.

Once the demolition materials have been completely backfilled with gypsum slurry, additional select gypsum backfill (meeting the criteria in Section 6.9.2 of the specifications) required to bring the area to final grade shall be placed in layers and compacted to 95% of the Standard Proctor in

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

accordance with Section 6.13.2 of the specifications.

The contractor must submit a survey of every disposal area, including a description of the materials disposed of in each area.

5.8 Daily and Final Clean-Up

The Contractor shall clean-up the work site and install all barricades as may be needed at the end of each work day to maintain the site in a clean and safe condition as required by the Receiver's safety and environmental regulations.

The Contractor shall provide dumpsters for disposal of all trash, debris and scrap materials generated during construction. Upon completion of the work, the Contractor shall remove from the site and dispose of all trash, debris and scrap materials. Opened rolls of geosynthetic materials shall be either disposed of or left stockpiled on-site as directed by the Receiver.

Surfaces abutting the construction area disturbed by the Contractor's activities shall be re-graded and restored to pre-construction existing conditions, or as otherwise approved by the Receiver.

5.9 Water Supply

The Receiver will make available to the Contractor access to a non-potable water source for use during construction. The Contractor shall be responsible for securing water from the designated source and transporting it to the construction area.

5.10 Contractor's Facilities and Utilities

Fresh water (for non-potable use), and electricity will be provided by the Receiver at a location adjacent to the area assigned for the Contractors. Fuel required for construction and other purposes shall be secured and purchased by the Contractor unless otherwise agreed upon with the Receiver in the Contract.

The Receiver will make space available for Contractor's facilities in the vicinity of the construction site. The Receiver will also make space available for Contractor's material storage and construction trailer near the construction site. The main access to the site will be secured at the guard gate by the Receiver. The Contractor will, nevertheless, be responsible for all equipment, materials and supplies stored on-site.

Chemical toilets are to be provided by the Contractor. Phone and internet service is not readily available. However, the Contractor is permitted to secure their own phone/internet service with the service provider. Cell phones are permitted but are not allowed for use while operating heavy machinery or vehicles.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 6
EARTHWORK WITH SOIL AND GYPSUM

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

6.1 Description of Work

This Specification covers general earthwork with phosphogypsum and soil.

Due to the anticipated settlement of the gypsum surface during construction, project grading and construction shall be completed relative to floating benchmarks established by the Contractor, as approved by the Engineer and the Receiver, at various areas on the stack and within the project site.

The Specification includes the following sections.

Section	Item
6.1	Description of Work
6.2	Referenced Standards
6.3	Clearing, Grubbing, and Stripping
6.4	Source of Gypsum Borrow
6.5	Source of Earthen Borrow
6.6	Source of Sand Tailings (if Needed)
6.7	Layout of Work
6.8	Grading Tolerances
6.9	Material Requirements
6.10	Dewatering and Surface Water Control
6.11	Ditches and Flat Areas Grading
6.12	Dust Control
6.13	Dike Construction and Side Slopes Grading

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Section	Item
6.14	Gypsum Cracks Repair
6.15	Preparation of Surfaces to Receive Liner
6.16	Placement of Soil Cover Over Liner
6.17	Gypsum Pipe Bedding and Trench Backfill
6.18	Updating Cut and Fill Quantities
6.19	Quality Control Inspection and Testing
6.20	Submittals

6.2 Referenced Standards

The following ASTM International (ASTM) standards are referenced in this Specification.

D698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))

D1140: Standard Test Methods for Amount of Material in Soils Finer than the No. 200 Sieve

D1556: Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method

D2216: Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

D2487: Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

D2937: Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method

D2974: Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils

D4253: Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table

D4254: Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

D4944: Standard Test Method for Field Determination of Water (Moisture) Content of Soil by the Calcium Carbide Gas Pressure Tester

D5084: Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis.

6.3 Clearing, Grubbing, and Stripping

Earthen surfaces within applicable work areas shall be cleared, grubbed, and stripped in accordance with these Specifications and inspected by the Engineer prior to placement of any subsequent fill or excavation of any subsequent cut.

Clearing shall consist of cutting, removing, transporting, and disposing of all trees, brush, debris and other objectionable organic material resting on or protruding above the ground surface within the limits of construction shown on the Drawings.

Grubbing shall be required in all areas to be filled or constructed upon, and shall consist of removal and disposal of stumps, roots and other objectionable organic material below the surface. Stumps shall be removed entirely. Roots and matted roots shall be grubbed to a depth of at least 1-foot below the existing grade or proposed final subgrade surface, whichever is greater, or deeper if needed in borrow areas to avoid inclusion of organic materials in the borrowed soils.

Stripping shall be required in all areas to be filled or constructed upon and shall consist of excavating to a sufficient depth to remove all vegetation, roots, organic topsoil, soft and wet compressible material, trash, debris and other objectionable materials, as determined by the Engineer, from within the limits of construction shown on the Drawings. Over-stripping shall be avoided.

All organic and objectionable material removed as a result of clearing, grubbing and stripping shall be disposed of in on-site areas and in a manner designated by the Receiver.

Vegetation generated by clearing, grubbing and stripping may be mixed with topsoil and kept separate from other clean topsoil. This material may be used for closure cover topsoil.

6.4 Source of Gypsum Borrow

The Contractor shall obtain gypsum borrow from within the footprint of the project area. The location and use of haul routes shall be coordinated with and approved by the Receiver.

The design grades for the closure construction were selected to preliminarily balance gypsum cut and fill volumes.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

The Contractor will need to implement substantial and aggressive dewatering efforts to facilitate gypsum borrow operations, hauling, proper placing and compaction of fill within the ponds bottom and along dikes and drains, which may require an alternating sequence of dewatering and gradual excavation, mixing wetter and drier materials, stockpiling, and multiple material handling techniques.

Dewatering for site access, base preparation, gypsum borrow activities, etc. will require removal of pore water from essentially saturated gypsum deposits via excavation and maintenance of a network of relatively deep dewatering ditches and consistent (e.g., full-time) pumping to depress the phreatic water surface in the gypsum.

Because these typical gypsum stack deposits result from slurry discharge and sedimentation during plant operation, segregation and layering is normally encountered, and the finer, dark-colored gypsum materials usually are most prevalent within the interior of the settling compartment. In particular, gypsum deposits within the lower areas of the existing settling compartments and the return water ditch may be expected to be finer in size and potentially more difficult to dewater and compact. Mixing with coarser gypsum may be necessary to facilitate use of finer gypsum as fill material.

6.5 Source of Earthen Borrow

Sources of earthen borrow will be designated by the Receiver. All borrow sources are subject to prior approval by the Receiver and the Engineer. Stockpiling of approved dike fill materials, if required, shall be either on site, or in areas designated by the Receiver.

All soil borrow materials must meet the requirements of Section 6.9.3.

6.6 Source of Sand Tailings (If Needed)

Sources of sand tailing will be designated by the Receiver. All borrow sources are subject to prior approval by the Receiver and the Engineer. Stockpiling of approved tailings material, if required, shall be either on site, or in areas designated by the Receiver.

All sand tailing materials must meet the requirements of Section 6.9.5.

6.7 Layout of the Work

The Receiver will establish reference points for horizontal and vertical controls near and/or within the construction site at the beginning of construction. From these reference points, the Contractor shall provide all horizontal and vertical controls necessary to complete the work to the lines, grades and dimensions shown on the Drawings. The Contractor's survey shall be in compliance with the vertical and horizontal tolerances in this Specification.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Marking devices used during construction for establishing grades atop the HDPE liner shall not, in any way, pose a threat to the integrity of the HDPE liner (i.e., use of sharp or pointy markers is not allowed).

6.8 Grading Tolerances

6.8.1 Vertical Tolerances

All work shall be performed to within a vertical tolerance of ±0.2 feet from the grades and dimensions shown on the Drawings except that the vertical tolerance shall be reduced to ±0.1 feet for the grades and dimensions of the dike crests.

Notwithstanding the grading tolerances, all surfaces to receive HDPE liner shall be graded uniformly and smoothly, maintaining the general sloping direction shown on the Drawings to minimize puddling of water atop the liner and air entrapment below the liner.

Top ponds and mid-slope bench road grades and elevations relative to the project datum are subject to adjustment prior to the start of construction, and during construction, based on floating benchmarks established for various areas on the stack, pending re-evaluation of fill requirements based on actual settlement and shrinkage factors, and at the discretion of the Receiver and the Engineer. Any such adjustment shall not constitute a changed condition.

6.8.2 Horizontal Tolerances

All construction shall be completed to within a horizontal tolerance of ±1 percent from the lines and dimensions shown on the Drawings, and within a maximum horizontal tolerance of ±0.3 feet.

Notwithstanding the grading tolerances, all surfaces to receive HDPE liner shall be graded uniformly and smoothly, maintaining the general sloping direction shown on the Drawings to minimize puddling of water atop the liner and air entrapment below the liner.

6.9 Material Requirements

6.9.1 Random Gypsum Fill

Gypsum used as general fill shall meet the following requirements:

- Shall be clean, generally non-cemented gypsum. Clean gypsum is typically light gray or light tan in color;
- Cemented gypsum fragments, if present, shall be no larger than 3 inches in size, in any dimension;

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

- Shall not contain trash, wood, roots, rocks, stones, gravel, debris, or other deleterious materials; and

- Black stained or dark colored gypsum may be used as general fill provided it is thoroughly mixed with clean gypsum to produce a uniform gypsum fill material.

All gypsum used for general gypsum fill shall be approved by the Engineer.

6.9.2 Select Gypsum Fill

Gypsum backfill, trench drain cap backfill, pipe bedding backfill, fill placed immediately against pipe walls and within the upper 12 inches of the liner subgrade (i.e., finished grade on which the HDPE liner will be placed) shall meet the following requirements:

- Shall be clean, non-cemented gypsum. Clean gypsum is typically light gray or light tan in color;

- Cemented gypsum fragments, if present, and gypsum clods shall be no larger than ¼-inch in size, in any dimension;

- Shall not contain trash, wood, roots, rocks, stones, gravel, debris, or other deleterious materials; and

- Black stained or dark colored gypsum shall not be used in select gypsum fill.

The surface of all select gypsum fill to receive the HDPE liner shall be finished smooth with a smooth drum roller. All gypsum used for select gypsum fill shall be approved by the Engineer.

6.9.3 General Soil Fill

General soil fill shall consist of fine, slightly silty, silty, slightly clayey or clayey sands approved by the Engineer that classify as SP, SP-SM, SM, SM-SC or SC type soils in accordance with ASTM Standard D 2487 and may be used for general site grading, dike construction, structures, and manholes. General soil fill shall meet the following requirements:

- Shall be non-cemented and free from rocks, stones, gravel and other deleterious materials (i.e., organic material, wood, roots, trash, debris , sharp objects, etc.);

- The maximum allowable particle size, in any dimension, shall be 3 inches;

- Fines content (i.e., soil fraction by dry weight finer than the U.S. Standard No. 200 sieve size) shall be less than 25 percent determined in accordance with

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

ASTM Standard D1140 [Method B] unless otherwise approved by the Engineer; and

- Organic content shall not exceed 3 percent determined in accordance with ASTM Standard D2974 [Method C];

All soils used for general soil fill shall be approved by the Engineer.

6.9.4 Select Soil Fill

The upper 12 inches of soil below all surfaces to be lined (i.e., finished grade on which the HDPE liner will be placed), soil used in the 24-inch protective HDPE liner cover, pipe bedding and fill placed immediately against the pipe walls, shall be select soil fill. Select soil fill shall consist of sand, sand with silt, silty sand, sand with clay or clayey sand classifying as Group Symbol SP, SP-SM, SM, SP-SC or SC type soils in accordance with ASTM Standard D2487 and meet the following requirements:

- Shall not contain rocks, stones, gravel, cemented fragments or other deleterious materials (organic material, wood, roots, trash, debris, sharp objects, etc.);
- The maximum allowable particle size, in any dimension, shall be ¼-inch;
- Organic content shall not exceed 1 percent determined in accordance with ASTM Standard D2974 [Method C] unless otherwise approved by the Engineer; and
- Fines content (i.e., soil fraction by dry weight finer than the U.S. Standard No. 200 sieve size) shall be less than 25 percent determined in accordance with ASTM Standard D1140 [Method B].

The surface of all select soil fill to receive the HDPE liner shall be finished smooth with a smooth drum roller. All soils used for select soil fill shall be approved by the Engineer.

6.9.5 Clean Sand Tailings Fill

Sand tailings shall consist of clean sand (typically light gray in color) classifying as Group Symbol SP in accordance with ASTM Standard D2487 and meet the following requirements:

- Shall not contain rocks, stones, gravel or cemented fragments in excess of 1/4 inch in size, deleterious materials (wood, trash, debris, sharp objects, etc.), or organic material;

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

- Organic content shall not exceed 1 percent determined in accordance with ASTM Standard D2974 [Method C]; and

- Fines content of less than 3 percent determined in accordance with ASTM Standard D1140 [Method B].

The surface of all sand tailings to receive the HDPE liner shall be finished smooth with a smooth drum roller. All sand tailings shall be approved by the Engineer

6.10 Dewatering and Surface Water Control

Dewatering shall consist of removal of water from within the limits of construction and from all excavations, trenches, pits or cofferdam areas made during construction. All activities shall be performed in dry conditions (i.e., without the presence of standing water) except where approved otherwise by the Engineer. The Contractor shall be responsible for developing and maintaining temporary dewatering ditches as needed to maintain all work areas well drained and dry during construction. The method of dewatering will be the responsibility of the Contractor, subject to approval by the Receiver. The Contractor's proposed methods for dewatering and routing shall be submitted to the Receiver for approval prior to implementation.

The Contractor shall excavate any dewatering ditches needed to complete grading of ponds or ditch bottoms, or to facilitate gypsum borrow. The Contractor shall remove all pools or pockets of process water remaining in the ponds bottom, ditch bottoms and bottom of dewatering ditches. Dewatering ditches shall be backfilled in accordance with Section 6.11.2 of this Specification.

The Contractor may need to implement substantial and aggressive dewatering efforts to facilitate gypsum borrow and grading operations, which may require an alternating sequence of dewatering and gradual excavation.

The Contractor shall provide and maintain all pumps, and excavate and maintain all drainage ditches, as needed. Stormwater runoff within the limits of construction shall be contained within the limits of construction and routed to areas approved by the Receiver. No water shall be released off-site or into any area outside the limits of construction by the Contractor.

Process water, extracted gypsum pore water, and rainwater runoff shall be conveyed by the Contractor to a location approved by the Receiver. The pore water within the gypsum stack system has a pH as low as 2 and is characterized by elevated dissolved solids concentrations. A chemical analysis is available from the Receiver. The Contractor shall undertake all necessary safety precautions when handling the extracted pore water. It shall be the responsibility of the Contractor to supply and maintain equipment and material that are compatible with the process water environment. Safety Data Sheets for phosphogypsum and associated process water will be provided by the Receiver.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

6.11 Ditches and Flat Areas Grading

6.11.1 Stormwater Conveyance Channels, Toe Runoff Collection Ditch, Mid-slope Swales and Flat Top Areas

The Earthwork Contractor shall excavate, haul, place and compact gypsum, as needed, to grade the return water ditch, toe road and swale, mid-slope benches road and swales and flat top areas to the lines, grades and dimensions shown on the Drawings.

In the fill areas, the *in situ* gypsum shall be over excavated to a depth which will allow compaction of the upper 12 inches at existing grade to meet specifications. Mixing of the loose wet excavated gypsum with dryer gypsum may be necessary in order to achieve the desired compaction criteria within the upper 12 inches of existing grade.

Gypsum fill shall be placed in lifts not exceeding 18 inches in loose thickness prior to compaction and compacted as specified in Section 6.11.3. After a lift is placed and compacted in accordance with this Specification, its surface shall be scarified just before placement and compaction of the next lift to permit bonding between the two lifts. At no time shall a new lift of fill be placed over a non-scarified or dried surface. If a dried surface develops, it shall be re-wetted, re-compacted and scarified prior to placement and compaction of a new lift of fill. The filling and compacting operations shall continue in lifts, scarifying between layers, until the ditch bottom is filled to the lines and grades shown on the Drawings, or as otherwise revised by the Receiver.

The upper 12 inches of in-place gypsum in excavated areas shall be compacted in accordance with Section 6.11.3. Any black or dark-colored gypsum exposed to the surface in cut areas shall be excavated and replaced with clean gypsum.

6.11.2 Dewatering Ditches and Dike Restoration

The side slopes of any dewatering ditches excavated by the Contractor shall be cut-back to slopes no steeper than 2.0 Horizontal to 1.0 Vertical prior to backfilling in accordance with Sections 6.13.1 and 6.13.2 of this Specification. Prior to placement of gypsum or soil fill, the surface of the cut-back ditch side slopes shall be wetted or dried, as needed, re-compacted and scarified to provide bonding with the backfill.

All dewatering ditches shall be backfilled by placement of compaction of gypsum or soil fill in successive horizontal layers. The fill shall be placed in lifts not exceeding 18 inches in loose thickness prior to compaction, and compacted as specified in Section 6.11.3. Each loose lift shall be compacted prior to placement of the next lift.

After a lift is placed and compacted in accordance with this Specification, its surface shall be scarified just before placement and compaction of the next lift to permit proper bonding between the two lifts. At no time shall a new lift of fill be placed over a non-scarified or dried surface. If a dried surface develops, it shall be re-wetted, re-compacted, and scarified prior to placement and

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

compaction of a new lift of fill. The filling and compacting operations shall continue in lifts, scarifying between layers, until the ditches are backfilled to the lines and grades shown on the Drawings.

Fill shall be hand-placed in areas inaccessible to heavy equipment. The hand-placed fill shall be placed in lifts not exceeding 6 inches in loose thickness prior to compaction. Compaction of hand-placed fill shall be by vibrating plate, mechanical tamper, or other equipment approved by the Engineer.

The side slopes in areas where existing culverts or spillways are removed, shall be cut-back to slopes no steeper than 2.0 Horizontal to 1.0 Vertical prior to backfilling with compacted gypsum. Prior to placement of fill, the surface of the cut-back dike side slopes shall be wetted or dried, as needed, re-compacted and scarified to provide bonding with the soil backfill. The repaired dike cross section may have to be modified during the construction depending on the depth of excavation used by the Contractor.

6.11.3 Compaction Criteria

6.11.3.1 Gypsum

Gypsum fill used in ditch bottom grading and for backfilling dewatering ditches shall be placed and compacted at molding water contents not less than 3 percent dry of the Standard Proctor optimum water content (ASTM Standard D698, using a drying temperature of 40°C). Gypsum fill shall not be saturated, nor placed too wet, so as not to cause pumping during compaction or shrinkage cracking after drying. For molding water contents within the range of 3 percent dry to 2 percent wet of the Standard Proctor water content, the fill shall be compacted to a dry density equal to or greater than 95 percent of the Standard Proctor maximum dry density (ASTM Standard D698, using a drying temperature of 40°C).

6.11.3.2 Soil

Soil fill shall be compacted at a water content (ASTM Standard D2216) within ±3 percent of the Standard Proctor optimum water content, and as required to achieve the specified compaction, to a dry density of not less than 95 percent of the Standard Proctor maximum dry density (ASTM Standard D698).

6.12 Dust Control

The Contractor shall maintain all traffic areas, the surfaces of soil and gypsum in the work area, and in the vicinity of liner installation sufficiently moist at all times to minimize the development of wind-blown gypsum/soil dust. The Earthwork Contractor shall coordinate the wetting of all gypsum surfaces throughout the duration of the project or until the responsibility of all surfaces are turned over to the Liner Installer. The Liner Installer shall assume responsibility for dust

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

control in areas, including dike crest roads that are turned over to him by the Earthwork Contractor, to minimize accumulation of gypsum/soil dust on the liner during liner installation.

6.13 Dike Construction and Side Slopes Grading

The gypsum perimeter dikes around the detention ponds, the mid-slope bench road, crest dike, top flat areas and the side slopes of the stack shall be modified and constructed to the lines, grades and dimensions shown on the Drawings using either random gypsum or soil fill, as applicable and indicated in the Drawings, meeting the requirements of Sections 6.9.1 or 6.9.3. The excavated gypsum shall be hauled to areas requiring fill. Any cemented or partially cemented gypsum excavated from the slopes of the stack shall be pulverized prior to placement and compaction.

6.13.1 Construction Procedure

Prior to placement of any fill, the existing gypsum/soil surface shall be wetted or dried, as needed, re-compacted and scarified to bond the interface between the layers of fill. The dike shall be constructed by placement and compaction of gypsum or soil fill in successive relatively horizontal layers. The fill shall be compacted as specified in Section 6.13.2. Each loose lift shall be compacted prior to placement of the next lift. The fill shall be placed in lifts not exceeding 18 inches in loose thickness prior to compaction. The fill shall be wetted or dried, and homogenized as needed prior to compaction to comply with the molding water content criteria in Section 6.13.2.

After a lift is placed and compacted, its surface shall be scarified just before placement and compaction of the next lift to bond the interface between the two lifts. At no time shall a new lift of fill be placed over a non-scarified or dried surface. If a dried surface develops, it shall be re-wetted, re-compacted and scarified prior to placement and compaction of a new lift of fill. The filling and compacting operations shall continue in lifts, scarifying between layers, until the dikes, slopes and stockpiles are constructed to the lines, grades, and dimensions shown on the Drawings, or as otherwise directed by the Engineer.

In the fill areas, the *in situ* gypsum or soil shall be over excavated to a depth which will allow compaction of the upper 12 inches at existing grade to meet specifications. Mixing of the loose wet excavated gypsum with dryer gypsum may be necessary in order to achieve the desired compaction criteria within the upper 12 inches of existing grade.

The slopes of the dikes shall be overbuilt, as needed, prior to fine grading such that gypsum at the finished surface of the slope meets the compaction criteria in Section 6.13.2.

Any black or dark-colored gypsum exposed to the surface in cut areas shall be excavated and replaced with clean gypsum.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

6.13.2 Compaction Criteria

6.13.2.1 Gypsum

Gypsum fill used for dike construction, crest of the flat top areas and slope grading shall be placed and compacted at molding water contents not less than 3 percent dry of the Standard Proctor optimum water content (ASTM Standard D698, using a drying temperature of 40°C). Gypsum fill shall not be saturated, nor placed too wet to cause pumping during compaction or shrinkage cracking after drying. For molding water contents within the range of 3 percent dry to 2 percent wet of the Standard Proctor water content, the fill shall be compacted to a dry density equal to or greater than 95 percent of the Standard Proctor maximum dry density (ASTM Standard D698, using a drying temperature of 40°C).

6.13.2.2 Soil

Soil fill shall be compacted at a water content (ASTM Standard D2216) within ±3 percent of the Standard Proctor optimum water content, and as required to achieve the specified compaction, to a dry density of not less than 95 percent of the Standard Proctor maximum dry density (ASTM Standard D698).

6.14 Gypsum Cracks Repair

Desiccation cracks of two to three feet in depth are common in gypsum stacks and are likely to occur during construction at various locations throughout the stack. Repair of these shallow cracks requires excavating the entire depth of the crack (with 1.5H:1V or flatter slopes and a minimum bottom width extending 1 foot from either side of the crack) and backfilling it with compacted gypsum according to Section 6.13.2.

Remediation of larger desiccation and/or settlement cracks (deeper than 3 feet) must be done as indicated in the Drawings. It requires filling the crack with sluiced gypsum (sluiced gypsum must be allowed to settled and the cracked backfilled if needed) followed by excavating a 3-foot deep trench (with 1.5H:1V or flatter slopes and a minimum bottom width extending 1 foot from either side of the crack), placing a high strength woven geotextile (Mirafi HP770 or equivalent) at the bottom and along the sides of the excavation and backfilling the excavation with compacted gypsum according to Section 6.13.2. Gypsum fill used in the gypsum slurry shall not contain particles larger than 1/4-inch in diameter to ensure the gypsum slurry can adequately fill any voids within the crack.

All large cracks must be surveyed prior to remediation.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

6.15 Preparation of Surfaces to Receive Liner

6.15.1 Construction

All surfaces to receive the HDPE liner shall be free from trash, rocks, stones, debris, sharp objects, cemented gypsum or other soil particles larger than ¼-inch in size, and other deleterious materials. The upper 12 inches of the surface shall be compacted as specified in Section 6.11.3. The Engineer will inspect the surfaces to receive the HDPE liner for compliance with the above material and compaction criteria. All surfaces to receive the HDPE liner shall be fine grade to within the grading tolerances specified in Section 6.8 of this Specification.

Prior to lining in any given area, the Liner Contractor shall inspect the condition of the surfaces to receive the liner for compliance with the above, and shall accept and approve in writing to the Receiver, the condition of the surfaces on which the liner will be installed. The Liner Contractor shall maintain, regrade and restore, as needed, the condition of the prepared base in any such area to within the grade tolerances and degree of compaction specified herein, and maintain the surface to be lined smooth and free from deleterious materials.

6.15.2 Compaction Criteria

6.15.2.1 Gypsum

Gypsum fill used for subgrade construction shall be placed and compacted at molding water contents between 3 percent dry and 2 percent wet of the Standard Proctor optimum water content (ASTM Standard D698, using a drying temperature of 40°C) or as otherwise approved by the Engineer, and compacted to a dry density equal to or greater than 95 percent of the Standard Proctor maximum dry density (ASTM Standard D698, using a drying temperature of 40°C).

6.15.2.2 Soil

Soil fill used for subgrade construction shall be compacted at a water content (ASTM Standard D2216) within ±3 percent of the Standard Proctor optimum water content, and as required to achieve the specified compaction, to a dry density of not less than 95 percent of the Standard Proctor maximum dry density (ASTM Standard D698).

6.15.3 Maintenance

The Earthwork Contractor shall maintain the surfaces well drained, dewatered, sufficiently moist to prevent shrinkage cracking, compacted, smooth and generally free from roller marks, ruts, holes, depressions or protrusions until the surface is accepted by the Liner Contractor.

At the time the Liner Contractor accepts the fine graded liner base, the Liner Contractor shall maintain and restore, as needed, all surfaces to the lines, grades and dimensions shown on the Drawings or as otherwise directed by the Receiver or Engineer throughout the duration of his

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

work. The gypsum surfaces shall be maintained well-drained and dewatered. If needed, the prepared base shall be re-compacted and fine graded prior to liner placement such that the surface to receive the HDPE liner is smooth, free from roller marks, ruts, holes, depressions or protrusions. The prepared liner base shall also be maintained sufficiently moist to prevent shrinkage cracking prior to placement of the HDPE liner. Any surface that develops shrinkage cracks shall be reworked and re-compacted in accordance with this Specification. The Liner Contractor shall not deploy any HDPE liner over a surface that has not been approved by the Engineer.

6.16 Placement of Soil Cover Over Liner

Soil used for the 24-inch protective HDPE liner cover or other areas shall consist of select soil fill as described in Section 6.9.4. Alternatively, clean sand tailings fill (Section 6.9.5) may be used in the bottom 18 inches of the 24-inch thick cover provided the upper 6 inches consist of soil material meeting the criteria in Section 6.9.4.

The Contractor shall familiarize himself with the locations, grades and depths of the HDPE liners, and shall exercise necessary caution while performing all work to avoid damaging the liner with the blade, bucket, tracks or tires of the equipment. Any suspected or actual damage to the liner shall be immediately reported to the Engineer and repaired at the Contractor's expense.

Additionally, the HDEP liner cover shall be constructed to the vertical tolerance in Section 6.8, while maintaining the direction of all sloping surfaces shown on the Drawings.

6.16.1 Construction Procedure

Placement of soil cover directly on the HDPE liner, where shown on the Drawings, shall be undertaken by light track-mounted equipment exerting a relatively low contact stress (e.g., low ground pressure Caterpillar D4, D5, or D6 LGP dozer exerting no greater than 5 lb/in^2 of contact stress) and traveling on a minimum of 18 inches of fill material. All other construction equipment, excluding heavy off-road equipment (e.g., off-road dump trucks), shall travel on at least 24 inches of compacted fill material. Heavy off-road equipment shall travel on a minimum of 36 inches of compacted fill material. The liner shall be in intimate contact with the underlying surface during placement of fill material atop the liner. Fill material shall be placed by allowing the material to tumble freely over the advancing edge of the fill prior to leveling to grade. Fill material shall not be placed by advancing the material horizontally in any manner that pushes the fill across the surface of the liner and pulls, displaces, or wrinkles the liner or the underlying vent system geocomposite (if applicable).

During placement and compaction of cover on lined slopes, equipment shall place and compact the soil fill working from the toe of slope upwards. Particular care shall be exercised so as not to damage the liner near the toe of slope while pushing fill upslope. The surface of each lift shall be carefully scarified prior to placement of the next lift.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Care shall be exercised during soil fill placement so as not to damage the liner with the blade, bucket, or tracks of the equipment, and to avoid pulling, pushing, displacing or folding the liner. Any damage to the liner (e.g., tears, punctures, creases, folds, strain-yielded areas, etc.) or any entrapped air pockets below the liner shall be repaired by the Liner Contractor. Any damage resulting from the Earthwork Contractor's activities or negligence shall be repaired at the Earthwork Contractor's expense.

Fill material shall be wetted or dried and homogenized, as may be required, to obtain a relatively uniform water content and placed in one or two relatively horizontal lifts, and compacted as specified in Section 6.16.2. The Contractor shall plan the traffic flow of equipment to provide thorough and uniform compaction effort on each lift of fill. After the first lift is placed and compacted, its surface shall be scarified just before placement and compaction of a second lift to bond the interface between the two lifts. At no time shall a new lift of fill be placed over a non-scarified or dried surface. If a dried surface develops, it shall be re-wetted, re-compacted and scarified prior to placement and compaction of a new lift of fill. The soil cover atop the HDPE liner shall be constructed to the lines, grades, and dimensions shown on the Drawings.

Heavy off-road equipment shall be limited to previously constructed access roads, and shall be protected from the HDPE liner with at least 36 inches of compacted fill material.

6.16.2 Compaction Criteria

Soil cover fill shall be compacted in accordance with the following criteria:

- Soil Fill classifying as Group Symbol SW or SP in accordance with ASTM D2487 shall be moisture conditioned, as needed, and compacted to an in-place dry density equal to or greater than 70 percent relative density (ASTM D4253 and D4254).
- Soil Fill classifying as Group Symbol SW-SM, SP-SM, SW-SC, SP-SC or SC in accordance with ASTM D2487, unless allowed otherwise by the Engineer for low permeability soil cover fill, shall be compacted at molding water contents within ±3 percent of the Standard Proctor optimum water content, or as otherwise approved by Engineer, to an in-place dry density equal to or greater than 95 percent of the Standard Proctor maximum dry density (ASTM D698). Soil cover fill shall not be saturated or placed too wet to cause pumping during compaction or shrinkage cracking after drying. The soil cover shall be moisture conditioned as needed to meet the molding water content criteria.
- Soil Fill classifying as Group Symbol CL, or CL-ML in accordance with ASTM D2487, if allowed by the Engineer, shall be compacted at molding water contents between the Standard Proctor optimum water content and 4 percent above the Standard Proctor optimum water content (ASTM D698), or as otherwise approved by the Engineer, using a sheepsfoot roller or other suitable compaction equipment approved by the Engineer to achieve a dry density equal to or greater than 98 percent of the Standard Proctor dry density (ASTM D698) at the corresponding molding water content. The dry

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

density, however, shall be no less than 90 percent of the Standard Proctor maximum dry density (ASTM D698). Low permeability soil cover fill shall not be saturated or placed too wet to cause pumping during compaction or shrinkage cracking after drying. The low permeability soil cover fill shall be moisture conditioned, as needed, to meet the molding water content criteria.

If moisture conditioning is needed for this material, the water used shall be fresh water (i.e. not from the process water system).

6.17 Pipe Bedding and Trench Backfill

Gypsum fill or select soil fill, as applicable, used as pipe bedding as well as drain and trench backfill shall be placed to the lines, grades, and dimensions shown on the Drawings, and in accordance with the requirements of the Specifications. Gypsum or soil used as pipe bedding and trench backfill shall consist of select gypsum or select soil fill meeting the material requirements of Sections 6.9.2 or 6.9.4, respectively.

6.17.1 Trench Backfill (Slope/Trench Drain)

Gypsum backfill above the slope drain shall be mechanically-placed in lifts not exceeding 24 inches in loose thickness. Pond water shall then be placed on top of the loose gypsum to “sluice” the gypsum in the trench to the dimensions indicated on the Drawings. The filling of the trench shall continue in lifts until the trench is completely backfilled. Any damage to the geocomposite or HDPE pipe shall be repaired by the Contractor at his expense.

6.17.2 Trench Drain Cap and Fill above Backfilled Trench (Slope/Trench Drain)

Gypsum used in the cap above the backfilled trench shall be compacted to not less than 95 percent of the Standard Proctor maximum dry density, at a molding water content in the range of 3 percent dry to 2 percent wet of the Standard Proctor optimum water content (ASTM Standard D698, using a drying temperature of 40°C for gypsum).

6.17.3 Pipe Bedding and Backfill

Select gypsum fill, as defined in Section 6.9.2 of this Specification, shall be placed and compacted to the lines and dimensions shown on the Drawings where specified as pipe bedding. Select gypsum fill shall have a water content within the range specified below.

After installation of the pipe, the select gypsum or soil bedding shall be worked under the haunch of the sides of the pipe to provide side support throughout. Placement of the select gypsum or soil shall be controlled such that the select gypsum or soil completely surrounds and is in full contact with the pipe surface to the lines and dimensions shown on the Drawings. The pipe bedding shall fill around and be in contact with the entire pipe circumference, with particular care taken to ensure that voids are not present around the lower one-third of the pipe circumference.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

The pipe shall be weighed down or held in-place using anchors and steel wires to prevent lateral or vertical displacement during backfilling and compaction. Care shall be taken during placement and compaction of the select soil or gypsum bedding not to damage or displace the pipe.

- Pipe Bedding and Fill. Select gypsum or soil pipe bedding and trench backfill around pipes shall be placed in level lifts not exceeding 6 inches in loose thickness, to at least the extent shown on the Drawings, and compacted in accordance with Section 6.13.2. The gypsum or soil shall be moisture conditioned as needed to meet the molding water content criteria.

- Pipe Cover. Select gypsum or soil backfill above the pipe shall be placed in lifts not exceeding 18 inches in loose thickness and compacted to a dry density between 80 and 90 percent of the Standard Proctor maximum dry density. Over compaction shall be avoided. Once placed, construction equipment shall not be allowed to travel on the gypsum or soil backfill above the pipes except at crossing locations approved by the Engineer.

Select gypsum or soil fill above the pipe bedding shall be placed in level lifts not exceeding 6 inches in loose thickness and compacted to a dry density equal to or greater than 95 percent of the Standard Proctor maximum dry density up to a height of 12 inches above the crown of the pipe. The remaining trench shall be backfilled with select gypsum fill placed in level lifts not exceeding 18 inches in loose thickness and compacted in accordance with the details shown on the Drawings. The filling and compaction shall continue in lifts until the pipe trench is completely backfilled to the lines and grades shown on the Drawings.

6.18 Updating Cut and Fill Quantities

The grades shown on the Drawings have been selected based on the topographic map and available data contained in the Drawings and certain simplifying assumptions regarding settlement and shrinkage factors.

Final grades may change because of settlement since the topographic map used in the design was surveyed. Adjustments in final grades shall be made relative to floating benchmarks. Any such adjustment shall not constitute a changed condition.

Excess gypsum, if any, shall be placed as directed by the Receiver.

6.19 Quality Control Inspection and Testing

The Engineer will undertake observations and perform quality assurance tests to determine compliance of the materials and work with this Specification. Quality assurance by the Engineer will include monitoring:

(i) the suitability and homogeneity of soil and gypsum used in construction;
(ii) placement, lift thickness, bonding between lifts, moisture conditioning and compaction

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

of soil and gypsum fill;

(iii) condition of HDPE liner subgrade;

(iv) dewatering and surface water control;

(v) measuring the thickness of the soil liner cover; and

(vi) maintenance of completed surfaces and any repair work necessitated by damage caused by the Contractor's operations.

The Engineer will perform water content determinations (ASTM Standard D2216, using a drying temperature of 40°C for gypsum) and *in situ* density determinations by the drive cylinder method (ASTM Standard D2937) or sand cone method (ASTM Standard D1556) to determine compliance with water content and compaction requirements.

Standard Proctor compaction tests (ASTM Standard D698, using a drying temperature of 40°C for gypsum) will be performed by the Engineer as needed to determine compliance with the requirements of this Specification. The fines content (ASTM Standard D1140) of each compaction test sample will also be measured. Water contents obtained using calcium carbide gas pressure meters (ASTM Standard D4944) calibrated for gypsum may be used by the Engineer to provide guidance for construction control, but final acceptance of all gypsum/soil fill will be based upon the ASTM Standard D2216 test method unless otherwise approved by the Engineer.

Testing of the uppermost one foot of the surfaces to receive the HDPE liner will be made by the Engineer following final grading and compaction by the Earthwork Contractor before the surfaces are turned over to the Liner Contractor. Testing of the uppermost one foot of the surfaces to receive the liner will be repeated, as needed, immediately prior to liner placement. Final documentation and results from these tests, however, will not be available prior to liner deployment. Such testing shall not relieve the Liner Contractor from responsibility for restoration or repair of unsuitable areas following liner placement, in the event that such is deemed necessary by the Engineer.

The Engineer will perform the following quality assurance tests at the indicated minimum testing frequencies, unless revised otherwise during construction.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 6-1. Earthwork Quality Assurance Test Methods and Minimum Testing Frequencies

Material	Property	Test Method	Minimum Testing Frequency
Liner Subgrade	In-Place Density Fines Content Standard Proctor	ASTM D1556/D2937 ASTM D1140 ASTM D698	2/acre 1/10,000 yd^3 1/10,000 yd^3
Soil Cover	Thickness In-place Density Fines Content Organic Content	Survey or Measurement ASTM D2937 and D1556 ASTM D1140 ASTM D2974	4 per acre 4 per acre Once per 200 yd^3 Once per 400 yd^3
Gypsum/Soil Dikes and Other Gypsum/Soil Fill	In-Place Density Fines Content Standard Proctor	ASTM D1556/D2937 ASTM D1140 ASTM D698	1/2,000 yd^3 1/10,000 yd^3 1/10,000 yd^3
Pipe Bedding and Trench Backfill	In-Place Density Fines Content Standard Proctor	ASTM D1556/D2937 ASTM D1140 ASTM D698	1/300 lf 1/1,500 lf 1/1,500 lf
Pipe Trench Gypsum/Soil Fill	In-Place Density	ASTM D1556/D2937	1/10 yd^3

6.20 Submittals

The following submittals are required from the Contractor as part of this Specification:

- Proposed plan for site dewatering and surface water runoff control and routing of runoff.
- Proposed plan for safe construction traffic control and vehicle maintenance.
- Proposed methodology for construction grading control and surveying.
- Minimum 25-pound samples of the soils and gypsums proposed for use as fill and liner cover for approval by the Engineer at least four weeks prior to undertaking placement of any fill and liner cover.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 7
HDPE LINER MATERIALS

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

7.1 Description of Work

This Specification covers the following items for high density polyethylene (HDPE) geomembrane liner. The Specification contains the following sections.

Section	Item
7.1	Description of Work
7.2	Referenced Standards
7.3	Material Requirements
7.4	Manufacturing and Factory Quality Control Inspection and Testing
7.5	Quality Assurance Testing
7.6	Material Warranty
7.7	Submittals

7.2 Referenced Standards

The following Standards are referenced in this Specification.

7.2.1 Geomembrane Standards

D570: Standard Test Method for Water Absorption of Plastics

D638: Standard Test Method for Tensile Properties of Plastics

D746: Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

D792: Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement

D1004: Standard Test Method for Tear Resistance (Graves Tear) of Plastic Film and Sheeting

D1203: Standard Test Methods for Volatile Loss from Plastics Using Activated Carbon Methods

D1204: Standard Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature

D1238: Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer

D1505: Standard Test Method for Density of Plastics by the Density-Gradient Technique

D1603: Standard Test Method for Carbon Black Content in Olefin Plastics

D1693: Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics

D4218: Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique

D4833: Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products

D4976: Standard Specification for Polyethylene Plastics Molding and Extrusion Materials

D5199: Standard Test Method for Measuring the Nominal Thickness of Geosynthetics

D5321: Standard Test Method for Determining the Shear Strength of Soil-Geosynthetic and Geosynthetic-Geosynthetic Interfaces by Direct Shear

D5397: Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test

D5596: Standard Test Method for Microscopic Evaluation of the Dispersion of Carbon Black in Polyolefin Geosynthetics

D5721: Standard Practice for Air-Oven Aging of Polyolefin Geomembranes

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

D5885: Standard Test Method for Oxidative Induction Time of Polyolefin Geosynthetics by High-Pressure Differential Scanning Calorimetry

D5994: Standard Test Method for Measuring Core Thickness of Textured Geomembranes

D6693: Standard Test Method for Determining Tensile Properties of Nonreinforced Polyethylene and Nonreinforced Flexible Polypropylene Geomembranes

D7238: Standard Test Method for Effect of Exposure of Unreinforced Polyolefin Geomembrane Using Fluorescent UV Condensation Apparatus

D7466: Standard Test Method for Measuring Asperity Height of Textured Geomembranes

D8117: Standard Test Method for Oxidative Induction Time of Polyolefin Geosynthetics by Differential Scanning Calorimetry

E96: Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials

F1249: Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor

7.2.2 Soils Standards

D698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))

D2487: Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

D6913: Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

7.3 Material Requirements

Smooth, single-sided textured and double-sided textured geomembrane liner shall consist of unreinforced high-density polyethylene (HDPE) designed and manufactured specifically for the purpose of liquid containment.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Product data sheets for each type of liner listing the minimum and nominal liner physical properties shall be provided to the Engineer prior to shipment. Product data sheets for the HDPE resin listing density, melt index, low temperature brittleness, environmental stress crack resistance and ASTM D4976 classification, and proportions of base polymer, carbon black and other additives shall be provided for each type of resin prior to shipment.

7.3.1 Base Resin

Uncolored base resin shall be polyethylene having a density equal to or greater than 0.932 g/cm^3 classifying as Group 2, Class 2, Grade 4 or Grade 5 (PE 224 or PE 225) in accordance with ASTM D4976.

Formulated colored resin shall classify as a Group 2, Class 3, Grade 4 or Grade 5 high density polyethylene (PE 234 or PE 235) with physical properties meeting A46009 in accordance with ASTM D4976 with environmental stress crack resistance (ASTM D1693) F_{50} >1500 hours (Condition B; 50°C/100% Igepal). The formulated colored resin shall meet the following requirements:

- contain not less than 97 percent of the base resin, and not less than 2.0 percent carbon black and no more than 3.0 percent carbon black, antioxidants and heat stabilizers combined with no other additives, fillers or extenders;
- manufactured from virgin resin with no more than 3 percent regrind material with regrind material comprised of the same formulation as the virgin resin;
- contain no post-consumer resin of any type;
- carbon black dispersion in the liner rated as Category 1 or 2 in ≥9 of 10 views, and as Category 3 in ≤1 of 10 views classified in accordance with ASTM D5596; and
- the variation in carbon black content within each resin batch shall be no greater than ±10 percent from the average carbon black content determined from factory tests performed at a minimum frequency of once per 5 rolls.

Liner sheets shall be manufactured using one of the following base resins unless otherwise approved by the Engineer:

- Chevron Phillips Marlex K306 (SKAPS Industries and Solmax International, Inc.)
- Chevron Phillips Marlex K307 (Agru America, Inc.)
- Chevron Phillips Marlex HHM TR-131 (Atarfil Geomembranes)
- Lotrene Q TR-131 (Atarfil Geomembranes)

Use of an approved base resin shall not relieve the Liner Manufacturer from complying with all other Specification criteria.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

7.3.2 Welding Rod

Welding rod used for field joining liner sheets shall be manufactured from the same HDPE base resin used to manufacture the liner. The welding rod shall be smooth, uniform in appearance and diameter and shall not contain contamination by foreign matter including entrapped moisture that could result in air pockets within extrusion welds.

7.3.3 Physical Appearance of Liner Sheets

All HDPE liner sheets shall have good appearance qualities. The surface of smooth HDPE liner sheets shall be smooth with no visible defects. Texturing on the surface of textured HDPE liner sheets shall be uniform and homogeneously distributed and shall be free from agglomerated texturing material.

All HDPE liner sheets shall be free of pinholes, holes, blisters, gels, undispersed ingredients, fish-eye blemishes, any signs of contamination of foreign matter, or any defect that may affect serviceability. The edges of the sheets shall be straight and free from nicks and cuts.

Rolled out liner that requires more than one patch per 5,000 square feet for repair of blemishes, holes, undispersed ingredients, blisters, gels, contamination by foreign matter, or any other factory defect that may affect serviceability shall be considered faulty and shall be rejected and replaced at the Liner Manufacturer's expense.

7.3.4 Smooth Liner Physical Properties

Smooth HDPE liner shall be in accordance with the thicknesses shown on the Drawings and meet the criteria in Table 7-1. All individual test specimens shall meet the minimum or maximum criteria in Table 7-1 with the following exceptions.

- The average elongation at break, tensile strength at break and modulus of elasticity in both the machine and transverse directions, determined as the average of five test specimens in each direction, shall comply with specified values.
- All individual test specimen results shall display minimum elongations at break equal to or greater than 520 percent, minimum tensile strengths at break equal to or greater than 92 percent of the specified criteria, and minimum modulus of elasticity equal to or greater than 64,000 lb/in^2.
- The average water vapor transmission shall meet the specified value and all individual test specimen results shall be equal to or less than 0.05 g/m^2/24 hours.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Routine testing for modulus of elasticity, dimensional stability, low temperature brittleness, environmental stress crack resistance, volatile loss, water absorption, water vapor transmission, oven aging and weathering [UV] resistance will not be required from the Liner Manufacturer. Certification in writing shall be provided by the Liner Manufacturer that the HDPE liner meets the Specification requirements. In support of the certification, the Liner Manufacturer shall submit at least one test result for each property performed within one year prior to the date of the certification in accordance with the following requirements:

- modulus of elasticity, dimensional stability and water absorption for each liner thickness and each base resin type;
- volatile loss, water vapor transmission, oven aging and weathering (UV) resistance for the minimum thickness liner (or thinner, but not less than 40-mil) and each base resin type; and
- low temperature brittleness and environmental stress crack resistance for each base resin type. Compliance with low temperature brittleness and environmental stress crack resistance may be satisfied by submittal of the resin manufacturer's product data sheet listing nominal values in compliance with the specification requirements.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 7-1. Smooth HDPE Liner Material Specifications

Property	Test Method	Criteria			
		40-mil Liner	60-mil Liner	80-mil Liner	100-mil Liner
Minimum Thickness	ASTM D5199 (mils)	≥36	≥54	≥72	≥90
Average Thickness	ASTM D5199 (mils)	≥40	≥60	≥80	≥100
Density	ASTM D792 [Method B] or ASTM D1505	≥0.932 g/cm^3 [base resin] >0.940 g/cm^3 [blended resin]			
Melt Index	ASTM D1238 [190°C / 2.16 kg]	≤1.0 g/10 minutes			
Carbon Black Content	ASTM D4218 or ASTM D1603	≥2.0% & <3.0%			
Carbon Black Dispersion	ASTM D5596 [10 views]	Category 1 or 2 [≥9 views] and Category 3 [≤1 view]			
Tensile Strength at Yield	ASTM D6693 (lb/inch)*	≥84	≥126	≥168	≥210
Tensile Strength at Break	ASTM D6693 (lb/inch)*	≥152	≥228	≥304	≥380
Elongation at Yield	ASTM D6693*	≥12%			
Elongation at Break	ASTM D6693*	≥700%			
Tear Resistance	ASTM D1004 (lb)*	≥28	≥42	≥56	≥70
Puncture Resistance	ASTM D4833 (lb)	≥80	≥120	≥160	≥200
Modulus of Elasticity	ASTM D638*	≥80,000 lb/in^2			
Water Vapor Transmission	ASTM E96 [Procedure BW] or ASTM F1249	<0.03 g/m^2/24 hours			
Dimensional Stability	ASTM D1204 [100ºC / 1 hour]	±2% (maximum)			
Low Temperature Brittleness	ASTM D746 [Procedure B]	<-94ºF (<-70ºC)			
Volatile Loss	ASTM D1203 [Method A]	<0.1%			
Water Absorption	ASTM D570	<0.1%			
Environmental Stress Crack Resistance	ASTM D1693 [F_{50}; Condition B; 50ºC/100% Igepal]	≥1,500 hours			
Notched Constant Tensile Load Stress Crack Resistance [Single Point at 30% of Yield Stress]	ASTM D5397 [SP-NCTL]	≥500 hours			
Oxidative Induction Time	ASTM D8117 [200ºC and 14.7 lb/in^2 O_2]	≥140 minutes			
Oven Aging	ASTM D5721 [85ºC] ASTM D8117 for S-OIT [200ºC; 14.7 lb/in^2 O_2] ASTM D5885 for HP-OIT [150ºC; 500 lb/in^2 O_2]	≥55% S-OIT retained at 90 days, or ≥80% HP-OIT retained at 90 days			
Weathering (UV) Resistance	ASTM D7238 [20-hour UV cycle at 75ºC with 4-hour condensation at 60ºC] ASTM D5885 for HP-OIT [150ºC; 500 lb/in^2 O_2]	≥50% HP-OIT retained at 1,600 hours			
* Tested in both machine and transverse directions.					

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

7.3.5 Textured Liner Physical Properties

Textured HDPE liner, whether single or double sided, shall be in accordance with the thicknesses shown on the Drawings, textured on both sides unless indicated otherwise on the Drawings and meet the criteria in Table 7-2. All individual test specimens shall meet the minimum or maximum criteria in Table 7-2 with the following exceptions.

- The average tensile strength and elongation at break in the machine and transverse directions, determined as the average of the five specimens in each direction, shall comply with specified values.
- All individual test specimen results shall display minimum tensile strengths at break equal to or greater than 30 percent of the specified criteria and elongations at break equaling or exceeding 60 percent.

Table 7-2. Textured HDPE Liner Material Specifications

Property	Test Method	Criteria			
		40-mil Liner	60-mil Liner	80-mil Liner	100-mil Liner
Minimum Thickness	ASTM D5994 (mils)	≥36	≥54	≥72	≥90
Average Thickness	ASTM D5994 (mils)	≥40	≥60	≥80	≥100
Asperity Height	ASTM D7466 (mils)*	≥16	≥16	≥16	≥16
Density	ASTM D792 [Method B] or ASTM D1505	≥0.932 g/cm^3 [base resin] >0.940 g/cm^3 [blended resin]			
Melt Index	ASTM D1238 [190°C / 2.16 kg]	≤1.0 g/10 minutes			
Carbon Black Content	ASTM D4218 or ASTM D1603	≥2.0% & <3.0%			
Carbon Black Dispersion	ASTM D5596 [10 views]	Category 1 or 2 [≥9 views] and Category 3 [≤1 view]			
Tensile Strength at Yield	ASTM D6693 (lb/inch)**	≥84	≥126	≥168	≥210
Tensile Strength at Break	ASTM D6693 (lb/inch)**	≥80	≥120	≥160	≥200
Elongation at Yield	ASTM D6693**	≥12%			
Elongation at Break	ASTM D6693**	≥200%			
Tear Resistance	ASTM D1004 (lb)**	≥28	≥42	≥56	≥70
Puncture Resistance	ASTM D4833 (lb)	≥80	≥120	≥160	≥200

* Each side for double-sided textured liner. Asperity height shall also be sufficient to provide specified interface frictional resistance.

** Tested in machine and transverse directions.

Textured liner shall meet the criteria specified for smooth liner for modulus of elasticity, water vapor transmission, dimensional stability, low temperature brittleness, volatile loss, water absorption, environmental stress crack resistance, notched constant tensile load stress crack resistance, oxidative induction time, oven aging and weathering (UV) resistance. Certification of

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

compliance for properties not requiring routine testing can be satisfied by:

- test results on smooth liner for water vapor transmission, low temperature brittleness, volatile loss, environmental stress crack resistance, oven aging and weathering (UV) resistance in accordance with the requirements in Section 7.3.4; and

- test results for modulus of elasticity, dimensional stability and water absorption for each textured liner thickness and each base resin type.

7.3.6 Frictional Characteristics

The surface roughness of smooth and textured HDPE liner shall provide peak interface friction angles between the liner and compacted gypsum and liner and compacted soil in compliance with criteria in Table 7-3.

Compliance with the specified peak interface friction angles shall be determined by direct shear tests performed by the Engineer in general accordance with ASTM D5321 using silty fine sand or gypsum selected by the Engineer with particle-size distributions determined in accordance with ASTM D6913 meeting criteria in Table 7-4.

Table 7-3. Liner Peak Interface Friction Angles

Material	Liner Type	Peak Interface Friction Angle
Gypsum	Smooth	≥18º
	Textured	≥33º
Soil	Smooth	≥15º
	Textured	≥28º

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 7-4. Soil and Gypsum Particle-Size Distributions for Liner Interface Shear Tests

Soil Type	Silty Sand	Gypsum
Group Symbol (ASTM D2487)	SM	ML
U.S. Standard Sieve Size	Percent Passing (Dry Mass Basis)	
No. 4	100	100
No. 10	97 - 100	100
No. 20	95 - 100	100
No. 40	90 - 100	100
No. 60	60 - 95	95 - 100
No. 100	20 - 80	85 - 100
No. 140	15 - 40	80 - 95
No. 200	12 - 20	75 - 90
No. 270	----	60 - 85
No. 400	----	40 - 75

Direct shear tests shall be performed at normal stresses selected by the Engineer ranging from 2 to 70 lb/in^2. Silty fine sand shall be compacted to a dry density equal to or greater than 95 percent of the Standard Proctor maximum dry density (ASTM D698) at a molding water content within ±2 percent of the Standard Proctor optimum water content. Gypsum shall be compacted at a molding water content ranging from 2 percent dry to 3 percent wet of the Standard Proctor optimum water content to a dry density equal to or greater than 95 percent of the Standard Proctor maximum dry density (ASTM D698 with an oven drying temperature of 40°C). The interface with soil and gypsum shall be tested saturated with water. The tests shall be performed using a horizontal displacement rate equal to or less than 0.30 inches per hour.

7.4 Manufacturing and Factory Quality Control Inspection and Testing

The Liner Manufacturer shall submit the following for each HDPE liner type:

- product data sheets and test data presenting physical properties for each property listed in Section 7.3.4 for smooth liner and Section 7.3.5 for textured liner;
- product data sheets for each HDPE base resin type; and
- written certification confirming compliance of the resin and HDPE liner sheets with this Specification.

7.4.1 Minimum Sheet Dimensions

HDPE liner shall be supplied in rolled sheets having a minimum width of 22.5 feet and the

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

minimum lengths shown in Table 7-5.

Table 7-5. Minimum HDPE Liner Roll Lengths

Thickness (mils)	Minimum Roll Length (feet)	
	Smooth Liner	Textured Liner
40	870	700
60	560	520
80	430	400
100	340	330

Variances for shorter roll lengths based on panel layout or other considerations may be allowed as approved by the Engineer.

7.4.2 Marking and Packaging

The Liner Manufacturer shall label each roll with the roll number, thickness, length, width and date manufactured. Each roll shall be individually packaged at the factory and protected to prevent damage during shipment. Liner rolls damaged during shipment shall be rejected. If only the outermost surface of the roll is damaged, it shall be peeled back, cut and wasted. Rolled out liner stock that requires more than one repair patch per 5,000 square feet prior to installation shall be considered faulty and shall be rejected and replaced at the Liner Manufacturer's expense.

Telescoping of rolls during manufacturing shall be kept to a maximum of 3 inches. The ends of inner cores shall be flush with or extend beyond the edge of the adjacent liner material and in no case end more than 2 inches inward from the edge of the adjacent liner material.

7.4.3 Factory Inspection and Spark Testing

The Liner Manufacturer shall inspect all liner sheets at the factory for compliance with the physical appearance requirements listed in Section 7.3.3. The Liner Manufacturer shall continuously spark test all liner sheets during manufacturing. The spark tester shall be capable of detecting defects or pinholes equal to or less than 10 mils (0.25 mm) in diameter. The Liner Manufacturer shall:

- submit a complete description of the spark testing device, operating protocols, factory quality control plan for operating the system and for identifying and removing defective liner to the Engineer prior to production of liner for the project; and

- provide written certification that all HDPE liner rolls were continuously spark tested and do not contain pinhole defects.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

7.4.4 Factory Quality Control Testing and Monitoring

The Liner Manufacturer shall submit the factory laboratory quality control manual for all HDPE liner and resin tests required in this Specification to the Engineer prior to production of liner for the project.

The Liner Manufacturer shall submit the factory manufacturing quality control plan to the Engineer prior to production of liner for the project. The plan shall identify the manufacturing parameters that are continuously monitored and recorded. Monitored parameters shall include at a minimum extrudate temperature, extruder nozzle pressure, speed of liner production and liner thickness. Factory manufacturing quality control data shall be submitted when requested by the Engineer.

7.4.4.1 HDPE Resin

Factory test reports for HDPE resin shall include:

- the proportions of base polymer, carbon black and other additives;
- test results for melt index, density and oxidative induction time in accordance with Table 7-6; and
- resin manufacturer's certificate of analysis of each batch of resin.

Resin density and melt index shall be reported for both unblended resin and blended resin after adding carbon black and antioxidants. Oxidative induction time shall be reported for blended resin. Factory test reports shall be submitted for approval to the Engineer prior to shipping liner to the project.

Table 7-6. HDPE Resin Factory Quality Control Test Methods and Minimum Testing Frequencies

Resin Property	Test Method	Minimum Frequency
Density	ASTM D792 [Method B] or ASTM D1505	Once per Batch of Resin
Melt Index	ASTM D1238 [190°C / 2.16 kg]	
Oxidative Induction Time	ASTM D8117 [200°C; 14.7 lb/in^2 O_2]	

7.4.4.2 Liner Rolls

Factory test reports for each liner roll shall, at a minimum, include test results for the following properties.

- minimum and average thickness

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

- minimum and average asperity height
- density
- carbon black content and carbon black dispersion
- minimum and average tensile strength and elongation at yield and break
- tear resistance
- puncture resistance
- SP-NCTL

The Liner Manufacturer shall perform factory quality control tests in accordance with Table 7-7. Factory quality control tests shall be performed in accordance with the following criteria.

- Smooth Liner. Tensile properties, tear resistance and puncture resistance tests may be performed on only one test specimen from each roll (in each direction as applicable) with individual specimen values reported for each roll.

- Textured Liner (single or double sided). Five tensile specimens shall be tested in each direction from each of a minimum of 20 liner rolls. The average and individual test specimen elongation at yield, elongation at break, load at yield and load at break shall be reported for each roll. Tear and puncture tests may be performed on only one test specimen from each roll (in each direction as applicable) with individual test specimen values reported for each roll. The 20 liner rolls shall be consecutive with no more than one break in the sequence of roll number unless approved otherwise by the Engineer. The number of test specimens may be reduced as allowed for smooth liner provided the test results comply with specification requirements and approved by the Engineer.

Certification of the modulus of elasticity, dimensional stability, low temperature brittleness, environmental stress crack resistance, volatile loss, water absorption, water vapor transmission, oven aging and weathering (UV) resistance shall be provided in accordance with Section 7.3.4 for smooth liner and Section 7.3.5 for textured liner.

All factory testing shall be at the Liner Contractor’s or Liner Manufacturer’s expense.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 7-7. HDPE Liner Factory Quality Control Test Methods and Minimum Testing Frequencies

Liner Property	Test Method	Minimum Frequency
Thickness [Smooth Liner]	ASTM D5199	Every Roll
Core Thickness [Textured Liner]	ASTM D5994	
Asperity Height [Textured Liner]	ASTM D7466*	
Tensile Strength at Yield	ASTM D6693**	Every Roll
Tensile Strength at Break	ASTM D6693**	
Elongation at Yield	ASTM D6693**	
Elongation at Break	ASTM D6693**	
Tear Resistance	ASTM D1004**	
Puncture Resistance	ASTM D4833	
Density	ASTM D792 [Method B] or ASTM D1505	Every 5 Rolls
Carbon Black Content	ASTM D4218 or D1603	
Carbon Black Dispersion	ASTM D5596	
Notched Constant Tensile Load Stress Crack Resistance [Single Point at 30% of Yield Stress]	ASTM D5397 [SP-NCTL]	Every 25 Rolls and at a Minimum Once per Batch of Resin
* Each side for double-sided textured liner. ** Tested in both machine and transverse directions.		

7.5 Quality Assurance Testing

7.5.1 Sampling by Liner Manufacturer

The Receiver will arrange with the Liner Manufacturer for sampling liner rolls during manufacturing for independent testing by the Engineer prior to shipment of the rolls. One 2-foot wide sample across the full width of each roll shall be cut during production. The samples shall be labeled, packaged and shipped by the Liner Manufacturer to the Engineer for testing.

The following sampling procedure shall be used to allow positive visual confirmation by the Engineer that samples supplied by the Liner Manufacturer represent the corresponding liner rolls.

- Apply three or more randomly and uniquely located, permanent paint-stick markings in the machine direction across the path of the knife on the liner sheet prior to cutting the sample. The markings shall be generally located within 2 feet of the end of the roll bearing the Liner Manufacturer's roll label.

- Cut a minimum 24-inch wide sample across the entire roll width ensuring that the knife passes through the paint markings, leaving half of the marking

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

on the liner roll and the other half on the sample.

- Roll the sample such that the end bearing the paint markings is on the outer end of the rolled sample. The outer end of each sample shall also be marked with the roll number.

The Engineer's representative will observe that the markings on each sample provided for testing match the markings on the corresponding liner roll prior to allowing deployment of a liner roll.

7.5.2 Quality Assurance Testing by Engineer

Quality assurance testing by the Engineer will be made for the HDPE liner properties at the minimum frequencies listed in Table 7-8 unless revised otherwise by the Engineer.

Table 7-8. HDPE Liner Quality Assurance Test Methods and Minimum Testing Frequencies

Liner Property	Test Method	Minimum Frequency
Thickness [Smooth Liner]	ASTM D5199	2 per acre
Core Thickness [Textured Liner]	ASTM D5994	
Asperity Height [Textured Liner]	ASTM D7466*	
Density	ASTM D792 [Method B] or ASTM D1505	1 per acre
Carbon Black Content	ASTM D4218 or ASTM D1603	
Tensile Strength at Yield	ASTM D6693**	2 per acre
Tensile Strength at Break	ASTM D6693**	
Elongation at Yield	ASTM D6693**	
Elongation at Break	ASTM D6693**	
Tear Resistance	ASTM D1004**	
Melt Index	ASTM D1238 [190°C / 2.16 kg]	1 per 5 acres and at a minimum of 1 per batch of resin
Interface Friction	ASTM D5321	1 per 10 acres
Other Properties	As requested by the Engineer	

* Each side for double-sided textured liner.
** Tested in both machine and transverse directions.

Failure of any sample to meet the requirements specified herein shall be considered cause for rejection of the material or installed section represented by the sample to the extent designated by the Engineer. If the Liner Contractor or Liner Manufacturer can establish to the Engineer, via

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

additional test results, that the failed sample is representative of a smaller section of the installed material than the entire lot represented by the original test sample, then only that portion will be rejected. The additional tests, however, shall be performed by the Engineer representing the Receiver. The Liner Contractor or Liner Manufacturer shall reimburse the Receiver for the cost of any such requested test that fails to meet the requirements of the Specifications.

7.5.3 Sampling by Liner Contractor

In the event sampling is not performed by the Liner Manufacturer in accordance with Section 7.5.1, the Liner Contractor shall obtain and secure samples of the liner during construction for testing by the Engineer from rolls designated by the Engineer, and shall properly mark the samples as needed to identify the liner roll (and panel if applicable) from which the sample was obtained. The sample shall be a 2-foot wide sample across the full width of the roll. Testing by the Engineer will be performed in accordance with Section 7.5.2 unless revised otherwise by the Engineer.

7.6 Material Warranty

A written material warranty shall be provided to the Receiver from the Liner Manufacturer. This document shall warrant the quality of the liner material for a period of not less than 20 years.

7.7 Submittals

The following submittals are required as part of the requirements of this Specification.

- Product data sheets and test data for each liner type listing liner physical properties, and product data sheets for each HDPE base resin type listing resin properties (Section 7.4).

- A written certification from the Liner Manufacturer that the HDPE base resin and liner materials comply with this Specification (Section 7.4).

- Test results and written certification from the Liner Manufacturer that the liner modulus of elasticity, dimensional stability, low temperature brittleness, environmental stress crack resistance, volatile loss, water absorption, water vapor transmission, oven aging and weathering (UV) resistance meet the requirements of this Specification (Section 7.3.4 for smooth liner and Section 7.3.5 for textured liner).

- Description of the spark testing device, operating protocols, factory quality control plan for operating the system and for identifying and removing defective liner (Section 7.4.3).

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

- Written certification from the Liner Manufacturer that all HDPE liner rolls have been continuously factory spark tested and do not contain pinhole defects (Section 7.4.3).

- Factory laboratory quality control manual for all HDPE liner and resin tests required in this Specification (Section 7.4.4).

- Factory manufacturing quality control plan (Section 7.4.4).

- Factory test reports for each batch of HDPE resin, including proportions of base polymer and additives, oxidative induction time, melt index and density. The resin manufacturer's certificate of analysis for each batch of resin shall also be provided (Section 7.4.4.1).

- Factory test reports for each liner roll reporting properties in accordance with this Specification (Section 7.4.4.2).

- Written warranty from the Liner Manufacturer to warrant the quality of the liner material for a period of not less than 20 years (Section 7.6).

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 8
HDPE LINER INSTALLATION

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

8.1 Description of Work

This Specification covers the installation of High-Density Polyethylene (HDPE) geomembrane liner and associated ancillary work. The HDPE liner shall be installed in accordance with this Specification and as shown on the Drawings. Liner installation includes: (i) surface water control during liner installation; (ii) maintenance of the prepared gypsum base for the liner; (iii) placement and seaming of HDPE liner; (iv) excavation and backfilling liner anchor trenches; (v) placement of temporary ballast loading; (vi) installation of seep shields, liner penetrations and pipe vents; and (vii) liner connections to the inlet structure.

This Specification contains the following sections:

Section	Item
8.1	Description of Work
8.2	Referenced Standards
8.3	Surface Water Control and Base Maintenance
8.4	Liner Handling and Installation
8.5	Inspection and Field Testing by Liner Contractor
8.6	Quality Control Inspection and Testing by Engineer
8.7	Insurance
8.8	Warranty
8.9	As-Built Drawings
8.10	Submittals

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

8.2 Referenced Standards

The following ASTM International (ASTM) standards are referenced in this Specification.

D698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))

D1556: Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method

D2216: Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

D4253: Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table

D4254: Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density

D2937: Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method

D4944: Standard Test Method for Field Determination of Water (Moisture) Content of Soil by the Calcium Carbide Gas Pressure Tester

D5641: Standard Practice for Geomembrane Seam Evaluation by Vacuum Chamber

D5820: Standard Practice for Pressurized Air Channel Evaluation of Dual Seamed Geomembranes

D6365: Standard Practice for the Nondestructive Testing of Geomembrane Seams Using the Spark Test

D6392: Standard Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods

D8580: Standard Practice for Wedge Welding of Polymeric Geomembranes

8.3 Surface Water Control and Base Maintenance

The base of the construction area shall be maintained well-drained prior to and during liner installation. Liner work areas shall be maintained well-drained and dry to prevent uplift of the liner after installation. The Contractor's proposed methods for dewatering, surface water control and

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

routing water to the area designated by the Receiver shall be submitted to the Engineer for approval at least two weeks prior to implementation.

The Liner Contractor shall maintain and restore, as needed, the condition of the prepared base prior to and during liner deployment and installation such that the prepared base is maintained in accordance with Section 6 of these Specifications at the time of liner deployment. Surfaces to receive the HDPE liner shall be finished smooth with a smooth drum roller.

8.4 Liner Handling and Installation

Installation of the liner shall be in compliance with the Drawings and Specifications and with the Liner Manufacturer's standard guidelines and specifications for liner installation, subject to approval by the Engineer, including as applicable, but not limited to: liner roll handling and on-site storage; unrolling and laying of liner sheets; field seaming; anchor trench installation; temporary ballast loading; vent installation; and liner penetrations and connections to structures.

8.4.1 On-Site Storage

On-site storage shall be as needed to protect the liner rolls from excessive accumulations of phosphogypsum, soil or water on the liner surfaces, water, heat, mechanical abrasion, puncture and vehicular traffic. Liner rolls shall be stored on a firm, dry, elevated surface in a protected storage area approved by the Receiver. The liner rolls shall not be stacked more than three rolls high, or as otherwise recommended by the Manufacturer.

8.4.2 Handling and Panel Placement

Appropriate handling equipment shall be used when loading or moving rolled liner sheets from one place to another. Appropriate equipment includes spreader and roll bars for deployment, and cloth chokers with a spreader bar for off-loading.

Liner deployment shall not be performed when precipitation is occurring, when excessive moisture (i.e., fog, dew) or wet conditions exist, when the ambient air temperature is below 40° F or above 100°F, when high winds (>20 mph) are occurring, or when other adverse climatologic conditions exist that would, in the opinion of the Engineer and/or the Receiver, adversely affect liner installation.

The liner sheets shall be unrolled and deployed in a manner which minimizes wrinkles and prevents the occurrence of folds and creases. Liner panels shall be installed from high to low elevation to prevent runoff from flowing below installed liner panels, and shingled at seams with the upslope panel overlaying the downslope panel. All liner shall be ballasted immediately after deployment to prevent uplift by wind.

“Vise-grips” or other tools, if used to grip the liner during handling and deployment, shall have clean, smooth grip faces, and corners on the grip faces shall be rounded. The pressure applied

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

by the grips shall not be so great as to indent or otherwise damage the liner. The Liner Contractor shall demonstrate the methods for handling and deploying liner at the start of installation for approval by the Engineer.

The HDPE liner shall be installed at the locations and to the lines, grades and dimensions shown on the Drawings, or as otherwise approved by the Engineer. Panel layout and deployment shall be such that seams run down the slope of the dikes and are oriented perpendicular to the top of slope of the dikes. This seam orientation shall be maintained for a distance of not less than 10 feet from the inside toe of the dikes or as otherwise shown on the Drawings or approved by the Engineer. The panel layout plan shall equally aim to minimize the number of patches and welds required to install the HDPE liner. Panel butt seams shall be staggered to minimize the occurrence of more than three panels joining at one location as much as practical.

The Liner Contractor shall submit a panel layout plan indicating the proposed liner panel configuration and field seams, and identifying (if applicable and shown on the Drawings) anchor trenches, vents, pipe penetrations, seepshields, structure connections, permanent wind ballast trenches, permanent bag wind ballast atop the liner, and other details needed to complete the work for approval by the Engineer at least two weeks prior to liner installation.

8.4.3 Field Seams

All liner shall be seamed the same day that the liner is deployed. All liner shall be ballasted immediately after deployment to prevent uplift by winds. Welding of field seams shall not take place unless suitable surface and weather conditions exist, the ambient air temperature is above 40° F and below 100°F, and satisfactory field seams can be made as confirmed by field trial test welds. The Liner Contractor may submit a procedure for welding in ambient air temperatures below 40°F and above 100°F for review and approval by the Engineer. Welding under the dew point is not allowed as this will affect welding quality.

All liner sheets must be continuously and tightly bonded using continuous double-wedge fusion welds (ASTM Standard D8580) or extrusion fillet welds both made using automated welding equipment approved by the Engineer. The use of extrusion fillet welds shall be limited to:

- patches at liner panel T-seams;
- patches at liner repairs;
- pipe penetrations; and
- other detail work approved by the Engineer.

Field seaming shall be conducted in the dry, on relatively smooth compacted surfaces, and in accordance with the following requirements:

- liner to be welded shall be wiped and cleaned thoroughly to remove any dirt, dust, gypsum, soil, water, moisture or other foreign material;

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

- adjoining liner sheets shall be overlapped a minimum of 4 inches, by adequately lapping the edges of the sheets;
- the overlap shall not exceed 6 inches for double-wedge fusion welds; and
- seam overlaps shall be made such that the direction of flow over the lined surface is from the top sheet toward the bottom sheet to form a shingle effect.

Adjoining liner sheets shall be overlapped a minimum of 4 inches by adequately lapping the edges of the sheets. The overlap shall not exceed 6 inches for double-wedge fusion welds. Seam overlaps on the bottom area shall be made such that the direction of flow over the lined surface is from the top sheet toward the bottom sheet to form a shingle effect.

Edges to be welded shall be wiped and cleaned thoroughly to remove any water, moisture, gypsum, soil, dust, dirt or other foreign material. All field seams shall be: symmetric, and uniform in appearance and width satisfying the appearance criteria below and as shown on the Drawings, unless approved otherwise by the Engineer based on peel and shear test results; shall not exhibit heat distortion due to overheating from welding; and shall be uniform in physical properties meeting the seam strength, shear elongation, peel separation and failure mode criteria in Section 8.4.3.1 of this Specification.

(i) Extrusion Fillet Welds: The surface of extrusion fillet welds shall be uniform and smooth in appearance. The interior of the center extrudate bead shall be homogeneous and uniform in appearance. The weld shall be symmetric in width with the crown of the extrudate bead centered along the edge of the top liner sheet and meet the following criteria:

(a) The total width of the weld shall be between 1¼ and 1¾ inches with the center bead comprising approximately one-third of the total width.

(b) The total thickness of the center of the weld shall be 3 to 4 times the thickness of the liner sheets being welded.

(c) The squeeze-out lip along both edges of the weld shall be similar in shape and size.

(ii) Double-Wedge Fusion Welds (ASTM Standard D8580): The surface of double-wedge fusion welds shall be uniform in appearance and slightly embossed from the nip rollers along the top and bottom surfaces of both fusion weld areas. The weld shall meet the following criteria:

(a) The fusion weld areas shall be symmetric, and each shall have a width equal to or greater than 5/8 inches and thickness reduction of 10 to 25 mils.

(b) The width of the air channel shall typically be 1/2 to 5/8 inches.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

(c) Squeeze-out along the inside and outside edges of the fusion welded areas shall be similar in size and typically extend no more than about 1/8-inch

The surface of both HDPE liner sheets along extrusion fillet welds shall be ground prior to welding to remove any oxidized surface film in accordance with the following criteria unless approved otherwise by the Engineer.

(i) Grind with 80 grit sandpaper holding the grinding wheel such that the grinding marks are oriented perpendicular to the seam and made from the bottom sheet toward the top sheet to prevent gouging of the lower sheet;

(ii) The edge of the upper sheet shall be beveled approximately 45 degrees by the grinding process;

(iii) The depth of grinding shall be approximately 5 percent of the liner thickness and in no case more than 10 percent of the liner thickness; and

(iv) The width of grinding shall be slightly less than the width of the extrusion weld such that grinding marks are not visible beyond the edges of the weld.

(v) Welding shall be completed within one hour of grinding the surface of the liner.

Heat-degraded resin in the barrel of the extrusion welder shall be purged prior to making extrusion welds.

Seams shall not exhibit heat distortion from overheating during welding (e.g., warping, excessive thermal puckering). The underside of field seams shall be inspected for heat distortion from welding at the end of all seams, wherever samples for destructive testing are cut from the field seam, and at locations identified by the Engineer wherever the appearance of the weld is indicative of potential heat distortion.

8.4.3.1 Field Seam Strength

All welded field seams shall meet the following criteria when tested in accordance with ASTM Standard D6392 except where noted otherwise.

- Shear Strength: The shear strength specimens shall meet the following criteria:

  (i) a strength in shear equal to or greater than the value in Table 8-1;

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

(ii) a film-tear bond failure (FTB) mode; and

(iii) a shear elongation at break equal to or greater than 50 percent.

Quality assurance tests by the Engineer shall be performed at a rate of displacement of 2 inches/minute for the first 2 inches of displacement, and the test then continued at a rate of displacement of 20 inches/minute until rupture. Field tests by the Liner Contractor shall be performed at a displacement rate of 2 inches/minute and may be terminated after 50 percent elongation

- Peel Strength: The peel strength specimens shall meet the following criteria:

(i) a peel strength equal to or greater than the values in Table 8-1 for double-wedge fusion welds and for extrusion fillet welds;

(ii) a film-tear bond failure (FTB) mode; and

(iii) a peel separation (incursion area) less than or equal to 25 percent of the initial bonded area and less than 100 percent of the width of the initial bonded area (excluding the area and width of the squeeze-out from the initial bonded area and width).

The peel strength criteria shall apply to both the top and bottom welds of double-wedge fusion welds.

Table 8-1. Minimum Shear and Peel Strength Requirement for Field Seams

Liner Thickness (mils)	Shear Strength (lb/inch)	Peel Strength (lb/inch)	
		Double-Wedge Fusion Weld	Extrusion Weld
40	80*	60	54
60	120*	91	82
80	160*	121	109
100	200*	151	136

*With shear elongation at break ≥50%

Non-FTB failure modes:

The following locus-of-break behavior (as defined in ASTM Standard D6392) shall be considered non-FTB failure modes:

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Double-wedge fusion welds exhibiting:

(i) AD;
(ii) AD-BRK [with >25% peel separation of the bonded area]; or
(iii) AD-BRK [with separation across 100% of the bonded width regardless of separation area]

Extrusion fillet welds exhibiting

(i) AD1;
(ii) AD2;
(iii) AD-BRK [with >25% peel separation of the bonded area];
(iv) AD-BRK [with separation across 100% of the bonded width regardless of separation area]; or
(v) AD-WLD [with shear strength or peel strength less than the minimum values listed in Table 8-1].

8.4.3.2 Pass/Fail Criteria

The following pass/fail criteria shall be used to determine compliance of field seams with the above strength criteria:

(i) All five specimens from a given sample tested in peel (both top and bottom for double-edge fusion welds) shall exhibit the specified strength, separation and FTB failure modes, and all five specimens tested in shear shall exhibit the specified strength, shear elongation at break ≥50 percent and FTB failure modes (i.e., 0 percent strength, shear elongation at break and peel separation failures, and 0 percent non-FTB failures); or

(ii) All five specimens from a given sample tested in peel and all five specimens tested in shear shall exhibit the specified strengths, all five specimens tested in shear shall exhibit elongation at break ≥50 percent, four of five specimens tested in peel shall exhibit acceptable peel separation, and four of five test specimens, for each type of test, shall exhibit FTB failure modes (i.e., 0 percent strength and shear elongation at break failures, and up to 20 percent non-FTB failures); or

(iii) One specimen from a given sample tested in peel or shear may exhibit a non-FTB failure and a strength no less than 60 percent of the specified strength provided that all five field seam specimens tested from the duplicate (archive) sample exhibit the specified strength, all five specimens tested in shear exhibit an elongation at break ≥50 percent, four of five specimens tested in peel exhibit

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

acceptable peel separation, and no more than one test specimen of the five additional specimens exhibits a non-FTB failure (i.e., 0 percent shear elongation at break failures, 10 percent strength failures, and up to 20 percent non-FTB failures).

If a field seam fails the criteria specified herein, and the Liner Contractor wishes to establish to the Engineer that the failed sample represents a smaller section of the field seam than designated by the Engineer, additional samples may be obtained at progressively increasing distances from both sides of the failed sample, at locations approved by the Engineer, until two consecutive samples on each side of the original sample pass the field seam criteria. At that point, the extent of the original defect in both directions along the field seam will be considered isolated and the Liner Contractor may then: (i) either cap, re-weld and re-test the seam up to and including the closest of the two passing samples, and patch and weld the hole of the furthest passing sample; or (ii) cap, re-weld and re-test the entire length of sampling.

If approved by the Engineer, double-wedge fusion welds may be repaired by extrusion welding the flap of the top sheet to the bottom sheet if the seam non-compliance is due only to a non-FTB failure of the destructive test sample.

Duplicate coupons of additional samples requested by the Liner Contractor for identifying the extent of a defective seam will not be tested, i.e., the seam shall meet either pass/fail criteria (i) or (ii). The Liner Contractor shall reimburse the Receiver for the cost of any such requested additional tests which fail to meet the requirements of this Specification.

8.4.4 Anchor Trenches

The liner shall be anchored in anchor trenches in the crest of the dikes at the locations shown on the Drawings. Liner field seams shall be welded continuously through the anchor trench.

Liner anchor trenches shall be no less than 18 inches in width and 24 inches in depth unless indicated otherwise on the Drawings. The corners of the trenches shall be slightly rounded to minimize sharp bends in the liner. After placement of the liner along one side, across the bottom of the trench, and partially up the other side, the trench shall be backfilled with gypsum fill compacted to a dry density not less than 95 percent of the Standard Proctor maximum dry density (ASTM Standard D 698 using drying temperature of 40°C). Care shall be taken not to damage the liner during placement and compaction of the gypsum backfill.

8.4.5 Temporary Ballast Loading

Adequate loading that will not damage the liner shall be placed by the Liner Contractor over the liner during installation as needed to prevent uplift by wind and by rapid changes in barometric pressure. This temporary ballast loading shall be in addition to the anchor trenches and permanent wind ballast trenches if shown on the Drawings. Sufficient temporary ballast loading shall be placed along panel edges, in particular, as needed to minimize the risk of wind flow under

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

the panels. Continuous loading shall be provided at all panel edges during days off, at night, and whenever inclement or stormy weather is anticipated.

Temporary ballast loading may consist of gypsum filled or sand filled bags. Bags used for containing gypsum or sand shall be non-abrasive and non-damaging to the liner, resistant to degradation by ultraviolet rays, shall contain the selected material without leakage, and shall be approved by the Engineer. No gypsum or soil fill shall be placed atop the liner, as ballast loading, without it being adequately and completely contained. The Contractor is responsible for providing more robust ballast loading to prevent uplift during construction if high-wind conditions are expected.

Temporary ballast loading shall be maintained as necessary or as otherwise directed by the Engineer. All temporary ballast loading shall be removed by the Liner Contractor prior to demobilizing from the site unless otherwise approved by the Engineer.

The Liner Contractor shall submit a complete description and details of the proposed temporary wind ballast at least two weeks prior to liner installation. Approval by the Engineer shall not relieve the Liner Contractor from responsibility to provide all temporary wind ballast loading as needed to prevent uplift during construction.

8.4.6 Liner Penetrations

8.4.6.1 Flow Control Structures

All pipe penetrations shall be made in accordance with the details shown on the Drawings and following the Liner Manufacturer's recommendations, subject to approval by the Engineer. Pipe penetrations through the HDPE liner shall be made using a specially constructed HDPE plate continuously welded to the pipe which will provide a strong, water-tight seal between the pipe and the plate. The pipe penetration plate shall be constructed from the same base resins as the liner. The liner shall be continuously extrusion welded to the plate and the HDPE pipe, as shown on the Drawings.

8.4.6.2 Protective Pipe Casings

Penetrations through the HDPE liner at the protective pipe casing locations shall be made with a prefabricated sleeve and skirt in accordance with the details shown on the Drawings. The sleeve and skirt shall be extrusion welded to the HDPE liner and all around the outside of the pipe circumference. The sleeve and skirt shall consist of 60-mil textured HDPE liner complying with the requirements of Section 7.3. Extrusion welds shall comply with the requirements of Section 8.4.3. The pipe penetrations shall be fabricated in accordance with the Manufacturer's recommendations, subject to approval by the Engineer.

The Liner Contractor shall submit a shop drawing with the proposed pipe vent penetration sleeve and skirt detail at least two weeks prior to liner installation.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

8.4.7 Repairs

All liner defects (scratches, blisters, rips, punctures, tears, holes, pinholes, creases, folds, strain-yielded areas, etc.) shall be marked and repaired by completely covering the defect or hole with an oval-shaped piece of the corresponding HDPE liner material extending at least 4 inches beyond the edges of the defect/hole, and continuously welding the patch to the liner using an extrusion weld.

Scratches shall be considered a defect when the depth is in excess of 5 percent of the liner thickness or as otherwise determined by the Engineer.

Holes created by removal of samples for destructive testing shall be marked, patched and repaired as specified above for liner defects. The panel number, repair location, type of defect, description of repair made, and date repaired shall be documented for each liner repair.

8.4.8 Liner Protection

No equipment, tools or personnel that can readily cause damage to the HDPE liner shall be allowed on the liner during and after installation. Personnel working on the HDPE liner shall not smoke, wear potentially damaging shoes, dispose of trash or other debris, or engage in any activity that could damage the liner.

The passage of construction equipment, other than light rubber-tired equipment approved by the Engineer, over any exposed HDPE liner surface shall be prohibited. Light rubber-tired equipment exerting a contact stress less than 6 lb/in^2 will be allowed provided proper care is taken when operating the vehicle to avoid:

(i) pulling, displacing or damaging the liner;

(ii) trafficking over wrinkles that become folded or creased by the tires; and

(iii) making sharp turns or abrupt starts/stops.

Any damage to the liner (scratches, rips, punctures, tears, holes, creases, folds, strain-yielded areas, etc.) shall be immediately reported to the Engineer. Repairs shall be made in a manner approved by the Engineer at the expense of the Liner Contractor.

Spray paint and paint sticks utilized to mark or write on the liner shall consist of water-based paints

8.4.9 Fuel and Oil Spill Clean-Up

All spills or leaks of fuels or oils from equipment and vehicles on the surface of the liner shall be

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

thoroughly cleaned with soap and water or, at the discretion of the Engineer, the affected liner shall be cut, removed and replaced with new liner material. Subgrade soils contaminated with fuel or oil shall be excavated and replaced to the extent designated by the Engineer. Contaminated soils shall be disposed of on site in an area designated by the Receiver.

8.5 Inspection and Field Testing by Liner Contractor

8.5.1 Initial Qualifying Welds

Each welding technician shall demonstrate their ability to consistently make successful seams prior to installation of any liner. Each welding technician shall prepare test strips for each type of seam between different liner types, and for both extrusion and double-wedge fusion welds. Each test strip shall have a minimum length of 20 feet. Qualifying welds shall be made using the same conditions that will exist during actual liner installation (i.e., same grinder operator(s) for extrusion welds and making the welds on similar ground conditions). Twelve test specimens shall be cut from the test strip at an approximately uniform spacing of 18 inches or at locations selected by the Engineer, and tested by the Liner Contractor in shear and peel (6 test specimens each) for compliance with the Specification requirements in Section 8.4.3. The test strip and test specimens shall satisfy the requirements of Section 8.4.3 and display 0 percent peel separation, before either the welder or welding apparatus are allowed to operate on production welds.

A log of initial qualifying trial welds and test results shall be maintained by the Liner Contractor.

8.5.2 Daily Qualifying Welds

At the beginning of each workday, after any interruption in power, after any idle period of greater than 5 hours, and at the request of the Engineer at any other time during the day, each seamer/welder shall prepare a 3-foot long test strip for extrusion welds, and a 10-foot long test strip for double-wedge fusion welds, using their assigned welding apparatus. Qualifying welds shall be made using the same conditions that will exist during actual liner installation (i.e., same grinder operator(s) for extrusion welds and making the welds on similar ground conditions).

Ten test specimens shall be cut from the test strip at locations selected by the Engineer and tested by the Liner Contractor in shear and peel (5 test specimens each) for compliance with the Specification requirements in Section 8.4.3. The test strip and test specimens shall satisfy the requirements of Section 8.4.3, with all test specimens meeting the criteria in Section 8.4.3.1 and displaying 0 percent peel separation, before either the welding technician or welding apparatus are allowed to operate on production welds.

Each welding technician shall prepare a 3-foot (for extrusion welds) to 10-foot (for double-wedge fusion welds) long test strip using their assigned welding apparatus at the beginning of each working day and after any of the following:

- an interruption in power;

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

- an idle period of greater than 5 hours;
- a change in geomembrane liner temperature of more than 45°F (25°C) from the initial or immediately preceding daily qualifying test weld; or
- at the request of the Engineer at any other time.

A log of daily qualifying test welds and test results shall be maintained by the Liner Contractor.

8.5.3 Non-Destructive Testing of Welds

The Liner Contractor shall continuously test every field weld (i.e., 100 percent of the length of all field seams) including field welds around patches using non-destructive test methods. These tests shall be performed in the presence of the Engineer unless allowed otherwise by the Engineer.

(iv) Extrusion welds: Extrusion welds shall be tested using a vacuum box and test procedures in accordance with ASTM Standard D5641. The base of the vacuum box must be able to form a tight seal with the liner and weld surface. The vacuum gauge shall be capable of indicating the vacuum in increments of no more than ½ lb/in^2 within the test range. The calibration of the vacuum gauge shall be checked at the beginning of liner installation and periodically as requested by the Engineer.

A generous amount of soap solution shall be uniformly placed over the weld, the vacuum chamber placed over the test area and a downward force applied to seal the chamber to the liner. A vacuum of 2 to 4 lb/in^2 should be applied to the seam and held for a minimum of 10 seconds. Any bubble formation must be noted, and the corresponding defective area identified, marked and subsequently repaired.

Placement of the vacuum box shall continue at successive locations along the extrusion weld and overlap the prior test location by at least 10 percent of the minimum chamber length or at least 2 inches, whichever is greater.

(v) Double-wedge fusion welds: Double-wedge fusion welds shall be non-destructively tested in general accordance with ASTM Standard D5820 by pressurizing the air channel between the two welds to the pressures tabulated below and monitoring the pressure for any decline with time. The pressure gauge shall be marked in increments of no greater than 1 lb/in^2 within the test range. The calibration of the pressure gauge shall be checked at the beginning of liner installation and periodically as requested by the Engineer.

After allowing 2 minutes for relaxation, the pressure shall be monitored over test periods of either 5 or 10 minutes. A weld will be considered satisfactory if the maximum pressure drop does not exceed the values listed in Table 8-2 for the corresponding liner thickness.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 8-2. Non-Destructive Testing of Welds

HDPE Liner Thickness (mils)	Maximum Weld Length (feet)*		Minimum Pressure (lb/in^2)	Maximum Pressure (lb/in^2)	Maximum Pressure Loss (lb/in^2)†	
	Smooth Liner	Textured Liner			5-minute Test	10-minute Test
40	900	790	25	30	2.5	3.5
60	600	550	28	36	2.0	3.0
80	460	420	30	36	1.0	1.5

* Length of weld shall be one full panel length up to the maximum indicated.
† Maximum loss in pressure within the test period.

The length of welded section tested by air pressure shall not exceed lengths tabulated above for the corresponding liner thickness. The Contractor shall cut the end of the air channel to release the air pressure at the end of the test. The needle and air pressure gauge shall be left in-place until it is observed that the air pressure drops to zero.

If a non-compliant pressure drop occurs, pressure testing may be repeated in a step fashion each time halving the length of weld being tested until the extent of the defective weld is determined. Vacuum box testing (ASTM Standard D5641) may also be used to locate a defect in the top weld or in the top of the air channel.

Once the defect is found, it shall be clearly identified, marked and repaired. Any defective seam shall be repaired so that it meets or exceeds the minimum requirements specified herein.

Welds in inaccessible areas where the use of the other nondestructive test methods is not practical, shall be tested using a spark tester in accordance with ASTM Standard D6365. The spark testing equipment and proposed field test procedures shall be approved by the Engineer prior to use.

8.5.4 Sampling and Destructive Testing

The Liner Contractor shall obtain and secure samples of the liner and field seams for destructive testing by the Engineer at locations designated by the Engineer. Samples shall be obtained at the frequency specified in Section 8.6.3. The Liner Contractor shall obtain seam samples, in triplicate, from the designated location for use as follows:

(i) One portion of the sample shall be tested in the field by the Liner Contractor in the presence of the Engineer
(ii) The second portion of the sample, if the results of field tests performed by the Liner Contractor indicate compliance with criteria in Section 8.4.3, shall be provided to the Engineer for quality assurance testing; and
(iii) The third portion will be retained by the Receiver for archive storage.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

If the results of peel and shear tests performed by the Liner Contractor in the field do not meet the requirements specified herein, then the provisions of Section 8.4.3 shall apply for temporarily determining the extent of repairs pending performance of independent quality control tests by the Engineer.

The portions of seam samples provided to the Engineer for laboratory destructive testing and to the Receiver for archive storage shall each be not less than 12 inches wide by 18 inches long in the direction of the seam. The seam shall be centered along the sample length. Each of the triplicate sample portions shall be properly marked and identified by the Liner Contractor.

The Liner Contractor shall repair all holes created by sampling in accordance with Section 8.4.7.

8.5.5 Visual Inspection

The Liner Contractor shall visually inspect the entire liner surface for any defects including, but not limited to, seam imperfections, badly scuffed areas, scratches, blisters, rips, punctures, tears, holes, pinholes, creases, folds, strain-yielded areas, etc. The Liner Contractor shall identify, mark, and repair all noted defects, as well as defects designated by the Engineer. Repairs shall be made in accordance with Section 8.4.7.

8.5.6 Quality Assurance Forms

The Liner Contractor shall adopt and use the quality assurance forms prepared by the Engineer, or other forms approved by the Engineer, during all phases of liner installation, inspection and testing. The Liner Contractor can request to use their forms. The forms must be submitted to the Engineer at least two weeks prior to liner installation for approval.

8.5.7 Certification

The Liner Contractor's installation supervisor shall observe and check all phases of the liner installation. When the liner is finally accepted by the Receiver, the Liner Contractor shall submit written certification to the Receiver that the installation conforms to the requirements of the Liner Manufacturer.

8.6 Quality Control Inspection and Testing by Engineer

8.6.1 Base Maintenance and Repair during Liner Installation

The Engineer will undertake observations and perform quality assurance tests to determine compliance with these Specifications. Quality control by the Engineer will include monitoring gypsum fill placement to determine the suitability of subgrade materials and adequacy of compaction. The Engineer will perform *in situ* density tests:

(i) after compaction of fill as needed to fine grade, maintain and restore the condition

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

of the prepared base;

(ii) after dressing the slopes of dikes;

(iii) after compaction of fill in excavations as needed to restore the grade; and

(iv) after compaction of backfill in anchor trenches.

In situ density tests will be performed by the drive cylinder method (ASTM Standard D2937), sand cone method (ASTM Standard D1556) or other methods approved by the Engineer. Water content tests made in the field using a calcium carbide gas pressure moisture tester (ASTM Standard D4944) calibrated for gypsum or soil may be used by the Engineer to provide water content information for construction control, but final acceptance of all liner subgrade material will be based upon the ASTM Standard D2216 test method (using an oven drying temperature of 40°C for gypsum) unless approved otherwise by the Engineer. Penetration test probes may also be performed as needed to verify the uniformity of compaction. The Engineer will perform Standard Proctor compaction tests on gypsum fill (ASTM Standard D698, using a drying temperature of 40°C for gypsum) or minimum and maximum index dry density tests (ASTM D4254 and D4253), as appropriate for the material, will be performed by the Engineer, as needed, to determine compliance with compaction requirements.

Testing of the gypsum subgrade will be made by the Engineer following final grading and compaction by the Contractor before the surfaces are turned over to the Liner Contractor. Testing of the gypsum subgrade may be repeated, if deemed necessary by the Engineer, immediately prior to liner placement. Final documentation and results from these tests, however, will not be available prior to liner deployment. Such testing shall not relieve the Liner Contractor from his responsibility for restoration or repair of unsuitable areas following liner placement, in the event that such is deemed necessary by the Engineer.

8.6.2 Liner Installation

All critical aspects of the liner installation will be inspected by the Engineer. The Engineer will conduct his own inspections and tests in addition to those performed by the Liner Contractor. The Engineer will undertake observations and perform quality assurance tests to determine compliance of the liner installation with these Specifications. Quality control by the Engineer will include monitoring:

(i) liner handling and panel deployment;
(ii) placement and maintenance of temporary ballast loading;
(iii) field welding of liner sheets;
(iv) non-destructive testing of field welds;
(v) installation of anchor and ballast trenches;
(vi) installation of pipe penetrations;
(vii) installation of vents;

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

(viii) installation of seepshields; and
(ix) liner repair work.

8.6.3 Destructive Testing

The Liner Contractor shall obtain and secure samples (coupons) of the liner and field seams for destructive testing by the Engineer from locations designated by the Engineer, and shall properly mark all test specimens as needed to identify the particular seam or liner panel from which the specimen was obtained.

Testing of liner material will be conducted by the Engineer as specified in Section 7.5.2. Seam samples will be taken for destructive peel and shear strength testing by the Engineer at a minimum frequency of 1 sample per 500 feet of field seam. Samples for destructive seam testing will be obtained by the Liner Contractor at locations designated by the Engineer within 48 hours of welding the field seam unless approved otherwise by the Engineer. In addition to tests performed by the Liner Contractor (Section 8.5.2), extrusion welds will be tested by the Engineer daily. Shear and peel tests shall be performed on 3-foot-long extrusion weld test strips produced by each seamer/welder using their assigned welding apparatus each time daily qualifying welds are produced (Section 8.5.2). Additional tests may be performed throughout the day, at the discretion of the Engineer, on extrusion welds cut from a patch or from a surrogate weld made immediately before or after a production weld.

Duplicate samples of all HDPE liner material and all field seams tested destructively by the Liner Contractor shall also be secured by the Liner Contractor and submitted to the Engineer for independent testing. All samples shall be properly marked and identified.

Failure of any sample to meet or exceed the requirements specified herein shall be considered cause for rejection of the material, installed liner section, or field seam from which the sample was collected to the extent designated by the Engineer. If the Liner Contractor can establish to the Engineer, via submittal of additional test results, that the failed sample is representative of a smaller section of the liner or field seam than the entire lot represented by the original test sample, then only that portion will be rejected, provided, however, that the additional tests are performed by the Engineer. The Liner Contractor shall reimburse the Receiver for the cost of any such additional tests that he requests, and which fail to meet the requirements of the Specifications.

8.7 Insurance

The Liner Contractor shall provide the Receiver insurance coverage against blowout or uplift of the liner during installation. The insurance coverage shall remain in effect until the Receiver issues a Letter of Acceptance to the Liner Contractor.

If stipulated in the contract, the Liner Contractor shall agree to provide the Receiver with a commitment to re-install or replace any liner that may blowout during the time when the insurance coverage is in effect, at the same rate as required during initial installation, without adversely

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

affecting the rate of progress of work yet to be performed. Additional material, manpower and equipment shall be mobilized to the site within two weeks of a blowout occurrence as needed to comply with this commitment.

8.8 Warranty

A written warranty shall be provided to the Receiver by the Liner Contractor. This document shall warrant the quality of the workmanship for a period of not less than 2 years beginning on the date of the Letter of Acceptance from the Receiver.

8.9 As-Built Drawings

The Liner Contractor shall submit to the Engineer, within 30 days of completion of installation of the liner, an as-built plan in AutoCAD format showing the location and identification of all installed liner panels, anchor trenches, repairs and destructive test samples, and if applicable, vents, seepshields, pipe penetrations, structure connections, permanent liner ballast trenches, and permanent bag wind ballast atop the liner.

8.10 Submittals

The following submittals are required from the Liner Contractor as part of the requirements of the Specifications.

- The proposed methods for dewatering, surface water control and routing water to The Receiver-designated areas shall be submitted at least two weeks prior to implementation (Section 8.3).

- Shop drawings showing the proposed liner panel configuration and field seams, and identifying (if applicable and shown on the Drawings) wind ballast trenches, anchor trenches, vents, permanent bag wind ballast atop the liner and other details needed to complete the work shall be submitted for approval at least two weeks prior to liner installation (Section 8.4.2) .

- A complete description and details of proposed temporary ballast loading shall be submitted at least two weeks prior to liner installation (Section 8.4.5) .

- Quality assurance forms proposed for use by the Contractor for all phases of liner installation, inspection and testing shall be submitted at least two weeks prior to liner installation (Section 8.5.6).

- Certification by the Liner Contractor, when the liner is accepted by the Receiver, that the liner installation complies with the requirements of the Liner Manufacturer (Section 8.5.7).

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

- Workmanship warranty for a period of at least two years beginning on the date of the Letter of Acceptance from the Receiver (Section 8.8).

- As-built plan of the installed HDPE liner within 30 days of completion of liner installation (Section 8.9).

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 9
HDPE PIPE AND FITTINGS

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

9.1 Description of Work

This Specification covers material requirements, storage and handling, joint requirements and pressure testing, laying and installation, protection and repairs, quality assurance monitoring and testing, and required Contractor's submittals for HDPE pipe and fittings shown on the Drawings.

The Specification contains the following sections.

Section	Item
9.1	Description of Work
9.2	Referenced Standards
9.3	Material Requirements
9.4	Storage and Handling
9.5	Joint Requirements and Pressure Testing
9.6	Laying and Installation
9.7	Protection and Repairs
9.8	Quality Assurance Monitoring and Testing
9.9	Submittals

9.2 Referenced Standards

The following ASTM International (ASTM) standards are referenced in this Specification.

D638: Standard Test Method for Tensile Properties of Plastics

D695: Standard Test Method for Compressive Properties of Rigid Plastics

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

D696: Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C with a Vitreous Silica Dilatometer

D746: Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact

D790: Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

D792: Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement

D1238: Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer

D1505: Standard Test Method for Density of Plastics by the Density-Gradient Technique

D1603: Standard Test Method for Carbon Black Content in Olefin Plastics

D2513: Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing and Fittings

D2837: Standard test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products

D3261: Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing

D3350: Standard Specification for Polyethylene Plastics Pipe and Fittings Materials

D4218: Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle Furnace Technique

E190: Standard Test Method for Guided Bend Test for Ductility of Welds

F714: Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

F1055: Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and Tubing

F1290: Standard Practice for Electrofusion Joining Polyolefin Pipe and Fittings

F1473: Standard Test Method for Notch Tensile Test to Measure the Resistance to Slow Growth of Polyethylene Pipes and Resins

F2206: Standard Specification for Fabricated Fittings of Butt-Fused Polyethylene (PE)

F2620: Standard Practice for Heat Fusion Joining of Polyethylene Pipe and Fittings

9.3 Material Requirements

HDPE pipe and fittings shall satisfy the following base resin, physical appearance and physical property requirements.

9.3.1 Base Resin

The base resin shall be high density, high molecular weight polyethylene (HDPE) with properties meeting or exceeding ASTM D3350 cell classification 445574C (thermoplastic material designation code PE4710). The resin shall contain not less than 97 percent of the base resin and not less than 2.0 percent carbon black. The pipe and fittings material shall contain no more than 3.0 percent carbon black, anti-oxidants and heat stabilizers combined, and no other additives, fillers or extenders.

Rework material from the Manufacturer's pipe production may be used when blended with new resin of the same thermoplastic material designation code provided pipe containing rework material meets the requirements of ASTM F714. Rework material shall be limited to a maximum of 30 percent by weight.

9.3.2 Physical Appearance

All pipes and fittings shall have good appearance qualities. The pipe and fittings shall be homogeneous throughout and uniform in color, opacity, density and physical properties. The inside and outside surfaces shall be smooth and uniform without chalking, sticky or tacky material, excessive bloom or visible defects. The pipe walls shall be free of holes, cracks, voids, nicks, cuts, gouges, scratches, blisters, gels, undispersed ingredients, any signs of contamination by foreign inclusions, or any defect that may affect serviceability.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

9.3.3 Physical Properties

Pipe and fitting dimensions, workmanship, dimension ratio (DR) and corresponding pressure rating shall be in accordance with the requirements of ASTM F714. Pipe material shall meet the criteria listed in Table 9-1.

Table 9-1. HDPE Pipe Material Specifications

Property	Test Method	Criterion
Density [Natural Resin]	ASTM D792 or D1505	>0.947 g/cm^3
Density [Black]	ASTM D792 or D1505	>0.955 g/cm^3
Melt Index	ASTM D1238 [Cond.190°C / 2.16 kg]	<0.15 g/10 minutes
Flow Rate	ASTM D1238 [Cond.190°C / 21.6 kg]	≥4.0 and ≤20 g/10 minute
Carbon Black Content	ASTM D1603 or D4218	≥2.0% & <3.0%
Flexural Modulus	ASTM D790 [Method 1/Proc. B]	≥110,000 lb/in^2
Tensile Strength at Yield	ASTM D638 [Type IV, 2 ipm]	≥3,500 lb/in^2
Elongation at Break	ASTM D638 [Type IV, 2 ipm]	≥400%
Compressive Strength at Yield	ASTM D695	≥1,600 lb/in^2
Hydrostatic Design Basis	ASTM D2837 [23°C]	≥1,600 lb/in^2
Slow Crack Growth Resistance [PENT]	ASTM F1473	≥500 hours
Low Temperature Brittleness	ASTM D746	≤-60°C
Thermal Expansion Coefficient	ASTM D696	≤0.022%/°C

Pipes shall be furnished in standard lengths equal to or greater than 40 feet.

The Contractor or Supplier shall submit a complete description of the HDPE pipe and fittings proposed for use including the Manufacturer's name or trademark, pipe series designation and dimensions, description of the HDPE resin and resin Manufacturer's certificate of analysis for each batch of HDPE resin to the Engineer for approval at least two weeks prior to pipe installation. Packaging, handling and shipment of the pipe shall also be in accordance with the pipe Manufacturer's standards, instructions and recommendations, subject to approval by the Engineer. The Manufacturer's product data sheets and certification from the Manufacturer that the pipe and fittings are in compliance with this Specification shall also be supplied to the Engineer at least two weeks prior to installation.

9.3.4 Pipe Sizes

Both solid and slotted HDPE pipe shall have the nominal diameters and dimension ratios shown on the Drawings. Dimensions, workmanship, DR and corresponding pressure rating shall be in accordance with ASTM F714. Pipe diameter shall comply with the Iron Pipe Size (IPS) sizing

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

system.

9.3.5 Slotted Pipe

The slots in all slotted pipe shall be cleanly cut (inside and out) and uniform in geometry and spacing. There shall be no burrs, tabs, other remnant HDPE or debris within or protruding from the slots. The slot length shall be located perpendicular to the longitudinal axis of the pipe. Slots shall be located in two straight rows along the length of the pipe. The rows of slots shall be spaced 180 degrees on centers (o/c) around the circumference of the pipe and shall not be staggered. Slots in HDPE pipe shall satisfy the criteria in Table 9-2 for the corresponding pipe diameter.

Table 9-2. HDPE Pipe Slot Specifications

Dimension or Area		Criteria	
		6-inch Diameter	8-inch Diameter
Slot Width (inches)		≥0.10 and ≤0.15	
Slot Length Measured in Outer Pipe Circumference (inches)		≥1.50 and ≤2.70	≥2.00 and ≤3.25
Slotted Area (in^2/foot of pipe)	Outer Wall	≥2.0	
	Inner Wall	≥1.0	
Spacing Between Slots Along Pipe Length (o/c, inches)		≥1.0 and ≤3.0	
Distance from End of Pipe Section to First Slot (inches)		7.0±0.50	

The Contractor or Supplier shall submit a 3-foot long sample of slotted pipe for each DR rating and diameter shown on the Drawings to the Engineer for approval at least two weeks prior to installation. Slotted pipe shall not be delivered to the site without first receiving approval for delivery from the Receiver.

9.3.6 Fabricated Fittings

Fabricated fittings made by butt fusing cut segments of pipe shall be used where shown on the Drawings. Fabricated fittings shall not be used elsewhere unless molded fittings are not available from the Manufacturer, and if approved by the Engineer. Fabricated fittings shall be made using pipe segments meeting the base resin, physical appearance and physical property requirements specified in Sections 9.3.1 through 9.3.3. All pipe segments in a fabricated fitting shall be pressure rated to exceed by 20 percent the highest pipe pressure rating to which it is connected or have an equivalent dimension ratio (EDR) matching the pipe to which it is joined.

Fabricated fittings shall be in compliance with ASTM F2206 and butt-fusion welded in accordance with ASTM D3261 and F2620. Shop drawings for fabricated fittings shall be submitted to the Engineer for approval at least two weeks prior to fabrication.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

9.3.7 Molded Fittings

Molded fittings, where shown on the Drawings, shall meet the base resin, physical appearance and physical property requirements specified in Sections 9.3.1 through 9.3.3. All fittings shall be pressure rated to match the highest pipe pressure rating to which it is connected. Molded butt fittings shall be in compliance with ASTM D2513 and butt-fusion welded in accordance with ASTM Standard D3261 and F2620. Molded branch saddle fittings, if approved for use by the Engineer, shall be in compliance with ASTM D2513 and saddle-fusion welded in accordance with ASTM F2620.

Molded socket fittings shall not be used.

9.3.8 Electrofusion Fittings

Electrofusion fittings, if approved for use by the Engineer, shall meet the requirements of ASTM F1055. Electrofusion joining of pipe and fittings shall be performed in accordance with ASTM F1290 and the Manufacturer's recommendations. A minimum of 0.007 inches, but no more than 0.020 inches for pipe and fittings with a diameter equal to or less than 4 inches and 0.040 inches for pipe and fittings with a diameter greater than 4 inches, of the outer surface of the pipe or fitting shall be removed in a controlled manner with a peeling tool to expose clean, virgin pipe material immediately prior to fusion. Terminals in fittings used on pipe in gypsum or in soil when directed by the Engineer shall be ground off, if the terminals are raised, and a bead of HDPE extrudate compatible with the pipe resin extrusion-welded over the prepared area to prevent corrosion to the fusion coil.

9.3.9 Cold Bends

Cold bends in HDPE pipe shall be made using the minimum bending radii in Table 9-3 based on the pipe outside diameter (OD) unless shown otherwise on the Drawings.

Table 9-3. HDPE Pipe Minimum Cold Bend Radii

Pipe DR	Minimum Cold Bend Radius
7, 7.3	20 times pipe OD
9, 11, 13.5	25 times pipe OD
15.5, 17, 19, 21	27 times pipe OD
26	34 times pipe OD
32.5	42 times pipe OD
with fitting or flange	100 times pipe OD

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

9.3.10 HDPE Plate for Liner Penetrations

HDPE plate for the liner penetrations shall have the thicknesses and dimensions shown on the Drawings. The HDPE plate shall meet the material property requirements in Sections 9.3.1 through 9.3.3. The HDPE plate shall be a single sheet of material (i.e., not fabricated from multiple sheets extrusion-welded together) unless approved otherwise by the Engineer.

9.3.11 Approved Manufacturers

The following manufacturers and corresponding pipe series designations are approved for use.

- Performance Pipe DriscoPlex PE4710 Pipe
- PolyPipe EHMW PE4710 Pipe
- JM Eagle PE4710 Pipe

Other manufacturers producing equivalent pipes may be approved provided product data sheets and resin certificates are submitted to the Engineer to confirm compliance with this Specification.

The Manufacturer's product data sheets, resin certificates, and certification from the Manufacturer that the pipe and fittings comply with this Specification shall be submitted to the Engineer for approval at least two weeks prior to installation.

9.3.12 Marking and Packaging

The pipe Manufacturer shall mark each pipe length and each fitting with the Manufacturer's name or trademark, thermoplastic material designation code, diameter, DR and production code.

Packaging, handling and shipment shall be in accordance with the pipe Manufacturer's standards, instructions and recommendations.

9.4 Storage and Handling

The Contractor shall comply with the pipe Manufacturer's recommendations for handling and storing pipe and fittings. The pipe shall be stored on clean, level ground to prevent undue scratching or gouging and as needed to protect the pipe from being covered with excessive dirt or gypsum, from water and moisture, and from mechanical abrasion. The handling of the pipe shall be in such a manner that the pipe is not damaged by dragging it over sharp objects or subjecting the pipe to excessive bending. Care shall be exercised during installation not to damage the pipe and fittings.

Care shall be taken to minimize the amount of gypsum, soil or other debris accumulated within pipes and within slots in slotted pipe during storage, handling and installation. Accumulations of gypsum, soil or other debris within pipes and pipe slots shall be removed as directed by the Engineer.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Any pipe section, fitting or joint which becomes broken, cracked, crushed, cut, scratched, gouged or otherwise rendered unsuitable, as determined by the Engineer, shall be removed and replaced by the Contractor. Scratches greater than 6 inches in length and gouges exhibiting a depth in excess of 8 percent of the wall thickness of the pipe or fitting shall be cause for rejection of a pipe section or fitting to the extent designated by the Engineer.

9.5 Joint Requirements and Pressure Testing

The HDPE pipe, and pipe and fittings, shall be joined using butt, heat fusion welds in accordance with ASTM D3261 and F2620. All joints shall be made in compliance with the Manufacturer's recommended practice for heater surface temperature, heating time, applied pressure and cooling time. All joints shall be made by trained technicians qualified by the Manufacturer and using equipment and controlled procedures approved by the Manufacturer.

All pipe joints shall be stronger than the pipe itself under both tension and hydrostatic loading conditions. The joints shall be leak-tight, homogeneous and uniform throughout. Butt fusion beads shall be rounded and uniformly sized all around the pipe circumference and comply with the dimensional guidelines in ASTM F2620. The Contractor shall submit written documentation certifying compliance with the Manufacturer’s standard specifications and quality assurance/quality control plan for the butt, heat fusion technique. Bent strap tests (ASTM F2620 Appendix X4) shall be performed at least once per day, or as requested by the Engineer, for each pipe diameter and DR to demonstrate the integrity of the butt fusion welds. Welding of pipe shall not begin until bent strap tests are performed to demonstrate that the trial welds are satisfactory.

All pipe joints shall be hydrostatically pressure tested prior to burial in accordance with the Manufacturer’s recommendations. At a minimum, the pipe shall be filled with water, trapped air bled from the pipe, and the pipe then pressurized to 40 psi. The pressure shall be applied and maintained for 3 hours. During this time water should be added at hourly increments to maintain the pressure. Following this initial expansion period, the pipe shall be filled with water and the pressure returned to 40 psi, after which begins the test period. The pipe and joints will be considered to have passed the pressure test if there are no visual leaks and the amount of make-up water added to return the pressure to 40 psi at the end of the test period does not exceed the maximum value in Table 9-4 for the corresponding diameter and test period.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 9-4. HDPE Pipe Pressure Testing
Maximum Allowances for Expansion

Diameter (inches)	Maximum Allowance for Expansion (U.S. gallons per 100 feet of pipe)	
	2-Hour Test	3-Hour Test
2	0.11	0.19
4	0.25	0.40
6	0.6	0.9
8	1.0	1.5
10	1.3	2.1
12	2.3	3.4
14	2.8	4.2
16	3.3	5.0
18	4.3	6.5
20	5.5	8.0
24	8.9	13.3
30	12.7	19.2
36	18.0	27.0
42	23.1	35.3
48	27.0	43.0

Bolted flange connections, where specified on the Drawings, shall be made in accordance with the Manufacturer's recommendations and the details shown on the Drawings. The flange outside diameter and drilling configuration shall conform to ANSI standards. Bolts, nuts and flat washers shall be new materials and AISI type 316 stainless steel. The HDPE flanges shall have AISI type 316 stainless steel backup rings. Bolts shall be lubricated with non-fluid lubricant grease and torqued in accordance with the guidelines in Table 9-5 unless recommended otherwise by the HDPE flange and backup ring Manufacturer. Prior to construction, the Contractor shall submit the required torque for flanged connections from the flange Manufacturer for review by the Engineer.

Table 9-5. Bolt Torque Requirements

Pipe Diameter (inch)	Flange Outside Diameter (inch)	Bolt Circle Diameter (inch)	Bolt Hole Diameter (inch)	No. of Bolts	Bolt Diameter and TPI	Bolt Torque No Gasket PE to PE (ft-lb)
2	6.00	4.75	0.75	4	5/8" – 11	60
4	9.00	7.50	0.75	8	5/8" – 11	60
6	11.00	9.50	0.88	8	3/4" – 10	100
8	13.50	11.75	0.88	8	3/4" – 10	100
10	13.00	14.25	1.00	12	7/8" - 9	150
12	19.00	17.00	1.00	12	7/8" - 9	150
14	21.00	18.75	1.12	12	1" - 8	150
16	23.50	21.25	1.12	16	1" - 8	150

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

The flange components shall be assembled and aligned, the bolts hand tightened, and the alignment rechecked after hand tightening is complete. The criss-cross tightening pattern and percentage of bolt torque applied for each round of tightening shall be in accordance with the Plastics Pipe Institute, Inc. Technical Note TN-38 Polyethylene Flanged Joints. Re-torquing of the bolts shall be performed after 4 hours and 24 hours when the bolts are cool. Checking of the torque for each bolt shall be performed by the Contractor in the presence of the Engineer.

Flanged connections will not be allowed to be buried unless the bolts are cool, and the torque of each bolt checked just prior to burial.

9.6 Laying and Installation

9.6.1 HDPE Pipe and Fittings

The installation of the pipes and fittings shall be made by the Pipe Contractor coordinating his work with the Receiver's pipe supplier for delivery of materials and field welding, and with the Liner Contractor for installation of the pipe boots, seepshields and liner pipe penetrations, where applicable. Pipe laying, handling and installation shall be in accordance with the pipe Manufacturer's recommendations, the Specifications and the details shown on the Drawings.

Pipe sections shall be joined adjacent to the location where the pipe is to be installed. The joined sections of pipe shall then be placed in position on the prepared bedding. Care shall be taken not to drop the pipe while moving and handling, and to avoid excessively bending, stressing or straining the pipe during installation. When pulling the pipe, either a pulling head or a suitable wraparound sleeve with rubber protective cover shall be used to prevent the pulling cables from damaging the pipe. The maximum pulling length shall be limited to 500 feet.

Slotted HDPE pipe, where shown on the Drawings, shall be installed with the two rows of slots centered at the pipe springline.

Pipe installation and placement of backfill around pipes shall be performed when the pipe is in a contracted state, i.e., during the cool of the morning, at night or during periods of over-cast skies.

Immediately after placement, the pipe shall be thoroughly and completely embedded, supported, and covered with backfill placed and compacted in accordance with the Specifications and the details shown on the Drawings.

9.6.2 Pipe Vents

Pipe vents shall be fabricated in accordance with the details shown on the Drawings and installed at the locations and elevations and to the dimensions shown on the Drawings. A shop drawing of the pipe vent shall be submitted to the Engineer for approval prior to fabrication.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

9.6.3 Pipe Seepshields

Pipe seepshields, where required, shall be field fabricated from HDPE liner to the lines and dimensions shown on the Drawings, and connected to the HDPE pipes with flanged connections in accordance with the details shown on the Drawings. HDPE seepshields shall be extrusion welded to the HDPE liner by the Liner Contractor in accordance with these Specifications and the details shown on the Drawings. Shop drawings of pipe connections to the seepshield and the Contractor's proposed methods for temporarily supporting the seepshield during installation and backfilling shall be submitted to the Engineer for approval prior to fabrication.

9.6.4 Liner Pipe Penetrations

Liner pipe penetrations shall be fabricated from HDPE plate to the lines and dimensions, and in accordance with the details shown on the Drawings. The HDPE plate for the liner connection shall be a single sheet of material (i.e., not fabricated from multiple sheets extrusion-welded together) unless approved otherwise by the Engineer. Shop drawings for liner pipe penetrations shall be submitted to the Engineer for approval prior to fabrication.

9.6.5 HDPE Structures

HDPE structures (e.g., manholes, sumps, drainage structures) shall be fabricated to the lines and dimensions, and in accordance with the details shown on the Drawings. Shop drawings for each HDPE structure shall be submitted to the Engineer for approval prior to fabrication. HDPE pipe and HDPE plate used in structures shall meet the material property requirements in Sections 9.3.1 through 9.3.4 and 9.3.10 as applicable.

9.7 Protection and Repairs

Care shall be exercised during construction not to damage the pipe and fittings. Construction equipment shall not be allowed to pass over any pipe until a minimum of 2.0 feet of compacted cover is placed above the crown of the pipe.

Any pipe section, fitting or joint which becomes broken, cracked, crushed, cut, scratched, gouged or otherwise rendered unsuitable, as determined by the Engineer, shall be removed and replaced by the Contractor. Scratches greater than 6 inches in length and gouges exhibiting a depth in excess of 8 percent of the wall thickness of the pipe or fitting shall be cause for rejection of a pipe section or fitting to the extent designated by the Engineer.

9.8 Quality Assurance Monitoring and Testing

The Engineer will undertake observations and perform quality assurance tests to determine compliance of the materials and work with this Specification. Quality assurance by the Engineer will include monitoring:

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

(i) pipe and fitting size and DR;
(ii) slot condition and orientation;
(iii) storage and handling;
(iv) fusion welding and bolted flanged connections;
(v) pipe laying and installation; and
(vi) protection and repairs.

The Contractor shall obtain and secure samples of pipe and fusion welds for testing by the Engineer. The Contractor shall obtain the samples from locations designated by the Engineer. All samples shall be properly marked and identified by the Contractor.

Quality assurance tests will be performed by the Engineer on pipe and fusion weld samples at the minimum frequencies in Table 9-6 unless revised otherwise by the Engineer.

Table 9-6. HDPE Pipe Quality Assurance Test Methods and Minimum Testing Frequencies

Property	Test Method	Minimum Testing Frequency
Fusion Weld Integrity	Wall Thickness ≤1 inch Bent Strap Test ASTM F2620 [Appendix X4]	Once per day per pipe diameter and DR
	Wall Thickness >1 inch ASTM E190	
Slot Dimensions and Spacing	Caliper Measurements	Once per 1,000 feet
Slotted Area	Calculated from Measurements	
Density	ASTM D792 or D1505	Once per 10,000 feet
Melt Index	ASTM D1238 [Cond.190°C / 2.16 kg]	
Carbon Black Content	ASTM D1603 or D4218	

Failure of any sample to meet the requirements specified herein shall be considered cause for rejection of the material or installed section represented by the sample to the extent designated by the Engineer. If the Contractor can establish to the Engineer, via additional test results, that the failed sample is representative of a smaller section of the installed material than the entire lot represented by the original test sample, then only that portion will be rejected. The additional tests, however, shall be performed by the Engineer representing the Receiver. The Contractor shall reimburse the Receiver for the cost of any such requested test that fails to meet the requirements of the Specifications.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

9.9 Submittals

The following submittals are required from the Contractor or Supplier as part of the requirements of this Specification.

- A complete description of the HDPE pipe and fittings with the Manufacturer's product data sheets, description of the HDPE resin, resin Manufacturer's certificate of analysis for each batch of HDPE resin and Manufacturer's certification that the pipe and fittings satisfy the requirements of this Specification (Section 9.3.3).

- A complete description of the slot dimensions, spacing and orientation, and a 3-foot long section of each type (diameter and DR) slotted HDPE pipe (Section 9.3.5).

- Shop drawings for: fabricated pipe fittings; pipe vents; pipe connections to seepshields; proposed method for temporarily supporting the seepshield during installation and backfilling; liner pipe penetrations; and fabricated structures (Sections 9.3.6 and 9.6.2 through 9.6.5).

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 10
CORRUGATED HDPE PIPES AND FITTINGS

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

10.1 Description of Work

This Specification covers the material requirements and installation of corrugated HDPE pipe and fittings shown on the Drawings. This Specification contains the following sections.

Section	Item
10.1	Description of Work
10.2	Referenced Standards
10.3	Material Requirements
10.4	Storage and Handling
10.5	Pipe Fitting and Joint Requirements
10.6	Laying and Installation
10.7	Protection and Repairs
10.8	Quality Assurance Monitoring and Testing
10.9	Submittals

10.2 Referenced Standards

The following American Society for Testing and Materials (ASTM) and American Association of State Highway and Transportation Officials (AASHTO) standards are referenced in this Specification.

ASTM D792: Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

ASTM D1238: Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer

ASTM D1505: Standard Test Method for Density of Plastics by the Density-Gradient Technique

ASTM D2412: Standard Test Method for Determination of External loading characteristics of Plastic Pipe by parallel-Plate Loading

ASTM D3350: Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.

ASTM D4218: Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique

AASHTO M252: Standard Specification for Corrugated Polyethylene Drainage Pipe.

AASHTO M294: Standard Specification for Corrugated Polyethylene Pipe, 300- to 1200- mm Diameter.

10.3 Material Requirements

The drain and outlet shall consist of slotted and non-slotted corrugated HDPE pipe, as indicated in the Drawings. HDPE pipe and fittings shall satisfy the following base resin, physical appearance and physical property requirements.

10.3.1 Base Resin

The base resin shall be high density, high molecular weight polyethylene (HDPE) with properties meeting or exceeding ASTM Standard D3350 cell classification 435430C. The resin shall contain not less than 97 percent of the base resin and not less than 2.0 percent carbon black. The pipe material shall contain no more than 3 percent carbon black, anti-oxidants and heat stabilizers combined, and no other additives, fillers or extenders.

Rework material from the manufacturer's pipe production may be used when blended with new resin provided the rework material be the same cell classification as the new resin. Rework material shall be limited to a maximum of 30 percent by weight.

10.3.2 Physical Appearance

All pipes and fittings shall have good appearance qualities meeting the workmanship requirements of AASHTO M252 or M294 as applicable. The pipe and fittings shall be homogeneous throughout, and the surfaces shall be smooth and uniform with no visible defects. The pipes shall be free of holes, cracks, nicks, cuts, gouges, scratches, blisters, gels, undispersed

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

ingredients, any signs of contamination by foreign inclusions, or any defect that may affect serviceability.

Pipe dimensions and tolerances, pipe stiffness, pipe flattening, brittleness, and slow crack growth resistance properties shall meet the requirements of AASHTO M252 and M294.

10.3.3 Perforations

Perforations in the corrugated HDPE pipe shall consist of slots cleanly cut and evenly spaced around the pipe circumference and centered within the corrugation valleys along the length of the pipe. Perforations located in immediately adjacent corrugation valleys shall be offset by 30 degrees. Perforations shall satisfy the following criteria:

Table 10-1. Corrugated HDPE Pipe Perforations Specifications

Pipe Diameter (inch)	Slots per Corrugation Valley	Slot Spacing in Corrugation Valley	Slot Offset in Adjacent Corrugation Valley	Slot Width (inches)	Slot Length (inches)	Slotted Area (in^2/foot)
12	8	45^0	0^o	>0.05 & ≤0.150	>0.5 & ≤2.0	≥4.0

A complete description of the proposed HDPE base resin, pipe perforations and fittings that meet the requirements of the Specifications, in addition to a 2-foot long sample of the perforated pipe, shall be submitted by the Supplier to the Receiver for approval.

10.4 Storage and Handling

The Contractor shall comply with the pipe Manufacturer's recommendations for handling and storing pipe and fittings. The pipe shall be stored on clean, level ground to prevent undue scratching or gouging as needed to protect the pipe from being covered with excessive dirt, from water and moisture, and from mechanical abrasion. Care shall be taken to minimize the amount of soil collected inside the pipe while handling and installing. The handling of the pipe shall be in such a manner that the pipe is not damaged by dragging it over sharp objects, and care shall be exercised during installation not to damage the pipes and fittings.

Any pipe section, fitting or joint which becomes broken, cracked, crushed, cut, scratched, gouged or otherwise rendered unsuitable, as determined by the Engineer, shall be removed and replaced by the Contractor. Scratches greater than 6 inches in length and gouges exhibiting a depth in excess of 8 percent of the wall thickness of the pipe shall be cause for rejection of pipe or fittings to the extent designated by the Engineer.

10.5 Pipe Fitting and Joint Requirements

Joints between pipe sections and fittings shall be the split coupling type, meeting the fitting and coupling requirements of AASHTO M252 and M294. All joints shall be made by:

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

(i) butting the two adjacent pipe sections end-to-end;

(ii) centering the coupling at the joint and wrapping it tightly around the pipe sections;

(iii) tightly wrapping the coupling to the adjacent pipe sections with PVC pipe tape around the pipe and coupling circumference a minimum of 3 times for at least a length of 3 inches at each end of the coupling; and

(iv) placing one weather resistance polypropylene lashing or stainless-steel tie wire tightly around each end of the coupling. The joint shall prevent structural separation of adjacent pipe sections and provide a tightly fitting joint such that gaps do not exist which could allow the migration of the surrounding sluiced gypsum or soil into the pipe. Tape used for the joints shall be PVC-type, black color, 2-inch wide, 10-mil thick pipe wrapping tape approved by the Engineer. A minimum of 2 polypropylene lashing ties or 2 stainless steel wire ties shall be used to secure each coupling. Polypropylene lashing ties shall be weather-resistant polypropylene non-releasable ties with minimum loop tensile strength of 90 lb. Stainless steel tie wire shall be AISI Type 316 stainless steel. Joints between fittings and pipe sections shall be made in a similar manner.

10.6 Laying and Installation

Laying, handling and installation of the pipe shall be in accordance with the Manufacturer's recommendations, this Specification, and the details shown on the Drawings. Pipe sections shall be joined adjacent to the trench, prior to placing the pipe on the pipe bedding. Care shall be taken not to drop the pipe while moving it, and to avoid excess stress or strain during installation. When pulling the pipe, either a pulling head or a suitable wraparound sleeve with rubber protective cover shall be used to prevent the pulling cables from damaging the pipe.

Prior to installation, the Contractor shall carefully examine all corrugated HDPE pipes and fittings for any damage and defects. All defective materials shall be rejected and replaced. The Contractor shall also carefully inspect the base of the pond or excavation and make sure that it is free of foreign objects or obstacles that may affect installation of the drain system. If water is present in the pipe trench, it shall be dewatered prior to placement of the geocomposite and HDPE pipes.

Care shall be exercised in handling and placing the HDPE pipes to avoid any damage. Under no circumstances shall the pipes be dropped or dumped into the trench. Immediately after placement, the pipe shall be thoroughly and completely embedded, supported, and covered, and the backfill compacted, in accordance with the Specifications, and the details shown on the Drawings.

Pipeline installation and placement of backfill around pipelines shall be performed when the pipe is in a contracted state, i.e., during the cool of the morning, at night, or during periods of over-cast skies.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

10.6.1 Geocomposite-Wrapped Pipe Installation

If installation involves using geocomposite wrapped around the corrugated HDPE pipe, it shall remain wrapped and protected from moisture and ultraviolet light until the time of installation. Storage at the site shall be in a suitable area protected from sunlight and moisture. After installation, the geocomposite shall not be left exposed for more than 48 hours before being covered.

During installation, the geocomposite shall be loosely laid in uniform contact with the underlying materials, and held in place as needed and approved by the Engineer until covered. The geocomposite surface shall be free of debris or objects that could damage the geocomposite.

10.7 Protection and Repairs

Care shall be exercised during construction not to damage the pipelines and fittings. Construction equipment shall not be allowed to pass over any pipeline until a minimum of 2 feet of compacted cover is placed above the crown of the pipe.

Any pipe section, fitting or joint which becomes broken, cracked, crushed, cut, scratched, gouged or otherwise rendered unsuitable, as determined by the Engineer, shall be removed and replaced by the Contractor. Scratches greater than 6 inches in length and gouges exhibiting a depth in excess of 8 percent of the wall thickness of the pipe or fitting shall be cause for rejection of a pipe section or fitting to the extent designated by the Engineer.

10.8 Quality Assurance Monitoring and Testing

The Engineer will undertake observations and inspections to determine compliance of the materials and work with this Specification. Quality control by the Engineer will include monitoring and/or inspecting:

(i) the type, size, placement and installation of Corrugated HDPE pipe and fittings;
(ii) damage during installation; and
(iii) the alignment and joining of all pipe and fittings.

Laboratory tests will be performed on corrugated HDPE pipe at the following minimum frequency.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 10-2. Corrugated HDPE Pipe Quality Assurance Test Methods and Minimum Testing Frequencies

Property	Test Method	Minimum Testing Frequency
Slot Dimensions and Area	Caliper Measurements	Once per 1,000 feet
Density Melt Index Carbon Black Content Pipe Stiffness	ASTM D792 or D1505 ASTM D1238 [Cond.190/2.16] ASTM D4218 ASTM D2412	Once per 5,000 feet

10.9 Submittals

The following submittals are required from the Contractor or the Receiver's pipe supplier as part of the requirements of the Specifications.

- A complete description of the corrugated HDPE pipe and fittings with the Manufacturer's product data sheets, description of the HDPE resin, Manufacturer's certificate of analysis for the HDPE resin, and Manufacturer's certification that the pipe and fittings satisfy the requirements of this Specification.

- A 2-foot long sample of the perforated corrugated HDPE pipe.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 11
AGGREGATES

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

11.1 Description of Work

This Specification covers the material requirements, placement, quality control inspection and testing, and required Contractor's submittals for aggregate used in the toe gravel drain as shown on the Drawings.

This Specification contains the following sections:

Section	Item
11.1	Description of Work
11.2	Referenced Standards
11.3	Material Requirements
11.4	Placement and Compaction
11.5	Quality Assurance Monitoring and Testing
11.6	Submittals

11.2 Referenced Standards

The following ASTM International (ASTM) and Transportation Officials (AASHTO) standards are referenced in this Specification.

D2487: Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

D2488: Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

D2974: Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils

D4253: Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table

D4254: Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density

D4373: Standard Test Method for Rapid Determination of Carbonate Content of Soils

D6913: Standard Test Method for Particle-Size Distribution (Gradation) of Soils using Sieve Analysis

AASHTO T104: Standard Method of Test for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate.

The following Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction are referenced in this specification.

Section 901: Coarse Aggregate

FM 1-T 096: Florida Method of Test for Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine

11.3 Material Requirements

11.3.1 Silica Gravel

The silica gravel shall consist of rounded, sub-rounded to sub-angular processed clean silica gravel, and shall classify as poorly-graded fine gravel or fine gravel with coarse sand (Group Symbol GP) in accordance with ASTM Standard D2487. Particle angularity shall be determined in accordance with ASTM Standard D2488 criteria for coarse-grained particles.

Silica gravel shall meet the gradation requirements in Table 11-1, unless approved otherwise by the Engineer, determined in accordance with ASTM Standard D6913.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 11-1. Particle-Size Specification for Silica Gravel

U.S. Standard Sieve Size	Percent Passing (Dry Mass Basis)
1-inch	100
3/4-inch	90 - 100
3/8-inch	30 - 70
No. 4	0 - 25
No. 8	0 - 8
No. 40	0 - 1
No. 200	0 - 0.5

Silica gravel shall also meet the following criteria:

(i) contain at least 50 percent (dry mass basis) particles classifying as macrocrystalline quartz (e.g., rock, milky, smoky, pink or rose quartz), no more than 50 percent particles classifying as microcrystalline quartz (e.g., chalcedony, chert, flint, agate, jasper), and no more than 3 percent particles classifying as non-quartz minerals or sedimentary, igneous or metamorphic rock;

(ii) microcrystalline quartz shall contain no more than 10 percent (dry mass basis) particles displaying cortex on the surface of the particles;

(iii) the carbonate content shall be less than 1 percent determined in accordance with ASTM Standard D4373; and

(iv) the organic content shall be less than 0.1 percent determined in accordance with ASTM Standard D2974 (Method C).

A complete description of the silica gravel, mineralogic composition, gradation test results and a 50-pound sample of aggregate shall be submitted to the Engineer for approval at least four weeks prior to construction. Gravel with a lower fraction of macrocrystalline quartz and higher fraction of microcrystalline quartz may be approved by the Engineer provided the solubility of the microcrystalline quartz particles determined by the Engineer in 0.3M H_2SO_4 at 80°C is no more than 20 times the solubility measured on pure quartz of similar particle-size.

11.3.2 Coarse Sand

Coarse sand shall consist of clean silica sand containing at least 35 percent rounded, sub-rounded to sub-angular particles, and no more than 70 percent angular particles. Particle angularity shall be determined in accordance with ASTM Standard D2488 criteria for coarse-grained particles. The material shall classify as poorly-graded coarse sand with fine gravel to poorly-graded coarse to medium sand (Group Symbol SP) in accordance with ASTM Standard

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

D2487. Coarse sand shall meet the following gradation requirements, unless approved otherwise by the Engineer, determined in accordance with ASTM Standard D6913.

Table 11-2. Particle-Size Specification for Coarse Sand

U.S. Standard Sieve Size	Percent Passing (Dry Mass Basis)
3/8-inch	100
No. 4	62 - 100
No. 6	35 - 87
No. 8	15 - 64
No. 10	12 - 50
No. 20	0 - 20
No. 40	0 - 10
No. 200	0 - 0.5

Coarse sand shall also meet the following criteria:

(i) contain at least 98 percent silica;

(ii) the carbonate content determined in accordance with ASTM Standard D4373 shall be less than 1 percent; and

(iii) the organic content determined in accordance with ASTM Standard D2974 (Method C) shall be less than 0.1 percent.

A complete description of the coarse sand, mineralogic composition, gradation test results, a 25-pound sample of aggregate, and the Supplier's certification confirming compliance with this Specification shall be submitted to the Engineer for approval at least two weeks prior to construction.

11.3.3 Fine Sand

Fine sand shall classify as poorly-graded medium to fine sand (Group Symbol SP) in accordance with ASTM Standard D2487. Fine sand shall meet the gradation requirements in Table 11-3, unless approved otherwise by the Engineer, determined in accordance with ASTM Standard D6913.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 11-3. Particle-Size Specification
for Fine Sand and Sand Bedding

U.S. Standard Sieve Size	Percent Passing (Dry Mass Basis)
No. 10	100
No. 20	60 - 100
No. 40	25 - 72
No. 60	10 - 41
No. 100	0 - 20
No. 140	0 -11
No. 200	0 -4
No. 270	0 -1

Fine sand shall also meet the following criteria:

(i) contain at least 98 percent silica;

(ii) the carbonate content determined in accordance with ASTM Standard D4373 shall be less than 1 percent; and

(iii) the organic content determined in accordance with ASTM Standard D2974 (Method C) shall be less than 0.1 percent.

A complete description of the fine sand, mineralogic composition, gradation test results, a 25-pound sample of aggregate, and the Supplier's certification confirming compliance with this Specification shall be submitted to the Engineer for approval at least two weeks prior to construction.

11.3.4 Hard, Durable Coarse Aggregate

Coarse aggregate specified in the Drawings as hard, durable gravel or material must meet the requirements in Section 901-1 of FDOT FY2025-26 Standard Specifications for Road and Bridge Construction for composition, deleterious substances, physical properties and gradation. The aggregate shall consist of naturally occurring material such as gravel, or resulting from the crushing of parent rock, to include natural rock and other approved inert materials with similar characteristics, having hard, strong, durable particles.

Hard, durable coarse aggregate must meet the physical properties in Table 11-4, unless approved otherwise by the Engineer.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 11-4. Physical Properties
of Hard, Durable Coarse Aggregates

Property	Test Method	Criterion
Los Angeles Abrasion	FM 1-T096	≤45%
Soundness (Sodium Sulfate)	AASHTO T 104	≤ 12%
Organic Content	ASTM D2974 (Method C)	≤ 0.1%
Flat or Elongated Pieces	ASTM D2488	≤ 10%

11.4 Placement and Compaction

Placement of the aggregates shall be in accordance with the locations, lines, grades, dimensions and details shown on the Drawings, and in compliance with this Specification.

A layer of silica gravel shall be placed over the non-woven geotextile across the entire width of the gravel drain to the thickness shown on the Drawings. The gravel bedding (on which the slotted HDPE pipe invert will rest) shall be carefully shaped to grade along the pipe length to be installed. Care shall be exercised during placement of the gravel to prevent damaging, pulling or displacing the geotextile.

Following installation of the HDPE pipe, silica gravel shall then be placed on both sides of the pipe and above the pipe to the minimum thickness and dimensions shown on the Drawings. Placement of the silica gravel shall be controlled such that the gravel completely surrounds the pipe. Sufficient silica gravel material shall be worked under the haunch of the pipe up to the springline to provide side support throughout. Precautions shall be taken to prevent lateral or vertical movement of the pipe during filling including holding the pipe in-place as needed. The silica gravel shall completely fill around and remain in contact with the entire pipe circumference, with particular care taken to ensure that voids are not present around the lower one-third of the pipe circumference. After placement, the gravel shall be compacted to an in-place dry density equal to or greater than 65 percent relative dry density determined in accordance with ASTM Standards D4253 and D4254.

Coarse and fine sand filter sections shall be placed at each end of each drain segment, as shown on the Drawings, and in accordance with the installation procedures described above for the gravel. After placement, the sand shall be compacted to an in-place dry density equal to or greater than 70 percent relative dry density determined in accordance with ASTM Standards D4253 and D4254.

Care shall be taken to prevent the silica gravel and sand materials from becoming contaminated, prior to and during placement. Care shall be exercised to prevent damaging, pulling or displacing the geotextile, or damaging or displacing the HDPE pipe.

Any damage to HPDE pipe or geotextile resulting from placement and compaction of silica gravel and sand shall be repaired by the Contractor at his expense as directed by the Engineer.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

11.5 Quality Assurance Monitoring and Testing

The Engineer will undertake observations and perform tests to determine compliance of the materials and work with this Specification. Quality assurance by the Engineer will include monitoring the suitability and placement of the aggregates. Laboratory tests will be performed by the Engineer on samples of aggregate at the minimum frequencies listed in Table 11-5 unless revised otherwise by the Engineer during construction.

Table 11-5. Aggregate Quality Assurance Test Methods and Minimum Testing Frequencies

Material	Property	Test Method	Minimum Testing Frequency
Gravel	Mineralogic Composition Particle Shape Gradation Classification	Visual Examination ASTM D2488 ASTM D6913 ASTM D2487	Once per 1,000 yd^3
	Total Carbonates Soluble Silica	ASTM D4373 0.3M H_2SO_4 Extraction	Once per 2,000 yd^3
Hard Durable Aggregate	Mineralogic Composition Particle Shape Gradation	Visual Examination ASTM D2488 ASTM D6913	Once per 1,000 yd^3
Sand	Particle Shape Gradation Classification Total Carbonates	ASTM D2488 ASTM D6913 ASTM D2487 ASTM D4373	Once per 500 yd^3

Failure of any sample to meet the requirements specified herein shall be considered cause for rejection of the material or installed section from which the sample was collected to the extent designated by the Engineer. If the Contractor can establish to the Engineer, via additional tests performed by the Engineer, that the failed sample is representative of a smaller section of the installed material than the entire lot represented by the original test sample, then only that portion will be rejected. The additional tests, however, shall be performed by the Engineer representing the Receiver. The Contractor shall reimburse the Receiver for any such requested test that fails to meet the requirements specified herein.

11.6 Submittals

The following submittals are required from the Contractor as part of the requirements of this Specification.

- A complete description of the Contractor's proposed silica gravel, mineralogic composition and gradation test results, a 50-pound sample of the silica gravel, and the Supplier's certification confirming compliance with the Specification requirements (Section 11.3.1).

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

- A complete description of the Contractor's proposed coarse silica sand, mineralogic composition and gradation test results, a 25-pound sample of the coarse silica sand, and the Supplier's certification confirming compliance with the Specification requirements (Section 11.3.2).

- A complete description of the Contractor's proposed fine silica sand, mineralogic composition and gradation test results, a 25-pound sample of the fine silica sand, and the Supplier's certification confirming compliance with the Specification requirements (Section 11.3.3).

- A complete description of the Contractor's proposed hard, durable coarse aggregate, mineralogic composition and gradation test results, a 50-pound sample of the hard, durable aggregate, and the Supplier's certification confirming compliance with the Specification requirements (Section 11.3.4).

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 12
NON-WOVEN GEOTEXTILE

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

12.1 Description of Work

This Specification covers the material requirements, installation factory quality control testing and inspection, and quality assurance monitoring and testing of non-woven geotextile materials. The Specification contains the following sections.

Section	Item
12.1	Description of Work
12.2	Referenced Standards
12.3	Material Requirements
12.4	Factory Quality Control Testing and Inspection
12.5	Storage, Handling, and Installation
12.6	Sampling and Inspection by Contractor
12.7	Quality Assurance Monitoring and Testing
12.8	Submittals

12.2 Referenced Standards

The following American Society for Testing and Materials (ASTM) standards are referenced in the Specification.

D4355: Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus

D4491: Standard Test Methods for Water Permeability of Geotextiles by Permittivity

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

D4533: Standard Test Method for Trapezoid Tearing Strength of Geotextiles

D4632: Standard Test Method for Grab Breaking Load and Elongation of Geotextiles

D4751: Standard Test Method for Determining Apparent Opening Size of a Geotextile

D4833: Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products

D4884: Standard Test Method for Strength of Sewn or Thermally Bonded Seams in Geotextiles

D5199: Standard Test Method for Measuring Nominal Thickness of Geosynthetics

D5261: Standard Test Method for Measuring Mass Per Unit Area of Geotextiles

D6241: Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe

12.3 Material Requirements

Geotextile shall be a non-woven, needle-punched fabric manufactured from 100 percent polyester or 100 percent polypropylene. The geotextile shall be uniform and homogeneous in appearance and composition, and free from tears, cuts, thin spots, or any defects that may affect serviceability. Geotextile shall be supplied in rolls having a width of 15 feet and minimum length of 300 feet.

The geotextile shall meet the criteria in Table 12-1 for the corresponding mass per unit area.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 12-1. Nonwoven Geotextile Material Specifications

Property	Units	Test Method	Criterion		
			8 oz/yd^2 Geotextile	10 oz/yd^2 Geotextile	12 oz/yd^2 Geotextile
Mass per Unit Area	oz/yd^2	ASTM D5261	≥8	≥10	≥12
Thickness	mils	ASTM D5199	≥90	≥100	≥110
Apparent Opening Size†	U.S. Std. Sieve‡	ASTM D4751	≥80	≥100	≥100
	mm		≤0.180	≤0.150	≤0.150
Grab Breaking Load*	lbs	ASTM D4632	≥220	≥270	≥320
Grab Elongation*	%	ASTM D4632	≥50		
Trapezoid Tear Strength*	lbs	ASTM D4533	≥90	≥100	≥120
CBR Puncture	lbs	ASTM D6241	≥575	≥725	≥900
UV Resistance [500 Hours]	%	ASTM D4355	≥70		
Permittivity	sec^{-1}	ASTM D4491	≥1.3	≥1.0	≥0.85

† All individual test specimen results shall meet the specified criteria
* Tested in machine and transverse directions
‡ United States Standard Sieve size.

A complete description of the geotextile proposed for use and the Manufacturer's product data sheets, and a 2.5-foot long by the full width of the roll sample of the geotextile shall be submitted to the Engineer for approval at least two weeks prior to installation. Certification from the Manufacturer that the geotextile is in compliance with this Specification shall also be supplied to the Engineer two weeks prior to installation.

12.4 Factory Quality Control Testing and Inspection

12.4.1 Factory Testing

Factory quality control certificates for the geotextile rolls shall be provided to the Engineer by the Manufacturer at least two weeks prior to installation. The quality control certificates shall contain the geotextile roll number, date manufactured, roll length and roll width. The factory quality control tests shall be provided for the geotextile at the minimum frequencies listed in Table 12-2.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 12-2. Nonwoven Geotextile Factory Quality Control

Geotextile Property	Test Method	Minimum Testing Frequency
Mass per Unit Area	ASTM D5261	Once per 5,000 yd^2 and at a minimum once per lot
Grab Breaking Load	ASTM D4632	
Grab Elongation	ASTM D4632	
Apparent Opening Size	ASTM D4751	
Permittivity	ASTM D4491	

Failure of any of the tests shall result in rejection of the corresponding lot of geotextile.

12.4.2 Factory Inspection

The geotextile shall be visually inspected at the factory prior to shipment for compliance with the physical appearance requirements in Section 12.3. All necessary repairs shall be made by the Manufacturer at the factory prior to shipment.

12.4.3 Marking and Packaging

Each geotextile roll shall be individually packaged at the factory to prevent damage during shipping and handling and shall be completely wrapped by a protective ultraviolet resistant thin plastic film having a minimum thickness of 2 mils. The Manufacturer shall provide each roll with a label indicating the roll number, product name, length, width and date manufactured.

12.5 Storage, Handling and Installation

12.5.1 Storage and Handling

The Contractor shall be responsible for unloading and storing the rolls. During unloading, the Contractor shall obtain samples from the ends of rolls for testing by the Engineer from rolls selected by the Engineer.

The geotextile roll shall remain wrapped in the protective cover and shall be stored, as recommended by the Manufacturer and approved by the Engineer, in an area of the site that protects the geotextile from moisture, water, phosphogypsum, dirt, ultraviolet light and mechanical damage until the time of installation. The rolls shall not be unwrapped more than two hours before use. Handling of the rolls shall be in accordance with the Manufacturer's recommendations and shall be as needed to protect the geotextiles from damage. Geotextile deployment shall not be performed when high wind conditions (≥20 mph) exist.

12.5.2 Laying and Installation

The geotextile shall be installed at the locations, and to the lines, grades and dimensions shown

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

on the Drawings.

The geotextile shall be loosely laid (not stretched) with the roll length direction in the long direction of the drain. The geotextile shall be laid in contact with the underlying surface and drain aggregate without gaps or excessive wrinkles. Where field joints are necessary, the adjacent panels of geotextile shall be lapped and joined as specified in Section 12.5.3. Care shall be taken to prevent unraveling of the stitching thread at the end of a seam, or at cuts and patches in the seam, including manually tying the end of the stitching thread as needed.

The geotextile shall completely encapsulate and wrap all faces of the drain and other surfaces shown on the Drawings as needed to preclude migration of the abutting materials into the drain. The geotextile shall be cut to fit tightly around the penetrating HDPE pipe at the end of drains.

The geotextile shall be held in place with temporary wind ballast as needed until covered and shall be covered within 48 hours of installation.

Equipment, tools, or personal that can damage the geotextile shall not be allowed on the installed material during and after installation. The traffic of construction equipment over any exposed materials shall be prohibited.

Geotextile that requires more than one repair per roll from manufacturing defects or shipping damage that is discovered during deployment shall be rejected and replaced, unless approved otherwise by the Engineer.

12.5.3 Field Seams

Field seams shall be made using a minimum overlap of 6 inches. The geotextile panels shall be sewn together with a sewing machine using a flat sewn seam with one row of stitches with a minimum of 4 stitches per inch and a maximum of 10 stitches per inch, or a seam and stitching pattern recommended by the Manufacturer and approved by the Engineer. The thread used to sew the seams shall be 2000 denier minimum, or as recommended by the Manufacturer and approved by the Engineer, and shall be manufactured from 100 percent polyester or 100 percent polypropylene. The strength of field seams shall not be less than 50 percent of that of the un-aged geotextile when tested in accordance with ASTM Standard D4884 and D4595 at a strain rate of 0.4 inches/minute. The Contractor shall submit details of the proposed sewing method (type of stitch, number of stitches per inch, number of stitching rows, distance from the edge of the geotextile to the stitches, weight, and type of thread, etc.) and a minimum 10-foot long sample of the sewn seam for approval by the Engineer at least two weeks prior to installation

Thermal joining of polyester fabrics will not be allowed. Thermal bonding of polypropylene fabrics will only be allowed if the Contractor can demonstrate, to the satisfaction of the Engineer, consistency and uniformity of the seam, as well as compliance with the seam strength criterion of no less than 50 percent of that of the un-aged geotextile (when the seam is tested in accordance with ASTM Standard D4884 and D4595). If thermal joining is allowed, the minimum overlap

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

between sheets shall be increased to 12 inches.

12.5.4 Repairs

All tears, punctures, thinly stretched sections, or any other defect that may, as determined by the Engineer, render the geotextile unsuitable, shall be repaired by the Contractor. Repairs shall be made by overlaying a patch of geotextile over the damaged area with a 12-inch minimum lap all around. The patch shall be sewn to the geotextile as specified in Section 12.5.3 all around the patch perimeter. Where allowed by the Engineer, the patch may be temporarily held in place by thermal bonding or by use of a 2-inch wide black, 10-mil thick PVC pipe wrapping tape.

12.6 Sampling and Inspection by Contractor

12.6.1 Sampling

The Contractor shall obtain and secure samples of the geotextile for destructive testing by the Engineer when the rolls are delivered to the site or subsequently during installation as requested by the Engineer. The samples shall be 2.5-foot long by the full width of the roll, unless a smaller sample is requested by the Engineer, and shall be obtained from rolls or field locations designated by the Engineer. All samples shall be properly marked and identified by the Contractor. The Contractor shall repair all openings created by sampling in accordance with Section 12.5.4 or completely remove the full width of the roll at the sampling location.

12.6.2 Visual Inspection

The Contractor shall visually inspect the surfaces of the installed geotextile for any defects including, but not limited to, rips, tears, punctures and defective seams, and excessive gypsum, soil, dust or debris that could result in clogging of the geotextile. The Contractor shall identify, mark, and repair all noted defects, as well as defects designated by the Engineer. Repairs to geotextiles shall be made in accordance with Section 12.5.4.

12.7 Quality Assurance Monitoring and Testing

The Engineer will undertake observations and perform tests to determine compliance of the materials and work with this Specification. Quality assurance by the Engineer will include monitoring:

(i) geotextile handling and installation;
(ii) overlaps at field seams and field seaming;
(iii) integrity of field seams and any openings or gaps that could result in the surrounding materials entering the drains;
(iv) the geotextile panel for any damage or defect;
(v) the installed geotextile for excessive entrapped gypsum, soil, dust or debris that could reduce the permittivity of the geotextile.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

(vi) placement of the geotextile and the geocomposite for compliance with the lines, grades and dimensions shown on the Drawings;

Laboratory tests will be performed by the Engineer on the geotextile at the minimum frequencies listed in Table 12-3 unless revised otherwise by the Engineer during construction.

Table 12-3. Nonwoven Geotextile Quality Assurance Test Methods and Minimum Testing Frequencies

Property	Test Method	Minimum Testing Frequency
Thickness Mass Per Unit Area Grab Breaking Strength and Elongation	ASTM D5199 ASTM D5261 ASTM D4632	Once per 10 rolls
Apparent Opening Size Permittivity	ASTM D4751 ASTM D4491	Once per 20 rolls
Field Seam Strength	ASTM D4884	Once per 1,000 lf of field seam and minimum of 1 per day

Failure of any sample to meet or exceed the requirements specified herein shall be considered cause for rejection of the material or installed Section from which the sample was collected to the extent designated by the Engineer. If the Contractor can establish to the Engineer, via additional tests performed by the Engineer, that the failed sample is representative of a smaller section of the installed material than the entire lot represented by the original test sample, then only that portion will be rejected. The additional tests, however, must be performed by the Engineer representing the Receiver.

The Contractor shall reimburse the Receiver for any such requested test that fails to meet the requirements specified herein.

12.8 Submittals

The following submittals are required from the Contractor as part of the requirements of this Specification.

- A complete description of the geotextile, the Manufacturer's product data sheet, a 1 square yard sample of the geotextile, and the Manufacturer's certification that the geotextile meets the requirements of this Specification (Section 12.3).

- Factory quality control certificates and test results for the geotextile rolls (Section 12.4.1).

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

- Proposed sewing method for field seaming the geotextile and a minimum 10-foot long sample of sewn seam to be submitted at least two weeks prior to installation (Section 12.5.3).

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 13
HIGH-STRENGTH WOVEN GEOTEXTILE

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

13.1 Description of Work

This Specification section covers the material and installation requirements of the high-strength woven geotextile to be placed over the dredged material.

The Specification includes the following sections.

Section	Item
13.1	Description of Work
13.2	Referenced Standards
13.3	Material Requirements
13.4	Factory Quality Control Testing and Inspection
13.5	Storage, Handling and Installation
13.6	Sampling and Inspection by Contractor
13.7	Quality Assurance Monitoring and Testing
13.8	Submittals

13.2 Referenced Standards

The following ASTM International (ASTM) standards are referenced in this Specification:

D1683: Standard Test Method for Failure in Sewn Seams of Woven Fabrics

D4354: Standard Practice for Sampling of Geosynthetics and Rolled Erosion Control Products (RECPs) for Testing

D4355: Standard Test Method for Deterioration of Geotextiles by Exposure to Light,

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Moisture, and Heat in a Xenon Arc-Type Apparatus

D4533: Standard Test Method for Trapezoid Tearing Strength of Geotextiles

D4595: Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method

D4632: Standard Test Method for Grab Breaking Load and Elongation of Geotextiles

D4751: Standard Test Method for Determining Apparent Opening Size of a Geotextile

D4884: Standard Test Method for Strength of Sewn or Bonded Seams of Geotextiles

D6241: Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe

13.3 Material Requirements

The woven geotextile shall consist of high-tenacity polypropylene yarns in the machine direction and high-tenacity polyester multifilament yarns. The geotextile shall be uniform and homogeneous in appearance and composition, and free from tears, cuts, or any defects that may affect serviceability. Geotextile shall be supplied in rolls having a width of 15 feet and minimum length of 300 feet and shall meet the following material property criteria:

Table 13-1. Woven Geotextile Material Specifications

Property	Test Method	Criterion
Wide Width Tensile Strength		
at 5% Strain	ASTM D4595	≥ 300 lb/in (MD), ≥ 300 lb/in (CD)
at Ultimate	ASTM D4595	≥ 580 lb/in (MD), ≥ 480 lb/in (CD)
Grab Tensile Strength	ASTM D4632	≥ 600 lb (MD), ≥ 500 lb (CD)
Grab Tensile Elongation	ASTM D4632	≥ 12% (MD), ≥ 6% (CD)
Trapezoidal Tear Strength	ASTM D4533	≥ 250 lb (MD), ≥ 200 lb (CD)
CBR Puncture Strength	ASTM D6241	≥ 1,900 lb
Apparent Opening Size	ASTM D4751	≤0.85 mm
UV Resistance (at 500 hours)	ASTM D4355	≥ 80% strength retained

MD – Machine direction
CD – Cross direction

The woven geotextile product shall be the Mirafi® HP770 manufactured by TenCate/Solmax or an

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

equivalent product approved by the Engineer. A complete description of the woven geotextile proposed for use, the Manufacturer's product data sheet, and a minimum 4-foot long by the full width of the roll sample shall be submitted to the Engineer for approval at least two weeks prior to installation. Certification from the Manufacturer that the woven geotextile is in compliance with this Specification shall also be supplied to the Engineer at least two weeks prior to installation.

13.4 Factory Quality Control Testing and Inspection

13.4.1 Factory Testing

Factory quality control certificates for the woven geotextile rolls shall be provided to the Engineer by the Manufacturer at least two weeks prior to installation. The quality control certificates shall contain the geotextile roll number, date manufactured, roll length, and roll width. The factory quality control tests shall be provided for the geotextile at the minimum frequencies listed in Table 13-2.

Table 13-2. High-Strength Woven Geotextile Factory Quality Control Test Methods and Minimum Testing Frequencies

Property	Test Method	Minimum Testing Frequency*
Wide Width Tensile Strength	ASTM D4595	Once per 10 rolls
Grab Tensile Strength and Elongation	ASTM D4632	
Trapezoidal Tear Strength	ASTM D4533	
CBR Puncture Strength	ASTM D6241	
Apparent Opening Size	ASTM D4751	
UV Resistance (at 500 hours)	ASTM D4355	Frequency determined based on ASTM D4354

(*) Frequencies assume standard 15'x300' roll and uninterrupted manufacturing (i.e., continuous rolls). Frequencies shall be adjusted if these conditions are not met.

Failure of any of the tests shall result in rejection of the corresponding lot of geotextile.

13.4.2 Factory Inspection

The geotextile shall be visually inspected at the factory prior to shipment for compliance with the physical appearance requirements in Section 13.3. All necessary repairs shall be made by the Manufacturer at the factory prior to shipment.

13.4.3 Marking and Packaging

Each geotextile roll shall be individually packaged at the factory to prevent damage during shipping and handling, and shall be completely wrapped by a protective ultraviolet radiation

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

resistant thin plastic film having a minimum thickness of 2 mils, and containing no less than 3 percent carbon black The Manufacturer shall provide each roll with a label indicating the roll number, product name, date manufactured, roll length and roll width.

13.5 Storage, Handling and Installation

13.5.1 Storage and Handling

The Contractor shall be responsible for unloading and storing the geotextile rolls. When requested by the Engineer, the Contractor shall obtain samples from the ends of rolls during unloading for testing by the Engineer. These samples shall be at a minimum 4-foot long by the full width of the roll, unless a smaller sample is requested by the Engineer. If, during unloading, the Contractor notices any defects or unacceptable conditions on the materials they shall appropriately and promptly notify the supplier and the Engineer of such conditions.

The geotextile rolls shall remain wrapped in the protective cover and shall be stored, as recommended by the Manufacturer and approved by the Engineer, in an area of the site that protects the rolls from moisture, water, gypsum, soil, dirt, ultraviolet radiation, and mechanical damage until the time of installation. The rolls shall not be unwrapped for more than two hours before use. Handling of the rolls shall be in accordance with the Manufacturer's recommendations and shall be as needed to protect the material from damage.

Geotextile deployment shall not be performed when high wind conditions (>20 mph) exist.

13.5.2 Laying and Installation

The geotextile shall be installed at the locations and to the lines, grades and dimensions shown on the Drawings.

Geotextile shall be deployed, where practical, with minimum joints. The geotextile shall be loosely laid (not stretched). The geotextile shall be laid in uniform contact with the underlying surface without gaps or excessive wrinkles. Geotextile rolls shall not be placed during periods of precipitation, high winds (>20 mph) or other adverse climatological conditions. The Contractor shall provide temporary ballast loading (e.g., sandbags) as needed to hold the geotextile in place during installation. Where field joints are necessary, the adjacent panels of geotextile shall be lapped and joined as specified in Section 13.5.3, unless approved otherwise by the Engineer. Care shall be taken to prevent unraveling of the stitching thread at the end of a seam, or at cuts and patches in the seam, including manually tying the end of the stitching thread as needed. After installation, no portion of the geotextile shall be left exposed for more than 48 hours after the receipt of conformance test results approved by the Engineer with total exposure time not to exceed 7 days.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Equipment, tools, or personnel that can damage the geotextile shall not be allowed on the installed material during and after installation. The traffic of construction equipment over any exposed materials shall be prohibited.

Woven geotextile that requires more than one repair per roll from manufacturing defects or shipping damage that is discovered during deployment shall be rejected and replaced, unless approved otherwise by the Engineer.

13.5.3 Field Seams

Field seams shall be made using a minimum overlap of 4 inches. The geotextile shall be sewn together with a sewing machine using a seam and stitching pattern recommended by the Manufacturer and approved by the Engineer. The thread used to sew the seams shall be as recommended by the Manufacturer and approved by the Engineer, and shall be manufactured from 100 percent polyester or 100 percent polypropylene. The strength of field seams shall not be less than 60 percent of that of the unaged geotextile in any principal direction when tested in accordance with ASTM D4884 and D4595 at a strain rate of 0.4 inches/minute.

The Contractor shall submit details of the proposed sewing method (type of stitch, number of stitches per inch, number of stitching rows, distance from the edge of the geotextile to the stitches, weight and type of thread, etc.) and a minimum 10-foot-long x 3-foot wide sample of the seam sewn for approval by the Engineer at least two weeks prior to installation.

13.5.4 Repairs

All tears, punctures, thinly stretched sections, or any other defect that may, as determined by the Engineer, render the geotextile unsuitable, shall be repaired by the Contractor. Repairs to the geotextile shall be made as directed by the Engineer based on the specific application.

13.6 Sampling and Inspection by Contractor

13.6.1 Sampling

The Contractor shall obtain and secure samples of the geotextile for destructive testing by the Engineer when the rolls are delivered to the site or subsequently during installation as requested by the Engineer. The samples shall be at a minimum 4-foot long by the full width of the roll, unless a smaller sample is requested by the Engineer, and shall be obtained from rolls or field locations designated by the Engineer. All samples shall be properly marked and identified by the Contractor. The Contractor shall repair all openings created by sampling in accordance with Section 13.5.4 or completely remove the full width of the roll at the sampling location.

13.6.2 Visual Inspection

The Contractor shall visually inspect the surfaces of the installed geotextile for any defects including, but not limited to, rips, tears, punctures, defective seams and excessive gypsum, soil,

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

dust or debris that could result in clogging of the geotextile. The Contractor shall identify, mark, and repair all noted defects, as well as defects designated by the Engineer. Repairs to geotextiles shall be made in accordance with Section 13.5.4.

13.7 Quality Assurance Monitoring and Testing

The Engineer will undertake observations and perform quality assurance tests to determine compliance of the materials and work with this Specification. Quality assurance by the Engineer will include monitoring:

(i) placement of the geotextile for compliance with the lines, grades and dimensions shown on the Drawings;

(ii) geotextile handling, installation, overlaps at field seams and field seaming;

(iii) integrity of field seams and for any openings or gaps;

(iv) the geotextile panel for any damage or defects;

(v) repairs; and

(vi) for the presence of excessive entrapped gypsum, soil, dust or debris that could reduce the permittivity of the geotextile.

13.7.1 Sampling by Geotextile Manufacturer

The Receiver will arrange with the geotextile Manufacturer for sampling geotextile rolls during manufacturing for independent testing by the Engineer prior to shipment of the rolls. One 4-foot wide sample across the full width of each roll shall be cut during production. The samples shall be labeled, packaged and shipped by the Manufacturer to the Engineer for testing.

13.7.2 Quality Assurance Inspection and Testing by Engineer

The Engineer will undertake observations and perform quality assurance tests, as needed, to determine compliance of the materials and work with this Specification.

Laboratory tests will be performed by the Engineer on the woven geotextile at the minimum frequencies listed in Table 13-3 unless revised otherwise by the Engineer during construction. Engineer will also monitor and/or inspect geotextile handling and installation

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 13-3. High-Strength Woven Geotextile Quality Assurance Test Methods and Minimum Testing Frequencies

Property	Test Method	Minimum Testing Frequency*
Wide Width Tensile Strength Grab Tensile Strength and Elongation Trapezoidal Tear Strength CBR Puncture Strength	ASTM D4595 ASTM D4632 ASTM D4533 ASTM D6241	Once per 10 rolls
Apparent Opening Size	ASTM D4751	Once per 20 rolls
Field Seam Strength	ASTM D4884	Once per 1,000 lf of field seam and minimum of 1 per day

(*) Frequencies assume standard 15'x300' roll and uninterrupted manufacturing (i.e., continuous rolls). Frequencies shall be adjusted if these conditions are not met.

Failure of any sample to meet or exceed the requirements specified herein shall be considered cause for rejection of the material or installed Section from which the sample was collected to the extent designated by the Engineer. If the Manufacturer or Contractor can establish to the Engineer, via additional tests performed by the Engineer, that the failed sample is representative of a smaller section of the installed material than the entire lot represented by the original test sample, then only that portion will be rejected. The additional tests, however, must be performed by the Engineer representing the Receiver.

The Manufacturer or Contractor shall reimburse the Receiver for any such requested test that fails to meet the requirements specified herein.

13.8 Submittals

The following submittals are required from the Contractor as part of the requirements of this Specification.

- A complete description of proposed woven geotextile, the Manufacturer's product data sheets, and the Manufacturer's certification that the geotextiles meet the requirements of this Specification.
- Factory test reports for each geotextile roll reporting properties in accordance with this Specification (Sections 13.3 and 13.4).
- A panel layout and deployment plan.
- A minimum 4-foot long by the full width of the roll sample of the proposed woven geotextile

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

- A minimum 3-foot wide, 10-foot long sample of a seam sewn using the proposed method for approval by the Engineer prior to installation.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 14
BI-PLANAR HDPE GEONET-GEOTEXTILE COMPOSITE

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

14.1 Description of Work

This Specification section covers the material requirements and installation of bi-planar HDPE geonet-geotextile composite in the air vent and seepage collection drain below the HDPE liner as shown on the Drawings.

The Specification contains the following sections.

Section	Item
14.1	Description of Work
14.2	Referenced Standards
14.3	Material Requirements
14.4	Factory Quality Control Testing and Inspection
14.5	Handling and Installation
14.6	Sampling and Inspection by Contractor
14.7	Quality Assurance Monitoring and Testing
14.8	Submittals

14.2 Referenced Standards

The following ASTM International standards are referenced in the Specification.

D792: Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement

D1238: Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

D1505: Standard Test Method for Density of Plastics by the Density-Gradient Technique

D1603: Standard Test Method for Carbon Black in Olefin Plastics

D1693: Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics

D4218: Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique

D4355: Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus

D4491: Standard Test Methods for Water Permeability of Geotextiles by Permittivity

D4533: Standard Test Method for Trapezoid Tearing Strength of Geotextiles

D4595: Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method

D4632: Standard Test Method for Grab Breaking Load and Elongation of Geotextiles

D4716: Standard Test Method for Determining the (In-Plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head

D4751: Standard Test Method for Determining Apparent Opening Size of a Geotextile

D4884: Standard Test Method for Strength of Sewn or Thermally Bonded Seams of Geotextiles

D4976: Standard Specification for Polyethylene Plastics Molding and Extrusion Materials

D5199: Standard Test Method for Measuring Nominal Thickness of Geosynthetics

D5261: Standard Test Method for Measuring Mass Per Unit Area of Geotextiles

D6241: Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

D7005: Standard Test Method for Determining the Bond Strength (Ply Adhesion) of Geocomposites

D7179: Standard Test Method for Determining Geonet Breaking Force

14.3 Material Requirements

Geonet-geotextile composite shall consist of a HDPE bi-planar geonet with nonwoven geotextiles heat bonded to one or both sides of the geonet as shown in the Drawings. The geonet shall be manufactured from unreinforced HDPE designed and manufactured for use in drainage geonets. Geotextile shall be non-woven geotextile suitable for material separation.

The geonet-geotextile composite shall be supplied in rolls having a width of 15 feet and minimum length of 250 feet. Variances for narrower and shorter roll lengths based on the dimensions shown on the Drawings and other considerations shall be submitted to the Engineer for approval.

14.3.1 HDPE Geonet

14.3.1.1 HDPE Resin

The uncolored base resin shall be polyethylene having a minimum density of 0.932 g/cm^3 classifying as Group 2, Class 2, Grade 4 or Grade 5 (PE 224 or PE 225) medium density polyethylene in accordance with ASTM Standard D4976.

The formulated colored resin shall classify as a Group 2, Class 3, Grade 4 or Grade 5 high density polyethylene (PE 234 or PE 235) with physical properties meeting A46009 in accordance with ASTM D4976 with environmental stress crack resistance (ASTM D1693) F_{50} >1500 hours (Condition B; 50°C/100% Igepal) and F_{20} >192 hours (Condition C; 100°C/100% Igepal). The formulated colored resin shall contain not less than 97 percent of the base polymer, not less than 2.0 percent carbon black and not more than 3.0 percent carbon black, anti-oxidants and heat stabilizers combined with no other additives, fillers or extenders.

The geonet shall be manufactured from virgin resin, with no more than 3 percent regrind material. Regrind material, if used, shall be of the same formulation as the virgin resin. No post-consumer resin of any type shall be used.

14.3.1.2 Physical Appearance

The geonet shall be uniform in appearance and composition and shall be free of tears, cuts, gels, undispersed ingredients, any signs of contamination by foreign matter, or any defect that may affect serviceability.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

14.3.1.3 Physical Properties

HDPE geonet shall meet the criteria in Table 14-1.

Table 14-1. HDPE Geonet Material Specifications

Property	Test Method	Criteria		
		200 mil Geonet	250 mil Geonet	300 mil Geonet
Type of Geonet	-	Bi-Planar		
Thickness (mils)	ASTM D5199	≥200	≥250	≥300
Mass Per Unit Area (oz/yd^2)	ASTM D5261	≥23	≥29	≥34
Melt Index (g/10 minute)	ASTM D1238 (190°C/2.16 kg)	≤1.0		
Carbon Black Content (%)	ASTM D1603 or D4218	≥2.0 & <3.0		
Density (g/cm^3)	ASTM D1505 or D792	≥0.940		
Tensile Strength [MD], lb/inch	ASTM D7179	≥45	≥55	≥75
Transmissivity [MD], m^2/sec	ASTM D4716 (σ_n=70 lb/in^2; i=0.1; t=15 min)	≥2.0x10-3	≥3.0x10-3	≥8.0x10-3
Thickness Retention (%)	100 lb/in2 for 10,000 hours at 20°C temperature	≥75	≥75	≥75

A complete description of the geonet proposed for use, the Manufacturer's product data sheet and a minimum 2.5-foot long by the full width of the roll sample shall be submitted to the Engineer for approval at least two weeks prior to installation. Certification from the Manufacturer that the geonet is in compliance with this Specification shall also be supplied to the Engineer at least two weeks prior to installation.

14.3.2 Geotextile

Geotextile shall be a nonwoven, needle-punched fabric manufactured from 100 percent polyester or 100 percent polypropylene. The geotextile shall be uniform and homogeneous in appearance and composition, and free from tears, cuts, thin spots, or any defects that may affect serviceability.

Geotextile shall be supplied in rolls having a width of 15 feet and minimum length of 300 feet.

The geotextile shall meet the criteria in Table 14-2 for the corresponding mass per unit area.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 14-2. Nonwoven Geotextile Material Specifications

Property	Units	Test Method	Criteria			
			8 oz/yd^2 Geotextile	10 oz/yd^2 Geotextile	12 oz/yd^2 Geotextile	24 oz/yd^2 Geotextile
Mass per Unit Area	oz/yd^2	ASTM D5261	≥8	≥10	≥12	≥24
Apparent Opening Size†	USSS‡	ASTM D4751	≥80	≥100		
Grab Breaking Load*	lb	ASTM D4632	≥220	≥270	≥320	≥500
Grab Elongation*	%	ASTM D4632	≥50			
Trapezoidal Tear Strength*	lb	ASTM D4533	≥90	≥100	≥120	≥200
CBR Puncture	lb	ASTM D6241	≥575	≥725	≥900	≥1,100
Permittivity	sec^{-1}	ASTM D4491	≥1.3	≥1.0	≥0.85	≥0.40
UV Resistance [500 Hours]	%	ASTM D4355	≥70			

† All individual test specimen results shall meet the specified criteria.
* Tested in both machine and transverse directions.
‡ United States Standard Sieve size.

A complete description of the non-woven geotextile proposed for use, the Manufacturer's product data sheet, and a minimum 2.5-foot long by the full width of the roll sample shall be submitted to the Engineer for approval at least two weeks prior to installation. Certification from the Manufacturers that the non-woven geotextile is in compliance with this Specification shall also be supplied to the Engineer at least two weeks prior to installation.

14.3.3 Geonet-Geotextile Composite

The geonet and geotextiles in the composite shall meet the requirements of Sections 14.3.1 and 14.3.2, and the following criteria for ply adhesion.

Table 14-3. Geonet-Geotextile Composite
Ply Adhesion Specifications

Property	Units	Test Method	Criteria
Ply Adhesion [Average]	lb/inch	ASTM D7005	≥1.0
Ply Adhesion [Minimum]			≥0.5

Average and minimum ply adhesion shall comply with the criteria listen in the previous table and be sufficient to maintain the geotextile uniformly bonded to the geonet during handling and installation.

The geonet-geotextile composite with geotextile heat bonded to one side (single-sided) or both sides (double-sided) of the geonet shall meet the following criteria for transmissivity in the machine direction determined in accordance with ASTM D4716 using a normal stress of 70 lb/in^2, hydraulic gradient of 0.1 and seating time between steel plates of 15 minutes.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 14-4. Geonet-Geotextile Composite
Transmissivity Specifications

Transmissivity [MD], m^2/second				
Geonet Thickness (mils)	Double-sided Composite		Single-sided Composite	
	8 oz/yd^2 Geotextile	10 oz/yd^2 Geotextile	8 oz/yd^2 Geotextile	10 oz/yd^2 Geotextile
200	$\geq 1.0 \times 10^{-4}$	$\geq 9.0 \times 10^{-5}$	$\geq 1.0 \times 10^{-3}$	$\geq 9.0 \times 10^{-4}$
250	$\geq 5.0 \times 10^{-4}$	$\geq 3.0 \times 10^{-4}$	$\geq 1.5 \times 10^{-3}$	$\geq 1.0 \times 10^{-3}$
300	$\geq 9.0 \times 10^{-4}$	$\geq 7.0 \times 10^{-4}$	$\geq 3.0 \times 10^{-3}$	$\geq 2.0 \times 10^{-3}$

The transmissivity in the transverse direction (TD) shall be no less than 30 percent of the transmissivity in the machine direction.

A complete description of the geonet-geotextile composite proposed for use, the Manufacturer's product data sheet, and a minimum 2.5-foot long by the full width of the roll sample shall be submitted to the Engineer for approval at least two weeks prior to installation. Certification from the Manufacturer that the geonet-geotextile composite is in compliance with this Specification shall also be supplied to the Engineer two weeks prior to installation.

14.4 Factory Quality Control Testing and Inspection

14.4.1 Factory Testing

14.4.1.0 HDPE Geonet

Factory quality control certificates for each batch of resin used to manufacture the geonet, including melt index and density, shall be submitted to the Engineer for approval at least two weeks prior to installation. The resin Manufacturer's certificate of analysis for each batch of resin shall also be provided to the Engineer at least two weeks prior to installation.

Factory quality control certificates for the geonet component of the geonet-geotextile composite shall be provided to the Engineer by the Manufacturer at least two weeks prior to installation. As a minimum, the quality control certificates shall contain the roll identification number, date manufactured, resin batch number and roll length and roll width. The following factory quality control tests listed in Table 14-5 for the geonet component of the composite shall be provided at the indicated minimum frequencies.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Table 14-5. Geonet-Geotextile Composite HDPE Geonet Component Factory Quality Control Test Methods and Minimum Testing frequencies

Geonet Property	Test Method	Minimum Testing Frequency
Mass per Unit Area	ASTM D5261	Every 10 Rolls
Thickness	ASTM D5199	Every 10 Rolls
Tensile Strength [MD]	ASTM D7179	Every 10 Rolls
Transmissivity [MD]	ASTM D4716	Every 20 Rolls
Melt Index	ASTM D1238	Once per Batch of Resin or Every 10 Rolls
Carbon Black Content	ASTM D1603 or D4218	Once per Batch of Resin or Every 10 Rolls
Density	ASTM D1505 or D792	Once per Batch of Resin or Every 10 Rolls

Failure of any of the tests shall result in rejection of the corresponding lot of geonet.

14.4.1.1 Geotextile

Factory quality control certificates for the geotextile, including the geotextile component of the geonet-geotextile composite shall be provided to the Engineer by the Manufacturer at least two weeks prior to installation. As a minimum, the quality control certificates shall contain the geotextile roll number, date manufactured, roll length and roll width. The factory quality control tests listed in Table 14-6 shall be provided for the geotextile, including the geotextile component of the geonet-geotextile composite, at the indicated minimum frequencies.

Table 14-6. Geonet-Geotextile Composite Nonwoven Geotextile Component Factory Quality Control Test Methods and Minimum Testing Frequencies

Geotextile Property	Test Method	Minimum Testing Frequency
Mass per Unit Area	ASTM D5261	Once per 5,000 yd^2 and at a minimum once per lot
Grab Breaking Load	ASTM D4632	
Grab Elongation	ASTM D4632	
Apparent Opening Size	ASTM D4751	
Permittivity	ASTM D4491	

Failure of any of the tests shall result in rejection of the corresponding lot of geotextile.

14.4.1.2 Geonet-Geotextile Composite

Factory quality control certificates for the geonet-geotextile composite shall be provided to the Engineer by the Manufacturer at least two weeks prior to installation. At a minimum, the quality control certificates shall contain the geotextile and geonet roll numbers, date manufactured, roll

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

length and roll width. The factory quality control tests listed in Table 14-7 shall be provided for the geonet-geotextile composite at the indicated minimum frequencies.

Table 14-7. Geonet-Geotextile Composite Ply Adhesion and Transmissivity Factory Quality Control Test Methods and Minimum Testing Frequencies

Composite Property	Test Method	Minimum Testing Frequency
Ply Adhesion	ASTM D7005	Every 10 rolls
Transmissivity	ASTM D4716	Every 20 Rolls

Failure of any of the tests shall result in rejection of the corresponding lot of geonet-geotextile composite.

14.4.2 Factory Inspection

The geotextile, geonet and geonet-geotextile composite shall be visually inspected at the factory prior to shipment for compliance with the physical appearance requirements in Sections 14.3.1.2 and 14.3.2. All necessary repairs shall be made by the Manufacturer at the factory prior to shipment.

14.4.3 Marking and Packaging

Each geotextile and geonet-geotextile composite roll shall be individually packaged at the factory to prevent damage during shipping and handling and shall be completely wrapped by a protective ultraviolet radiation resistant thin plastic film having a minimum thickness of 2 mils. The Manufacturer shall provide each roll with a label indicating the roll number, product name, date manufactured, roll length and roll width.

14.5 Handling and Installation

14.5.1 Storage and Handling

The Contractor shall be responsible for unloading and storing the geotextile and geonet-geotextile composite rolls. When requested by the Engineer, the Contractor shall obtain samples from the ends of rolls during unloading for testing by the Engineer. These samples shall be at a minimum 2.5-foot long by the full width of the roll, unless a smaller sample is requested by the Engineer. If, during unloading, the Contractor notices any defects or unacceptable conditions on the materials they shall appropriately and promptly notify the supplier and the Engineer of such conditions.

The geotextile and geonet-geotextile composite shall remain fully wrapped in the protective cover and shall be stored, as recommended by the Manufacturer and approved by the Engineer, in an area of the site that protects the rolls from moisture, water, gypsum, soil, dirt, ultraviolet radiation and mechanical damage until the time of installation. The rolls shall not be unwrapped more than

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

two hours before use. Handling of the rolls shall be in accordance with the Manufacturer's recommendations and shall be as needed to protect the composite from damage. Geotextile and geonet-geotextile composite deployment shall not be performed when high wind conditions (>20 mph) exist.

14.5.2 Laying and Installation

The geotextile and geonet-geotextile composite shall be installed at the locations and to the lines, grades and dimensions shown on the Drawings.

Geotextile and geonet-geotextile composite shall be manufactured, or cut, to the widths shown on the Drawings and deployed, where practical, with minimum joints. The geotextile and geonet-geotextile composite shall be loosely laid (not stretched). The geotextile and geonet-geotextile composite shall be installed in a smooth and unwrinkled condition in uniform contact with the underlying materials and held in place as needed and approved by the Engineer until covered with the overlying material shown on the Drawings.

Geotextile shall completely encapsulate and wrap all faces of the drain and other surfaces shown on the Drawings as needed to preclude migration of the abutting materials into the drain. The geotextile shall be cut to fit tightly around the penetrating HDPE pipe at the end of drains.

After installation, the geotextile and geonet-geotextile composite shall not be left exposed for more than 48 hours prior to covering. Equipment, tools or personal that can damage the geotextile and geonet-geotextile composite shall not be allowed on the installed materials during and after installation. The traffic of construction equipment over any exposed materials shall be prohibited.

Geotextile and geonet-geotextile composite that requires more than one repair per roll to the geotextile or geonet from manufacturing defects or shipping damage that is discovered during deployment shall be rejected and replaced unless approved otherwise by the Engineer.

Joints and seams shall be made as followed:

- Geonet: Adjacent geonet panels shall be overlapped a minimum of 6 inches and tied together with polyethylene or polypropylene ties approved by the Engineer. Ties shall be sufficient in number and tensile strength to prevent the joint from separating during handling and installation. Ties shall be of a color to allow easy observation (e.g., white or yellow) against the black geonet. Metallic ties shall not be used. Ties shall be installed along the edges at a maximum center to center of spacing of 12 inches along roll ends and sides. Ties shall have a minimum tensile strength of 25 pounds.

  For cut edges and ends of the geonet-geotextile composite without overlapping geotextile, the upper and lower geotextiles shall be peeled back a minimum of 6 inches to expose the geonet core. The geonet core shall be trimmed back a minimum of 4 inches from the edge and the upper and lower geotextiles shall be overlapped a minimum of 4 inches and sewn.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

- Geotextile: The upper and lower geotextiles of the geonet-geotextile composite at each connection shall overlap a minimum of 6 inches and shall be sewn in accordance with Section 14.5.3. Care shall be taken so that gypsum, soil or other debris is not trapped within the overlap. Geotextile along non-joined edges of the composite shall be sewn with a field seam meeting the requirements of Section 14.5.3. Care shall be taken to prevent unraveling of the stitching thread at the end of a seam, or at cuts and patches in the seam, including manually tying the end of the stitching thread as needed.

14.5.3 Geotextile Field Seams

Field seams shall be made using a minimum overlap of 6 inches, or as specified in Section 14.5.2 for cut edges and ends of geocomposite without overlapping geotextile. The geotextile shall be sewn together with a sewing machine using a flat sewn seam with one row of stitches with a minimum of 4 stitches per inch and a maximum of 10 inches per stitch, or a seam and stitching pattern recommended by the Manufacturer and approved by the Engineer. The thread used to sew the seams shall be 2000 denier minimum, or as recommended by the Manufacturer and approved by the Engineer and shall be manufactured from 100 percent polyester or 100 percent polypropylene. The strength of field seams shall not be less than 50 percent of that of the unaged geotextile in any principal direction when tested in accordance with ASTM D4884 and D4595 at a strain rate of 0.4 inches/minute.

The Contractor shall submit details of the proposed sewing method (type of stitch, number of stitches per inch, number of stitching rows, distance from the edge of the geotextile to the stitches, weight, and type of thread, etc.) and a minimum 10-foot long sample of the sewn seam for approval by the Engineer at least two weeks prior to installation.

Thermal joining of polyester fabrics will not be allowed. Thermal bonding of polypropylene fabrics will only be allowed if the Contractor can demonstrate, to the satisfaction of the Engineer, consistency, and uniformity of the seam, as well as compliance with the seam strength criterion of no less than 50 percent of that of the un-aged geotextile (when the seam is tested in accordance with ASTM D4884 and D4595). If thermal joining is allowed, the minimum overlap shall be increased to 12 inches.

14.5.4 Geotextile Repairs

All tears, punctures, thinly stretched sections, or any other defect that may, as determined by the Engineer, render the geotextile unsuitable, shall be repaired by the Contractor. Repairs shall be made by overlaying a patch of geotextile over the damaged area with a 12-inch minimum lap all around. The patch shall be sewn to the geotextile, as specified in Section 12.5.3, all around the patch perimeter. Where allowed by the Engineer, the patch may be temporarily held in place by thermal bonding or by use of a 2-inch wide, black, 10-mil thick PVC pipe wrapping tape.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Geotextile and geonet-geotextile composite rolls that require more than one repair to the geotextile from manufacturing defects or shipping/handling damage per roll shall be rejected and replaced unless approved otherwise by the Engineer.

14.5.5 Fill Placement Procedures

Placement of soil, gypsum or other fill material directly on the geonet-geotextile composite, where shown on the Drawings, shall be undertaken by light track-mounted equipment exerting a relatively low contact stress [e.g., low ground pressure Caterpillar D4, D5 or D6 LGP dozer exerting less than 5 lb/in^2 of contact stress] and traveling on a minimum of 18 inches of fill material. The geonet-geotextile composite shall be in intimate contact with the underlying surface during placement of fill material atop the geonet-geotextile composite. Fill material shall be placed by allowing the material to tumble freely over the advancing edge of the fill prior to leveling to grade. Fill material shall not be placed by advancing the material horizontally in any manner that pushes the fill across the surface of the geonet-geotextile composite and pulls, displaces or wrinkles the geonet-geotextile composite. Over-compaction of fill material above the geonet-geotextile composite shall be avoided.

During placement and compaction of fill material on slopes, equipment shall place and compact the fill working from the toe of slope upwards. Particular care shall be exercised so as not to damage the geonet-geotextile composite near the toe of slope while pushing fill upslope.

Care shall be exercised during fill placement so as not to damage the geonet-geotextile composite with the blade, bucket, or tracks of the equipment, and to avoid pulling, pushing, displacing or folding the geonet-geotextile composite. Any damage to the geonet-geotextile composite (e.g., tears, punctures, creases, folds, etc.) shall be repaired by the Contractor at their expense.

14.6 Sampling and Inspection by Contractor

14.6.1 Sampling

The Contractor shall obtain and secure samples of the geotextile and geonet-geotextile composite for destructive testing by the Engineer when the rolls are delivered to the site or subsequently during installation as requested by the Engineer. The samples shall be at a minimum 2.5-foot long by the full width of the roll, unless a smaller sample is requested by the Engineer, and shall be obtained from rolls or field locations designated by the Engineer. All samples shall be properly marked and identified by the Contractor. The Contractor shall repair all openings created by sampling in accordance with Section 14.5.4 or completely remove the full width of the roll at the sampling location.

14.6.2 Visual Inspection

The Contractor shall visually inspect the surfaces of the installed geotextile and geonet-geotextile composite for any defects including, but not limited to, rips, tears, punctures and defective seams. The Contractor shall identify, mark, and repair all noted defects, as well as defects designated by

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

the Engineer. Repairs to geotextiles shall be made in accordance with Section 14.5.4. Geonet-geotextile composite with damage to both geotextile surfaces at any location shall be removed and replaced.

The Contractor shall visually inspect the surfaces for gypsum, soil, dust or debris that could result in clogging of the geonet or geotextile. If gypsum, soil, dust or debris is entrapped in the geonet or geotextile, that section of material shall be removed and replaced or the surfaces cleaned as approved by the Engineer.

14.7 Quality Assurance Monitoring and Testing

The Engineer will undertake observations and perform quality assurance tests to determine compliance of the materials and work with this Specification. Quality assurance by the Engineer will include monitoring:

(i) placement of the geotextile and the geonet-geotextile composite for compliance with the lines, grades and dimensions shown on the Drawings;
(ii) geotextile handling, installation, overlaps at field seams and field seaming;
(iii) geonet-geotextile composite handling, installation, overlaps, geonet joints and field seaming;
(iv) integrity of the field seams and any openings or gaps that could result in the surrounding materials entering the drains;
(v) the geotextile or geonet-geotextile composite panel for any large damage or defect;
(vi) repairs; and
(vii) for the presence of excessive entrapped soil, gypsum, soil, dust or debris that could reduce the permittivity of the geotextile or transmissivity of the geonet-geotextile composite.

Laboratory quality assurance tests will be performed by the Engineer on geotextile and geonet-geotextile composite materials at the following minimum frequencies listed in Table 14-8 unless revised otherwise by the Engineer during construction.

Table 14-8. Geonet-Geotextile Composite Quality Assurance Test Methods and Minimum Testing Frequencies

Material	Property	Test Method	Minimum Testing Frequency
Geonet	Thickness Mass Per Unit Area Density Carbon Black Content	ASTM D5199 ASTM D5261 ASTM D792 or D1505 ASTM D1603 or D4218	Once per 10 rolls
	Tensile Strength Transmissivity	ASTM D7179 ASTM D4716	Once per 20 rolls
	Melt Index (g/10 minute)	ASTM D1238 (190°C / 2.16 kg)	Once per 40 rolls and at a minimum once per batch of resin

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Material	Property	Test Method	Minimum Testing Frequency
Geotextile or Geotextile Component	Thickness Mass Per Unit Area Grab Strength & Elongation	ASTM D5199 ASTM D5261 ASTM D4632	Once per 10 rolls
	Apparent Opening Size Permittivity	ASTM D4751 ASTM D4491	Once per 20 rolls
	Field Seam Strength	ASTM D4884 ASTM D4595	Once per 1,000 lf of field seam and minimum 1 per day
Geonet-Geotextile Composite	Transmissivity [MD & TD]* Ply Adhesion	ASTM D4716 ASTM D7005	Once per 20 rolls Once per 10 rolls
*Transmissivities shall be measured using a normal stress of 70lb/in^2, hydraulic gradient of 0.1 and a seating time between steel plates of 15 minutes.			

Samples for quality assurance testing shall be provided by the Manufacturer to the Engineer in accordance with the testing frequencies listed in the previous table. Samples shall be at a minimum 2.5-foot long by the full width of the roll, unless a smaller sample is requested by the Engineer. Geonet-geotextile composite rolls for testing shall be selected by the Engineer based on the roll inventory provided by the Manufacturer. The Manufacturer shall also provide unbonded samples of nonwoven geotextile and HDPE geonet from each geotextile and geonet lot used to manufacture the composite material.

Failure of any sample to meet the requirements specified herein shall be considered cause for rejection of the material or installed section represented by the sample to the extent designated by the Engineer. If the Contractor can establish to the Engineer, via additional tests performed by the Engineer, that the failed sample is representative of a smaller section of the installed material than the entire lot represented by the original test sample, then only that portion will be rejected. The additional tests, however, shall be performed by the Engineer representing the Receiver. The Contractor shall reimburse the Receiver for any such requested test that fails to meet the requirements specified herein.

14.8 Submittals

The following submittals are required from the Contractor as part of the requirements of this Specification.

- A complete description of each non-woven geotextile and HDPE geonet proposed for use, the Manufacturer's product data sheets for each, and the Manufacturer's certification that each geotextile and HDPE geonet meets the requirements of this Specification (Sections 14.3.1 and 14.3.2).
- A minimum 2.5-foot long by the full width of the roll sample of each proposed non-woven geotextile (Section 14.3.2)
- A complete description of the HDPE geonet-geotextile composite, a minimum

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

2.5-foot long by the full width of the roll sample of each composite and the unbonded non-woven geotextile and the HDPE geonet components, the Manufacturer's product data sheet for each, and the Manufacturer's certification that each geonet-geotextile composite meets the requirements of this Specification (Section 14.3.3).

- Resin certificates for each batch of HDPE resin, and factory quality control certificates for each roll of non-woven geotextile, HDPE geonet, and geonet-geotextile composite (Section 14.4).

- Proposed sewing method for field seaming the non-woven geotextile and a minimum 10-foot long sample of sewn seam (Section 14.5.3).

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 15
GRASSING

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

15.1 Description of Work

This Specification section covers grassing by seeding or sodding. The Specification contains the following sections.

Section	Item
15.1	Description of Work
15.2	Referenced Standards
15.3	General
15.4	Ground Preparation and Fertilizer Application
15.5	Grassing by Seeding
15.6	Grassing by Sodding
15.6	Mulching
15.8	Watering
15.9	Commercial Fertilizers
15.10	Maintenance
15.11	Submittals

15.2 Referenced Standards

The following Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction are referenced in this specification.

Section 570: Performance Turf

Section 981: Turf Materials

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Section 982: Fertilizer

Section 983: Water for Grassing

15.3 General

Seeding, sodding and mulching shall be completed on all designated areas shown on the Drawings and all other areas disturbed by the Contractor. All seeding and sodding shall be performed in accordance with these Specifications.

Seeding and sodding operations, including fertilizing, seeding, and mulching, will not be permitted when wind velocities exceed 15 miles per hour. Seed shall be sown only when the soil is moist and in proper condition to induce growth. No seeding shall be done when the ground is unduly wet or otherwise not in a tillable condition.

The Grassing Contractor shall be responsible for furnishing all labor, materials, and equipment required to perform seeding, sodding and mulching activities, including ground preparation, placement of seed or sod, mulching, and spreading of fertilizer.

All unlined gypsum grades areas shall be amended with powdered dolomitic limestone to elevate the pH of the gypsum to a minimum of 5.0. Prior to adding powdered dolomitic limestone, the surface shall be ripped by a dozer to a depth of 12 to 14 inches to loosen the gypsum; the material shall be pulverized so that no particle is larger than 4-inches in diameter. Powdered dolomitic limestone shall be applied at an initial, minimum rate of 5 tons per acre in all gypsum surfaces and mixed uniformly to a depth of 12 inches. The pH and conductivity tests shall be performed on the amended surface to determine whether additional amending is necessary. **The amendment and pH adjustment of the unlined areas shall be the responsibility of the Grassing Contractor.**

Dolomitic limestone shall be a finely ground product, designated for agricultural use, and approved by the Engineer. The device used for spreading dolomitic limestone shall be capable of uniformly distributing the material at the specified rate. Immediately after the dolomitic limestone is spread, it shall be thoroughly mixed into the soil or gypsum surface, to a depth of 12 inches. The mixing may be accomplished with an agricultural disk, roto-tiller or combination of the two. Disking or tilling shall be along the contour and shall be adequate to thoroughly pulverize the soil and uniformly mix the amendments with the pulverized soil. Water shall be added as needed to maintain the completed mixture in a moist condition.

15.4 Ground Preparation and Fertilizer Application

All operations in connection with grassing shall be performed as soon as practicable after finish grade has been established. Prior to grading and tillage operations, the ground surface shall be cleared of all heavy vegetation, roots, rubbish, grade stakes, and other material which might hinder proper grading, tillage, or subsequent maintenance operations. Grades on areas to be

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

seeded shall be maintained in a true and even condition, preventing the formation of depressions where water will stand.

The ground over which the seed is to be sown shall be prepared by disk harrowing and thoroughly pulverizing the soil to a depth of 6 inches. The prepared soil shall be loose and reasonably smooth. Harrows will not be allowed.

Fertilizer shall be spread uniformly over all areas to be seeded. A commercial fertilizer satisfying the requirements of Section 982 of the Standard Specifications for Road and Bridge Construction, Florida Department of Transportation, latest revision, or as specified by the Receiver, shall be used and spread at a minimum initial application as follows: 100 lb/acre N, 50 lb/acre K_2O, and 25 lb/acre Mg. The device for spreading fertilizer shall be capable of uniformly distributing the material at the specified rate. Immediately after the fertilizer is spread, it shall be mixed into the soil, to a depth of approximately 6 inches.

15.5 Grassing by Seeding

While the soil is still loose, the seed shall be distributed uniformly over the grassing area and immediately mixed into the seedbed to a depth of one-half inch. The seed spreader shall be an approved mechanical type of spreader. Seed shall be sown only when the soil is moist, but not too wet and in proper condition to induce growth. The Contractor shall water the surface, if needed, prior to seeding.

Permanent type grass seed shall be 30 pounds of common Bermuda seed and 100 pounds of Pensacola Bahia seed per acre. Quick-growing type grass seed, such as rye or millet, shall be a species that will provide an early ground cover during the particular season when planting is done and will not later compete with permanent grass. The rate of sowing quick-growing grass seed shall be 50 pounds per acre. The separate types of seed used shall be thoroughly dry-mixed immediately before sowing. Seed that have become wet shall not be used.

All seed shall meet the requirements of the Florida Department of Agriculture and Consumer Services and all applicable State laws and shall be approved by the Engineer before being sown. The seed shall have been harvested from the previous year's crop.

Each of the species or varieties of seed shall be furnished and delivered to the site in separate labeled bags. During handling and storing, the seed shall be cared for in such a manner that it will be protected from damage by heat, moisture, rodents, and other causes. All permanent and temporary grass seed shall have been tested within a period of six months of the date of planting, and shall have a minimum percent of purity and germination as follows:

- Bahia grass seed shall have a minimum pure seed content of 98 percent with a minimum total germination of 85 percent.

- Bermuda grass seed shall be of common variety with a minimum pure seed content of 95 percent with a minimum total germination of 85 percent.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

- Annual quick growing Rye grass seed (for planting between September 1 and January 31) shall have a minimum pure seed content of 95 percent with a minimum total germination of 90 percent.

- Quick-growing Millet seed (for planting between March 16 and August 31) shall be of the Brown Top variety with a minimum pure seed content of 90 percent with a minimum total germination of 85 percent.

Hydroseeding-hydromulching may be used as an alternative to conventional seeding and mulching techniques for grassing, if approved by the Receiver.

15.6 Mulching

Four thousand (4,000) pounds per acre of dry hay mulch material satisfying the requirements of Section 981 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction shall be applied uniformly over the seeded area, and the mulch material cut into the soil. The mulching equipment shall be of a type capable of cutting the specified materials uniformly into the soil and to the required depth. Care shall be exercised that the materials are not cut too deeply into the soil. Only un-deteriorated mulch that can be readily cut into the soil shall be used.

Immediately after completion of the seeding and mulching, the area shall be rolled thoroughly with a cultipacker or other equipment approved by the Engineer. At least two trips over the entire area will be required. The mulch shall be anchored to the ground as needed to minimize loss by wind and rain, by a V-type wheel land packer or similar equipment, and in accordance with Section 570 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

15.7 Grassing by Sodding

The materials used in this work shall conform to the following. The Contractor shall provide necessary documents/certifications to the Receiver confirming that the materials provided for the project (e.g., sod quality, sod's age, etc.) meet the requirements of these specifications. Sod shall be of common Bermuda grass except in low areas, as shown on the Drawings, where it shall be of Argentine Bahia grass. Both shall be well matted with roots.

The sod shall be at least 18 months old, taken up in commercial-size rectangles, preferably 12-inch by 24-inch or larger or in 24-inch-wide rolls.

The sod shall be sufficiently thick to secure a dense stand of live grass. The sod shall be live, fresh and uninjured, at the time of planting. It shall have a soil mat of sufficient thickness adhering firmly to the roots to withstand all necessary handling. It shall be reasonably free of weeds. It shall be planted as soon as possible after being cut for use in the work. After approval, the area

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

from which the sod is to be harvested shall be closely mowed and raked as necessary to remove excessive top growth and debris.

Approved devices, such as sod cutters, shall be used for cutting the sod and due care shall be exercised to retain the native root soil intact.

No sod which has been cut for more than 72 hours shall be used. A letter of certification from the Grassing Contractor as to when the sod was cut, and what type shall be provided to the Receiver, upon delivery of the sod to the job site. Any sod which is not planted within 24 hours after cutting shall be stacked in an approved manner and maintained properly moistened. Sodding shall not be performed when weather and soil conditions are, in the Receiver's opinion, unsuitable for proper results.

The sod shall be placed on the prepared surface, with no visible open joints and no overlapping joints. End joints shall be staggered by at least 12 inches.

Where sodding is used in sloped areas, the setting of the pieces shall be staggered such as to avoid a continuous seam along the line of flow. Along the edges of such staggered areas the offsets of individual strips shall be 12 inches minimum. In order to prevent erosion caused by vertical edges at the outer limits, the outer pieces of sod shall be tamped and/or the soil graded up to the sod edge so as to produce a feather edge effect.

In areas where the sod may slide, due to height and slope, the sod shall be pegged with soft pine pegs (6 to 8-inch length) driven through the sod at suitable intervals to secure the sod to the surface.

Any pieces of sod which, after placing, show an appearance of extreme dryness shall be removed from the work and replaced.

After sod has dried, roll sodded area to ensure good bond between soil and sod.

15.8 Watering

Newly seeded and sodded areas shall be watered as required to prevent the grass from drying out, and to maintain the necessary soil moisture for a period of at least one year following planting or as otherwise approved by the Receiver. The moistened condition shall extend to the full depth of the rooting zone. All seeded areas shall be watered, as needed, and directed by the Receiver, and maintained by the Contractor for a period of at least one year (or as otherwise indicated in the Contract) following planting until final acceptance of the work by the Receiver. Irrigation water shall be obtained from locations designated by the Receiver.

15.9 Fertilizer

Commercial fertilizers shall comply with the State fertilizer laws.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

The fertilizer shall be applied at a minimum initial application as follows: 300 lb/acre N, 150 lb/acre K_2O, and 75 lb/acre Mg. At least 50 percent of the nitrogen shall be from a slow-release source.

Unless otherwise directed, a subsequent application containing 50 lb/acre N, 25 lb/acre K_2O, and 12.5 lb/acre Mg shall be applied without mixing into the soil approximately 6 months after the initial application.

15.10 Maintenance

The Contractor shall maintain the planted areas in a satisfactory condition for a period of at least one year or until final acceptance by the Receiver. It is the Grassing Contractor's responsibility to let the Receiver know immediately about any problem areas that may need filling and/or repairing by the Receiver. The Grassing Contractor shall make a site visit at least twice per month during the maintenance period. the Receiver, at any time, may require replanting of any seeded areas in which the establishment of the grass stand does not appear to be developing satisfactorily.

The temporary grass cover, if Millet, should be mowed to a height of 4 inches when the plant reaches 6 inches and before seed heads appear. Mow all grass at regular intervals to a height of 4 inches when the grass reaches a height of 6 to 8 inches during the one-year maintenance period.

15.11 Submittals

The following submittals are required as part of the requirements of this Specification.

- A complete description and product data sheets for the dolomitic limestone and fertilizer products shall be submitted to the Engineer for approval at least two weeks prior to application.

- Certification of the type and quality of seed provided by the Contractor shall be provided to the Engineer for approval prior to seeding.

- The Contractor’s proposed equipment and methods of construction shall be submitted to the Engineer for approval at least two weeks prior to the start of grassing operations.

- A complete description of the Contractor’s proposed topsoil material, if used, source of material and a 25-pound sample of the material shall be submitted to the Engineer for approval at least two weeks prior to application.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 16
CONCRETE EROSION CONTROL MAT

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

16.1 Description of Work

This Specification covers material requirements, installation procedures, quality control inspection and testing, and Contractor's submittals for concrete erosion control mats.

The Specification includes the following sections.

Section	Item
16.1	Description of Work
16.2	Referenced Standards
16.3	Materials Requirements
16.4	Installation Procedures
16.5	Quality Assurance Monitoring and Testing
16.6	Submittals

16.2 Referenced Standards

The following ASTM International (ASTM) standards are referenced in this Specification.

C31: Standard Practice for Making and Curing Concrete Test Specimens in the Field

C33: Standard Specification for Concrete Aggregates

C39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

C150: Standard Specification for Portland Cement

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

C618: Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

D4884: Standard test Method for Strength of Sewn or Bonded Seams of Geotextiles

16.3 Material Requirements

The erosion control mats (with thicknesses as shown on the Drawings) shall consist of concrete-filled filter point linings with filtration points, underlain by non-woven geotextile filter fabric.

16.3.1 Filter Point Lining Fabric

The filter point lining with filtering points shall consist of 100 percent woven polyester or polypropylene with a mass per unit area of no less than 6 oz/yd^2 and with a double-layer mass per unit area of no less than 12 oz/yd^2. The filter point lining shall consist of multiple panels of double-layer fabric joined together in such a manner as to provide an average thickness as shown on the Drawings. Individual width panels shall be cut to suitable lengths and the two layers of fabric separately joined edge to edge by means of a heavy thread, double stitched. The tensile strength of stitch joints shall be not less than 100 pounds per inch determined in accordance with ASTM Standard D4884.

16.3.2 Grout

Grout shall consist of a mixture of Portland cement, fine aggregate and water so proportioned and mixed as to provide a pumpable slurry. Pozzolan and grout fluidizers conforming to this Specification may be used at the option of the Contractor. The mix shall obtain a minimum compressive strength of 2,000 psi at 28 days when tested in accordance with ASTM Standard C 31 and ASTM Standard C 39. The grout mix design shall be submitted to the Engineer for approval at least two weeks prior to installation of the mats.

Portland cement shall conform to ASTM Standard C 150. Pozzolan, if used, shall conform to ASTM Standard C 618. Only clean fresh water shall be used. Aggregate shall meet the requirements of ASTM Standard C 33, except as to grading. Aggregate grading shall be reasonably consistent and shall be well-graded from the maximum size which can be handled with available pumping equipment.

16.3.3 Non-Woven Geotextile

The non-woven geotextile underlying the fabric form shall meet the requirements for 12 oz/yd^2 geotextile in Section 12 of the Specifications.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

16.4 Installation Procedures

Prior to placement of the filter point lining form panels, a layer of 12 oz/yd^2 non-woven geotextile, meeting the requirements of Section 12 of the Specifications, shall be placed on the prepared subgrade to the lines and dimensions shown on the Drawings.

Prior to grout injection, the filter point lining panels shall be positioned to the locations, lines and grades shown on the Drawings. Panels of fabric may be factory assembled in predetermined sizes and joined together side-by side at the site by field sewing or by means of zipper closures attached to the upper and lower layers of fabric. Simple butt joints, either sewn or un-sewn, will not be permitted.

Expansion joints shall be used at the locations shown on the Drawings.

Only approved grout mixing, pumping and agitating equipment shall be used in preparation and handling of the grout. All oil and other rust inhibitors shall be removed from the pumps and mixers. All materials shall be accurately measured by volume or weight as they are fed into the mixer or delivered to the pump. The quantity of water shall be such as to produce a grout having a pumpable consistency. Time of mixing shall be not less than one minute. If agitated continuously, the grout may be held in the mixer or agitator for a period not exceeding two and a half hours in temperatures below 70˚ F and for a period not exceeding two hours at higher temperatures. If there is a lapse in a pumping operation, the grout shall be re-circulated through the pump or through the mixer drum (or agitator) and pump.

Grout shall be introduced into the space between the layers of fabric and shall be injected in such a way that excessive pressure on the fabric envelope is avoided. The injection pipe shall be wrapped tightly at the point of injection with a strip of burlap and the burlap pushed into the slit as the injection pipe is withdrawn in order to minimize spillage of grout.

The thickness of the mat shall be measured by survey or other appropriate methods, approved by the Engineer. Measurement of thickness shall not be made by inserting anything through the mat that could damage the HDPE liner. Any mat measuring less than 90 percent of the average of all thickness measurements shall be re-injected with grout until the average thickness has been attained.

Foot traffic shall not be permitted on the freshly pumped mat when such traffic will cause permanent indentations in the mat surface. Walk boards shall be used where necessary.

16.5 Quality Assurance Monitoring and Testing

The Engineer will undertake observations and perform quality control tests to determine compliance with this Specification. Quality control by the Engineer will include checking layout and measuring dimensions of the fabric forms, placement of expansion points, measuring the thickness of the mat, and taking field samples of the grout for compressive strength tests in

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

accordance with ASTM Standard C 31 and ASTM Standard C 39. Quality assurance tests will be performed by the Engineer at the minimum frequencies in Table 16-1.

Table 16-1. Grout Minimum Testing Frequencies

Property	Test Method	Minimum Testing Frequency
Grout Compressive Strength	ASTM C39	Once per Truck Load

16.6 Submittals

The following submittals are required as part of the requirements of this Specification.

- Submittals required in Section 12 for the geotextile material.
- Complete description of the filter point lining and manufacturer's product data sheet.
- Proposed grout mixture.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 17
CONCRETE AND REINFORCING STEEL

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

17.1 Description of Work

This Specification covers the requirements for reinforced cast-in place concrete.

This Specification contains the following sections:

Section	Item
17.1	Description of Work
17.2	Referenced Standards
17.3	General Requirements
17.4	Reinforcing Steel
17.5	Cast-in-Place Concrete
17.6	Quality Assurance Monitoring and Testing
17.7	Submittals

17.2 Reference Standards

The following ASTM International (ASTM) standards are referenced in this Specification.

ACI 301: Specifications for Structural Concrete

ACI 304: Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete

ACI 305: Recommended Practice for Hot Weather Concreting

ACI 306: Recommended Practice for Cold Weather Concreting

ACI 347: Recommended Practice for Concrete Formwork

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

ACI SP-66: Recommended Practice for Placing Reinforcing Bars

ASTM A 82: Specifications for Cold-Drawn Steel Wire for Concrete Reinforcement

ASTM A 185: Specifications for Welded Steel Wire Fabric for Concrete Reinforcement

ASTM A 615: Specifications for Deformed and Plain Billet - Steel Bars for Concrete Reinforcement

ASTM C 31: Standard Practice for Making and Curing Concrete Test Specimens in the Field

ASTM C 33: Standard Specification for Concrete Aggregates

ASTM C 39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

ASTM C 94: Standard Specification for Ready-Mixed Concrete

ASTM C 143: Standard Test Method for Slump of Hydraulic Cement Concrete

ASTM C 150: Standard Specification for Portland Cement

ASTM C 171: Standard Specification for Sheet Materials for Curing Concrete

ASTM C 192: Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory

ASTM C 309: Standard Specification for Liquid Membrane - Forming Compounds for Curing Concrete

ASTM C 618: Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

ASTM D4373: Standard Test Method for Rapid Determination of Carbonate Content of Soils

17.3 General Requirements

17.3.1 Product Handling

The Contractor shall use all means necessary to protect materials before, during and after installation and to protect any other completed work. In the event of damage, the Contractor shall immediately make all repairs and replacements specified by the Engineer at no additional cost.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Concrete reinforcement shall be stored in a manner to prevent excessive rusting and fouling with dirt, grease and other bond-breaking coatings. Precautions shall be taken to maintain reinforcing steel identification after the bundles are broken.

17.3.2 Formwork

Formwork, where required, shall comply with all pertinent codes and regulations, and all pertinent recommendations contained in ACI 347. Where provisions of pertinent codes and standards conflict with the requirements of this section of this Specification, the more stringent provisions shall govern.

All form lumber in contact with exposed concrete shall produce a smooth, hard, uniform texture on the concrete. It may be plywood, tempered concrete-form-grade hardboard, metal, plastic, or other acceptable material capable of producing the desired finish. No selected form facing materials shall be specified for rough form finish surfaces. Form sealers shall be first quality of their respective kinds and subject to approval by the Engineer.

Form ties shall be a type which do not leave an open hole through the concrete and which permit neat and solid patching at every hole. Wire ties and wood spreaders shall not be used. When forms are removed, all metal shall be not less than 2 inches from the surface. Alternate forming systems may be used subject to approval by the Engineer.

All other materials, not specifically described but required for proper completion of concrete formwork, shall be as selected by the Contractor subject to approval by the Engineer.

17.3.3 Design and Construction of Forms

Design and construction of all forms, where required, shall be sufficiently tight to prevent leakage of mortar, and able to prevent excessive deflection when filled with wet concrete. Design loads and pressures shall conform to those stipulated in ACI 347.

All required cast-in-place concrete shall be formed, where needed, to the shapes, sizes, lines, and dimensions indicated on the Drawings. The Contractor shall exercise care in the layout of forms to avoid the necessity for cutting of concrete after it is in place. Proper provisions shall be made for all openings, offsets, recesses, anchorage, blocking, and other features of the work as shown on the Drawings or as required. Reinforcement and other such items required to be anchored in the concrete shall be set before the concrete is placed. Reinforcement shall not be used to support forms or keyways.

The forms shall be braced and tied together to maintain position and shape and to ensure safety to personnel. Bracing and supporting members of ample size and strength shall be constructed to safely carry, without excessive deflection, all dead and live loads to which they may be subjected. The Contractor shall provide metal spreader ties that give positive tying and accurate spreading. Forms shall be constructed straight, true, plumb, and square within a tolerance

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

horizontally of 1 in 400 and a tolerance vertically of 1 in 500. Forms shall be sufficiently wetted to prevent joints from opening up before concrete is placed.

17.3.4 Removal of Forms

Side forms of footings and foundations may be removed, with Engineer's approval, 24-hours after placement of concrete, but the time may be extended if deemed necessary. The Contractor shall use all means necessary to protect workmen, the installed work and materials, and ensure the complete safety of the work. Nails and tie wires or form ties shall be cut off flush, and all surfaces left smooth and clean. Metal spreader ties on exposed concrete shall be removed by snapping off inside the wall surface and pointing up and rubbing the resulting pockets to match the surrounding areas. Holes resulting from the use of the spreader rods and sleeve nuts shall be flushed using water and then solidly packed throughout the wall thickness with cement grout applied under pressure by means of a grouting gun. Grout shall be one (1) part Portland cement to two and one-half (2-1/2) parts sand. Grout shall be applied immediately after removing forms.

17.4 Reinforcing Steel

The Contractor shall comply with all pertinent codes and regulations, the pertinent recommendations contained in ACI SP-66 and "Recommended Practice for Placing Reinforcing Bars" of the Concrete Reinforcing Steel Institute. When provisions of pertinent codes and standards conflict with the requirements of this section of the Specification, the more stringent provisions shall govern.

The Contractor shall submit shop drawings he has reviewed and approved for each cast-in-place concrete structure to the Engineer for approval. Submittals shall include bending diagrams, assembly diagrams, splicing and laps of rebar, and shapes, dimensions and details of bar reinforcing and accessories.

All concrete reinforcement materials shall be new, free from rust, and comply with the following standards:

- Specifications for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement (ASTM Standard A 615, Grade 60).
- Specifications for Cold-Drawn Steel Wire for Concrete Reinforcement (ASTM Standard A 82).
- Specifications for Welded Steel Wire Fabric for Concrete Reinforcement (ASTM Standard A 185).

All materials shall be stored in a manner to prevent excessive rusting and fouling with dirt, phosphogypsum, grease, and other bond-weakening coatings. All other materials, not specifically described but required for a complete and proper installation of concrete reinforcement, shall be as selected by the Contractor subject to approval by the Engineer.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Reinforcement shall be fabricated in strict accordance with the approved shop drawings. The Contractor shall not use bars with kinks or bends not shown on the Drawings or on the accepted shop drawings. Bending or straightening steel which has been partially embedded in hardened concrete or in any other manner that will injure the material will not be permitted. Any bending shall be done cold. Bends for stirrups and ties shall be made around a pin having a diameter not less than four times the minimum thickness of the bar. Bends for other bars, including hooks, shall be made around a pin having a diameter not less than six times the minimum thickness of the bar for bars up to 1 inch in diameter and eight times the minimum thickness of the bar for bars over 1 inch in diameter.

All concrete reinforcement shall be accurately placed, secured and supported with metal chairs, spacers or hangers before the start of concrete placement. The clear space between bars shall not be less than the nominal diameter of round bars. In no case shall the clear distance be less than 1 inch nor less than one and one-third times the maximum size of aggregate. The Contractor shall provide the following minimum concrete covering of reinforcement:

- Concrete placed against soil or phosphogypsum: 3 inches.
- Concrete cover over all reinforcing steel: 3 inches

17.5 Cast-in-Place Concrete

17.5.1 General

The Contractor shall comply with all pertinent codes and regulations, and all pertinent recommendations of ACI 301 and ACI 304. Where provisions of pertinent codes and standards conflict with this Specification, the more stringent provisions shall govern.

17.5.2 Documentation

Before any concrete is delivered, the Contractor shall furnish to the Engineer for approval, a concrete mix design for each class of concrete to be used. The design mixes shall be proven by compression test cylinders, tested by a recognized testing laboratory or by certification and test results of a standard mix of the transit-mix concrete supplier in accordance with ACI 301. All material used in the design mixes shall be that proposed for this project. Tests shall be in accordance with ASTM Standard C 39. The slump of the concrete used in these test cylinders shall not be less than the maximum slump specified.

The Contractor shall keep a record at the job-site showing time and location of each placement of concrete, together with transit-mix delivery slips certifying contents of the pour per ASTM Standard C 94. The record shall be made available to the Engineer for his use upon request. Upon completion of this portion of the work, the Contractor shall deliver the record and the delivery slips to the Engineer.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

17.5.3 Concrete

All concrete, unless otherwise specifically permitted by the Engineer, shall be transit-mixed in accordance with ASTM Standard C 94. The control of concrete production and all tests of cement, aggregates, and water shall be by a recognized testing laboratory, approved by the Engineer.

Concrete shall be air entrained and shall conform to the following requirements (unless otherwise noted on the Drawings):

Minimum Compressive Strength at 28 days (psi):	3000
Minimum Cement Content (sacks per cyd):	5 ½
Maximum Water to Cement Ratio:	0.45
Percent Air by Volume:	4 to 6
Slump (inches):	4 to 5

Cement shall be Portland cement conforming to ASTM Standard C 150, modified Type II, Low C_3A (5 percent max.), or equivalent approved by the Engineer.

Aggregates shall be non-reactive aggregates consisting of at least 95 percent silica (dry weight basis) and containing less than 1.0 percent total carbonates (dry weight basis) determined in accordance with ASTM Standard D 4373 on specimens ground to pass the U.S. Standard No. 60 sieve.

17.5.4 Preparation

The Contractor shall remove all debris from the areas in which concrete will be placed. To ensure proper placement and bonding of concrete, the area shall be thoroughly cleaned. Forms, if required, shall be thoroughly wet (except in freezing weather) or sprayed or brushed with a releasing agent and all standing water removed. All transporting and handling equipment shall be thoroughly cleaned. The Engineer shall be notified at least 24 hours before concrete is placed. Concrete shall not be placed until all forms, reinforcing steel and other items to be embedded within the concrete have been observed and approved by the Engineer.

17.5.5 Placing Concrete

Concrete shall be placed in conformance with ACI 304. Concrete shall be conveyed from mixer to place of final deposit by methods that will prevent separation and loss of materials. For chuting, pumping, and pneumatically conveying concrete, only equipment of such size and design as to ensure a practically continuous flow of concrete at the delivery end without loss or separation of materials shall be used. Concrete shall be deposited as nearly as possible in its final position to avoid segregation due to rehandling and flowing. Concrete shall be placed as dry as possible consistent with good workmanship, never exceeding the maximum specified slump. Concrete shall be placed in a manner that will avoid splashing forms or reinforcing bars and shall not be dropped freely more than 4 feet. Aluminum pump lines or tools shall not be allowed for concrete pumping and placement.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Concrete shall be placed at such a rate that it is at all times plastic and flows readily between bare bars. Once concrete placement is started, it shall be a continuous operation until placement is complete. When stoppage of concrete operations occurs for any reason, construction joints shall be placed as required. Construction joints shall be provided with shear key, and/or dowels, to resist shear and moment as specified by the Engineer.

All Concrete shall be thoroughly consolidated by mechanical vibration or other suitable means during placement, working it around all embedded fixtures and into corners of forms. A vibrator shall be inserted at many locations, from 5 to 15 seconds, until vibration is sufficient to only bring a continuous film or mortar to the surface. Vibration shall stop before any segregation of the concrete occurs.

Concrete batches delivered to the job-site shall be kept as uniform as possible in consistency and strength. The following shall be considered a basis for the rejection of the concrete delivered to the site.

- Evidence that the concrete has been retempered.
- Concrete that has been contaminated with foreign material.
- Slump exceeding maximum specified.
- Percent of entrained air not within specified limits.
- Discharge from truck not within the 1-1/2 hour limitation of ASTM Standard C 94.

17.5.6 Finishing

After concrete has been screeded to grade, it shall be floated with a metal or wooden float followed by a steel trowel finish. Unless otherwise indicated on the Drawings, the Contractor shall finish all concrete to an even and uniform appearance and, where no slope is required, level within plus or minus 1/8 inch in 10 feet.

17.5.7 Curing

All concrete shall be cured regardless of temperature, weather, or season, to protect it from premature drying, excessively hot or cold temperatures, and mechanical injury. Immediately upon finishing the concrete or removing formwork, curing procedures shall be initiated. Curing shall be continued for at least seven days. Alternatively, if tests are made of cylinders kept adjacent to the structure and cured by the same methods, moisture retention measures may be terminated when the average compressive strength has reached 70 percent of the specified strength. If one of the curing procedures is used initially, it may be replaced by one of the other procedures any time after the concrete is one day old provided the concrete is not permitted to become surface dry during the transition.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Optional curing methods include:

1. Continuous sprinkling with fresh water.

2. Waterproof sheet materials conforming to ASTM Standard C 171:

   A. Immediately upon finishing an area, an acceptable curing membrane shall be applied.

   B. Lap and securely join all joints.

   C. Weight membrane down to prevent wind damage.

3. Curing Compound conforming to ASTM Standard C 309:

   A. Immediately upon finishing an area, an acceptable curing compound shall be applied to the entire area.

   B. The compound shall be applied in strict conformance to the recommendations of the Manufacturer.

Moisture loss from surfaces placed against wooden or metal forms exposed to heating by the sun shall be minimized by keeping the forms wet until they can be safely removed. After form removal, the concrete shall be cured until the end of the time prescribed by one of the methods noted above. No traffic shall be allowed on concrete until it has been sufficiently cured.

17.5.8 Hot Weather Requirements

Concrete placement in hot weather shall be in accordance with ACI 305. Concrete with a placement temperature that will cause loss of slump, flash set or cold joints shall not be used. A concrete temperature during placement of less than 90°F shall be maintained. All means necessary to avoid drying the concrete prior to finishing operations shall be used. All required windbreaks, sunshades, fog sprays, evaporation retardants and other devices to protect the concrete shall be provided and used by the Contractor.

17.5.9 Cold Weather Requirements

Concrete placement in cold weather shall be in accordance with ACI 306. Concrete shall be placed with the mix temperature between 50°F and 70°F. When the mean daily outdoor temperature is at or below 40°F, the concrete shall be maintained between 50°F and 70°F for the required curing period of Section 17.5.7 of this Specification. Concrete shall not be placed against or on frozen material.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

The Contractor shall provide and use all required framework, cover, heating apparatus, and other devices to protect the concrete. Concrete and/or aggregates shall be protected during batching, transit and mixing, and before and after placing.

17.5.10 Defective Work

The Contractor shall inspect all concrete surfaces and patch all pour joints, voids, rock pockets, form tie holes, and other imperfections before the concrete is thoroughly dry. Defective areas shall not be patched until the concrete has been observed by the Engineer. If the defects are serious or affect the strength of the structure, or if patching does not satisfactorily restore the quality and appearance of the surface, the Engineer may require the concrete be completely removed and replaced in accordance with the provisions of this section, all at no additional cost.

17.6 Quality Assurance Monitoring and Testing

The Engineer will undertake observations and perform quality control tests to determine compliance of the materials and work with this Specification. Quality assurance by the Engineer will include monitoring:

(i) reinforcing steel placement;
(ii) concrete placement, finishing and curing;
(iii) sampling and testing of the concrete for compliance with this Specification including samples for testing in accordance with ASTM Standard C 31, ASTM Standard C 39 and ASTM Standard C 143.

Quality assurance tests will be performed by the Engineer at the minimum frequencies in Table 17-1.

Table 17-1. Concrete Minimum Testing Frequencies

Property	Test Method	Minimum Testing Frequency
Unconfined Compressive Strength	ASTM C39	Once per Truck Load

17.7 Submittals

The following submittals are required as part of the requirements of this Specification.

- Shop drawings for reinforcing steel
- Concrete mix design
- Transit-mix delivery slips

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 18
ANCILLARY ITEMS AND MATERIALS

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

This Specification covers ancillary items and materials. The Specification includes the following sections.

Section	Item
18.1	Erosion and Sediment Control
18.3	Stainless Steel Hardware
18.4	Excavation Warning Barrier
18.5	Steel Inlet Grate
18.6	Concrete Rubble Rip-Rap and Coarse Aggregates
18.7	Pre-Mix Concrete Bags
18.8	Flowable Fill
18.9	Submittals

18.1 Referenced Standards

The following ASTM International [ASTM] and Florida Department of Transportation [FDOT] Standard Specifications for Road and Bridge Construction are referenced in the Specification.

ASTM C94: Standard Specification for Ready-Mixed Concrete

ASTM C150: Standard Specification for Portland Cement

ASTM C403: Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance

ASTM D4832: Standard test method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

FDOT Section 121: Flowable Fill

18.2 Erosion and Sedimentation Control

Temporary erosion and sedimentation control measures shall be installed by the Contractor. Erosion control features shall be constructed down-gradient of disturbed areas prior to development of the corresponding area to prevent the uncontrolled off-site discharge of sediment or turbid water. Erosion and sedimentation control measures to prevent transporting soil or gypsum sediments off-site shall include silt fences and hay bales.

Materials, installation techniques and maintenance of temporary erosion control barriers shall be in accordance with applicable Florida Department of Transportation (FDOT) Standard Specifications.

18.2.1 Maintenance

Silt fences and hay bales shall be maintained to provide effective containment of sediment. Maintenance shall include the removal of excess built-up sediment accumulating against silt fences and hay bales and repairing/replacing silt fences and hay bales as needed.

18.2.2 Inspection

The Contractor shall inspect the sediment control devices, disturbed areas, areas used for storage or stockpiling of materials, and locations where vehicles enter or exit the site at least every seven calendar days, and within 24 hours after the end of a storm that results in more than 0.5 inches of rainfall, to check that sediment has been adequately contained. Repairs shall be made or additional barriers installed as needed based upon the inspection within seven calendar days.

Portions of the site having received final stabilization shall be inspected monthly.

Inspections shall focus on the potential for pollution migration from the site. Erosion and sediment control measures, such as hay bales and silt fences, shall be inspected to ensure proper operation. Based on the results of the inspection, revisions to the pollution prevention measures shall be made, if needed, no later than 7 calendar days following the inspection.

A checklist report shall be used summarizing the scope and major observations of the inspection, the name (and qualifications) of personnel making the inspection, the date(s) of the inspection, incidents of non-compliance with the stormwater pollution prevention plan, or alternatively, a certification that the project is in compliance with the plan. Inspection reports shall be retained as part of the plan for a period of 3 years following final site stabilization.

18.3 Stainless Steel Hardware

Stainless steel hardware shown on the Drawings shall consist of AISI type 316L stainless steel, unless indicated otherwise.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

18.4 Excavation Warning Barrier

Excavation warning barriers shall be installed within gypsum fill at the locations and to the dimensions shown on the drawings. The warning barrier shall consist of Tenax Guardian orange-colored HDPE extruded lightweight safety fence or equivalent as approved by the Engineer.

The warning barrier shall be installed in a smooth and unwrinkled condition in uniform contact with the underlying gypsum and held in-place to prevent displacement during placement of the overlying lift of gypsum fill as needed and approved by the Engineer.

The ends of the warning barrier shall be overlapped a minimum of 4 inches and tied together with polyethylene or polypropylene cable ties. The ties shall be spaced at no more than 12 inches.

18.5 Steel Inlet Grate

Steel inlet grate shown on the Drawings shall consist of A36 coated with two coats of bitumastic paint after grate fabrication or galvanized steel grating as indicated on the Drawings.

18.6 Concrete Rubble Rip-Rap and Coarse Aggregates

Concrete rubble rip-rap, as shown on the Drawings, shall consist of clean, sound, hard, durable rubble that is free of reinforcing steel, cracks, soft seams, or other defects and shall meet the gradation requirements shown on the Drawings. The concrete rubble shall be rough and angular. Concrete aggregate, as shown on the Drawings, shall comply with the gradation requirements of FDOT coarse aggregate size No. 5.

18.7 Pre-Mix Concrete Bags

Pre-mix concrete bags shall be 80 pounds and shall be made of scrim-reinforced paper that shall hold the concrete mixture without leakage when handled. The sack material shall be permeable and absorptive enough to permit passage of sufficient water to provide for hydration of the cement. The paper used in the sacks shall be non-asphaltic laminated with polyester fiber scrim reinforcement in a three-way directional pattern.

The sacks shall be uniform in size and dimensions, in order to provide uniformity of the lines of the completed work. They shall be free from holes and strong enough to stand handling without ripping or splitting. Only one size and type of sack shall be used in the work.

Portland cement and fine aggregate within the bags shall meet the requirements of Section 530-Rip-Rap of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

After installation, the bags of pre-mix concrete shall be wetted by the Contractor with fresh water to hydrate the concrete.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

18.8 Flowable Fill

A low strength, excavatable flowable fill or controlled low-strength material (CLSM) may be used as an alternative to compacted gypsum or soil fill for applications where placement and compaction of gypsum or soil backfill is not possible, e.g., behind HDPE plates at pipe penetrations and areas beneath HDPE plates welded to HDPE outlet pipes or manholes (especially those with gusset plates attached as reinforcement).

18.8.1 Material Requirements

The flowable fill shall contain cement, fly ash, fine aggregate, water, admixture (to control the set time) and air entrainment to meet the requirements for non-excavatable flowable fill in FDOT Section 121 Standard Specifications. Either Type I or Type II Portland cement (ASTM Standard C150) shall be used in the mix design. The fine aggregate shall be clean silica sand with 100 percent passing the U.S. Standard 3/8-inch sieve and not more than 15 percent passing the U.S. Standard No. 200 sieve. Water used in the mix shall be free of contaminants or chemicals. Air entrainment shall be between 5 and 35 percent.

The admixture selected for use in the mix design shall slow the set time enough to allow time for placement of the flowable fill beneath each of the HDPE plates. The 28-day compressive strength, as determined in accordance with ASTM Standard D4832, should be a target of 100 psi, with a long-term compressive strength no greater than 300 psi (or as otherwise approved by the engineer).

18.8.2 Design Mix Submittal

The Contractor shall submit his proposed flowable fill mix design, along with testing data to substantiate the 28-day compressive strength, to the Engineer for approval at least two weeks prior to delivery of flowable fill to the site.

18.8.3 Mixing

Flowable fill shall be transit-mixed in accordance with ASTM Standard C94, unless otherwise approved by the Engineer. Flowable fill batches delivered to the job site shall be kept as uniform as possible in consistency and strength. Flowable fill shall be discharged from the truck within the one and one-half (1-1/2)-hour limitation of ASTM Standard C94.

18.8.4 Placement

The flowable fill Flowable shall be placed by chute, pumping or other method approved by the Engineer. Placement shall be slow to allow time for displacement of potentially trapped air. A steel rod or other appropriate method may also be used to rod the flowable fill into voids to remove air pockets. The surface of the flowable fill shall be smoothed and leveled. Where placed around pipes, trenches shall be maintained dewatered such that flowable fill is not placed below water. The pipes shall be secured to maintain alignment and prevent flotation.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

The flowable fill shall be left undisturbed until sufficient strength has developed to allow placement and compaction of soil fill above the flowable fill. Sufficient strength may be indicated by a penetration resistance of 35 lb/in^2 measured using a hand penetrometer in accordance with ASTM Standard C403 subject to approval by the Engineer.

If utilized, the Contractor shall submit detailed flowable fill installation methods and procedures to the Engineer for approval at least two weeks prior to placement.

18.8.5 Inspection and Testing by the Engineer

The Engineer will undertake observations to determine compliance of the work with this Specification. Quality assurance by the Engineer shall include monitoring:

(i) flowable fill uniformity and consistency;
(ii) method of securing pipes to prevent displacement;
(iii) placement of flowable fill; and
(iv) strength of flowable fill before placement of soil backfill.

Quality assurance tests will be performed at the minimum frequencies listed in Table 18-1, unless revised otherwise by the Engineer during construction.

Table 18-1. Flowable Fill Quality Assurance Test Method and Minimum Testing Frequency

Property	Test Method	Minimum Testing Frequency
Unconfined Compressive Strength	ASTM C4832	1 per 50 yd^3

18.9 Submittals

The following submittals are required as part of the requirements of this Specification.

- Manufacturer's product data sheets and material specifications for all ancillary items for approval by the Engineer at least two weeks prior to installation.
- The Contractor's proposed flowable fill mix design for approval by the Engineer at least two weeks prior to construction.
- Delivery ticket for each load of flowable fill delivered to the project.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 19
DAILY AND FINAL CLEANUP

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

This Specification contains the following sections:

Section	Item
19.1	House Keeping and Refuse Disposal
19.2	Gypsum and Process Water Contaminated Materials
19.3	Unused Materials
19.4	Restoration of Disturbed Areas

19.1 House Keeping and Refuse Disposal

The Contractor shall clean-up the work site and install barricades as needed at the end of each workday to maintain the site in a clean and safe condition. The Contractor shall dispose of all trash, debris, waste and excess materials resulting from all construction operations. Uncontaminated trash, waste and debris shall be removed from the site by the Contractor and disposed of properly in accordance with applicable state and local requirements and as directed by the Receiver.

19.2 Gypsum and Process Water Contaminated Materials

At no time shall contaminated water, gypsum or gypsum contaminated materials be removed from the Site. Gypsum contaminated geotextile, HDPE geonet, liner and pipe scraps, and any other gypsum contaminated construction materials shall be decontaminated before being removed from the premises or disposed of by the Contractor in an on-site disposal area designated by the Receiver. Materials contaminated with gypsum can be cleaned by washing with fresh water. The wash water shall be disposed of in the process water system at a location and in a manner approved by the Receiver.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Construction equipment contaminated with gypsum (i.e., dozer tracks, tire treads, truck beds, scraper bowls, etc.) shall be cleaned of gypsum prior to removing the equipment from the premises.

19.3 Unused Materials

Unused materials may be stockpiled and left on site, if approved by the Receiver, in areas designated by the Receiver. If not approved by the Receiver, the Contractor shall remove all unused materials from the site.

19.4 Restoration of Disturbed Areas

Areas disturbed by construction shall be cleaned and graded as directed by the Receiver to restore the conditions that existed prior to construction.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 20
SITE LIMITATIONS

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

This Specification contains the following sections:

Section	Item
20.1	the Receiver's Activities and Other Construction
20.2	Contact with Gypsum and Process Water
20.3	Existing Facilities

20.1 The Receiver's Activities and Other Construction

Gypsum stack system maintenance and operational activities performed by the Receiver will occur in and around the project site throughout the period of construction. Such activities may include maintenance of the toe road, crest road and ramps, maintenance of the process water seepage ditch, maintenance of pipelines, and maintenance of drainage ditches. All activities of the Contractor must be approved by and coordinated with the Receiver to avoid conflicts with the Receiver's activities.

Construction by other contractors will be on-going throughout the period of construction as part of earthwork, liner installation, and as otherwise needed to complete the work. Each Contractor shall coordinate his work activities with the Receiver and with all other Contractors involved in the project to maintain the required construction sequence and schedule.

20.2 Contact with Gypsum and Process Water

Gypsum saturated water extracted from gypsum, surface water pools, and rainfall runoff from the gypsum stack and the return water channel are acidic with a pH as low as 2 and an elevated dissolved solids concentration in excess of 40,000 mg/L. Appropriate PPE must be used by all personnel contacting gypsum, gypsum saturated water or process water. Safety Data Sheets for gypsum, gypsum saturated water and process will be provided by the Receiver.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

20.3 Existing Facilities

The Contractor shall plan and coordinate construction to avoid damage to existing structures, facilities, equipment, utilities, monitor wells and/or piezometers in the vicinity of the site. The Contractor shall be responsible, at no additional cost, for timely repair or replacement of structures, facilities, equipment, utilities, monitor wells and/or piezometers damaged by the Contractor's and/or their Subcontractor’s operations and/or personnel.

The Contractor shall be responsible for maintaining existing access roads, haul roads and work areas used for construction.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 21
CONSTRUCTION SCHEDULE

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

This Specification and contains the following sections:

Section	Item
21.1	Work Hours
21.2	Schedule
21.3	Construction Duration

21.1 Work Hours

The Contractor shall work all necessary hours required to meet the construction schedule. Work hours shall comply with applicable project safety requirements.

21.2 Schedule

The Contractor shall submit with the supporting information for the Bid, and again at the first construction meeting, the anticipated rate of progress of earthwork excavation and grading (yd^3 per day), liner installation (ft^2 per day), drain installation (ft/day or ft^2/day) and compacted soil liner cover (ft^3/day),and a detailed construction schedule for the project in the form of a bar chart. The schedule shall be submitted in Microsoft Project scheduling software, software that is 100 percent compatible with Microsoft Project, or other software approved by the Receiver. The schedule shall include the specific period of each work task.

In addition, the schedule shall include submittals requiring the Receiver or Engineer approval before delivery to the site (e.g., shop drawings, product specification sheets, product samples, etc.), and shall also include order placement and delivery of construction materials.

21.3 Construction Duration

The Contractor shall mobilize labor, material and equipment as needed to ensure completion of construction of the project by the dates included in the Bid Form after given access to the site for mobilization. Schedule will be considered in the bid evaluation.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 22
FINAL INSPECTION AND ACCEPTANCE

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

This Specification contains the following sections:

Section	Item
22.1	Final Inspection
22.2	Letter of Acceptance
22.3	Material and Workmanship Warranties

22.1 Final Inspection

Upon completion of all clean-up operations, the Contractor shall advise the Receiver that they are ready for final inspection. the Receiver will then set a specific date and time for the final inspection. the Receiver, Engineer and Contractor will jointly inspect the project area to verify that all work has been completed in accordance with the Drawings and Specifications. Any work found lacking in any way shall be corrected by the Contractor and subsequently re-inspected.

22.2 Letter of Acceptance

The Receiver will issue a Letter of Acceptance for the work to the Contractor once all work has been satisfactorily completed and inspected. Final payment can be requested by the Contractor after receipt of the Letter of Acceptance.

22.3 Material and Workmanship Warranties

Warranties for HDPE liner materials and workmanship shall take effect from the date of the Letter of Acceptance for the liner from the Receiver.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

SPECIFICATIONS

SECTION 23
SCHEDULING AND COORDINATION

PINEY POINT STACK SYSTEM CLOSURE

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT FACILITY
MANATEE COUNTY, FLORIDA

This Specification contains the following sections:

Section	Item
23.1	Pre-Construction Coordination Meeting
23.2	Correspondence with the Receiver
23.3	Correspondence with Engineer
23.4	Coordination by the Contractor, Subcontractor(s) and Suppliers
23.5	Weekly Construction Meetings
23.6	Daily Construction Meetings

All scheduling and coordination of the work shall be undertaken through the Receiver representative, listed in Section 23.2, assigned to the work.

23.1 Pre-Construction Coordination Meeting

There will be at least one coordination meeting with the Contractor and Subcontractor(s), the Engineer, and the Receiver after the work is awarded and before construction is started.

The Contractor shall submit a construction schedule to the Receiver at the first coordination meeting. The schedule shall be in the form of a bar chart showing all construction activities and shall be updated weekly and provided to the Receiver as the work progresses. The Contractor and each Subcontractor shall also designate a project manager at the first coordination meeting. Each of the Contractor's and Subcontractor(s)' designated Site Supervisors shall also attend the coordination meeting.

23.2 Correspondence with the Receiver

All correspondence with the Receiver shall be directed to the following address:

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

Mailing Address: Donica Receivership Services, LLC
301 W. Platt St., #A 410
Tampa, FL 33606

Delivery Address: Donica Receivership Services, LLC
301 W. Platt St., #A 410
Tampa, FL 33606

Attention: Mr. Herbert R. Donica
Receiver

Telephone: (813) 878-9790
Facsimile: (813) 878-9746

Email: herb@PineyPoint.org

23.3 Correspondence with Engineer

All questions and correspondence regarding the Drawings and Specifications shall be directed to the Engineer, Ardaman & Associates, Inc., at the following address (with a copy to the Project Manager designated by the Receiver):

Mailing Address: Ardaman & Associates, Inc.
Post Office Box 593003
Orlando, FL, 32859-3003

Package Delivery: Ardaman & Associates, Inc.
8008 South Orange Avenue
Orlando, FL, 32809

Attention: Dr. Reinaldo Rolo, P.E.
Mr. Phong Vo

Telephone: 407-855-3860
Cell: (407) 949-1981 (Dr. Rolo)
(407) 496-3724 (Mr. Vo)

E-mail: rrolo@ardaman.com
pvo@ardaman.com

23.4 Coordination by the Contractor, Subcontractor(s) and Suppliers

Maintenance and inspection activities performed by the Receiver will occur in and around the project site throughout the period of construction. Construction by other contractors may also be on-going at the site as part of facility maintenance. The schedule and activities of the Contractor

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

and Subcontractor(s) shall be approved by and coordinated with the Receiver to avoid conflicts with the Receiver's maintenance and operational activities and activities of other Contractors working for the Receiver. The Contractor and any Subcontractor(s) will not be allowed additional payment for any delays in their work not coordinated through and approved by the Receiver.

23.5 Weekly Construction Meetings

A weekly construction meeting will be held at the site at a location and time designated by the Receiver. The Receiver's representative, Engineer's representative, and Contractors and each Subcontractors site supervisors and/or project managers shall attend the weekly meetings. Meeting minutes will be prepared and distributed by the Receiver's representative.

23.6 Daily Construction Meetings

A daily construction coordination meeting will be held at a time and place designated by the Receiver. The Receiver's representative, Engineer's representative, and Contractors and Subcontractors site supervisors shall attend the daily meetings as appropriate.

Copyright © 2025. Ardaman & Associates, Inc. All rights reserved. This document and designs incorporated herein, as an instrument of professional service, is the property of Ardaman & Associates, Inc. and contains information Proprietary and Confidential to Ardaman & Associates, Inc. The document is not to be reproduced, sold, redistributed or used in whole or part, for any other project without the written authorization of Ardaman & Associates, Inc.

ATTACHMENT V

CONTRACT PROVISIONS FOR FEDERALLY FUNDED AGREEMENTS

CLOSURE OF NGS-S POND

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT PHOSPHOGYPSUM STACK SYSTEM
MANATEE COUNTY, FLORIDA

Exhibit A - Form A-1 Contract Provisions for Federally Funded Agreements

Note: the requirements imposed by Form A-1 Contract Provisions for Federally Funded Agreements are part of the Receiver's Funding Agreement with the FDEP. It is incorporated by reference in the contract between the Receiver and service providers, suppliers, or contractors. Accordingly, service providers, suppliers, or contractors and their contractors, subcontractors or other agents are bound by the requirement and must provide the same certifications.

For purposes of the Agreement between the Receiver and the Contractor, the terms "Recipient" or "Grantee" in this Attachment shall include the Contractors, subcontractors, or other agents.

ATTACHMENT – FORM A-1
Contract Provisions for Federally Funded Agreements

For purposes of this Attachment between the parties, the term "Recipient" shall mean "Receiver," individually and/or as a representative of the Authorized Payee.

Further, the Department, as a pass-through entity, also requires the Grantee to pass on these requirements to all lower tier subrecipients, and to comply with the provisions of the award, including applicable provisions of the OMB Uniform Guidance (2 CFR Part 200), and all associated terms and conditions. Therefore, Grantees must include these requirements in all related subcontracts and/or sub-awards. Grantees can include these requirements by incorporating this Attachment in the related subcontract and/or sub-awards, however for all such subcontracts and sub-awards, the Grantee shall assume the role of the Non-Federal Entity and the subrecipients shall assume the role of the Recipient.

2 CFR PART 200 APPENDIX 2 REQUIREMENTS

1. Administrative, Contractual, and Legal Remedies

The following provision is required if the Agreement is for more than $150,000. In addition to any of the remedies described elsewhere in the Agreement, if the Recipient materially fails to comply with the terms and conditions of this Contract, including any Federal or State statutes, rules or regulations, applicable to this Contract, the Non-Federal Entity may take one or more of the following actions.

A. Temporarily withhold payments pending correction of the deficiency by the Recipient.
B. Disallow (that is, deny both use of funds and any applicable matching credit for) all or part of the cost of the activity or action not in compliance.
C. Wholly or partly suspend or terminate this Contract.
D. Take other remedies that may be legally available.

The remedies identified above, do not preclude the Recipient from being subject to debarment and suspension under Presidential Executive Orders 12549 and 12689. The Non-Federal entity shall have the right to demand a refund, either in whole or part, of the funds provided to the Recipient for noncompliance with the terms of this Agreement.

2. Termination for Cause and Convenience

Termination for Cause and Convenience are addressed elsewhere in the Agreement.

3. Equal Opportunity Clause

The following provision applies if the agreement meets the definition of "federally assisted construction contract" as defined by 41 CFR Part 60-1.3:

During the performance of this Agreement, the Recipient agrees as follows:

i. The Recipient will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Recipient will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:
    a. Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Recipient agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
ii. The Recipient will, in all solicitations or advertisements for employees placed by or on behalf of the Recipient, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
iii. The Recipient will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to

individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Recipient's legal duty to furnish information.

iv. The Recipient will send to each labor union or representative of workers with which he has a collective bargaining agreement or other Agreement or understanding, a notice to be provided advising the said labor union or workers' representatives of the Recipient's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

v. The Recipient will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

vi. The Recipient will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

vii. In the event of the Recipient's noncompliance with the nondiscrimination clauses of this Agreement or with any of the said rules, regulations, or orders, this Agreement may be canceled, terminated, or suspended in whole or in part and the Recipient may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

viii. The Recipient will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in

every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Recipient will take such action with respect to any subcontractor purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance.

4. Davis Bacon Act

If the Agreement is a prime construction contract in excess of $2,000 awarded by the Recipient, and if required by the Federal Legislation, the Recipient must comply with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, contractors must pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must pay wages not less than once a week. The Recipient must comply with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). The Act provides that each Recipient or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled.

5. Contract Work Hours and Safety Standards Act

Where applicable, if the Agreement is in excess of $100,000 and involves the employment of mechanics or laborers, the Recipient must comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each Recipient must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in

excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

6. Rights to Inventions Made Under Agreement

If the Federal award meets the definition of "funding agreement" under 37 CFR §401.2 (a) and the Non-Federal Entity or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the Non-Federal Entity or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

7. Clean Air Act (42 U.S.C. 7401-7671q.), the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), and EPA Regulations

If the Agreement is in excess of $100,000, the Recipient shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387), and by the EPA (40 CFR Part 15). Violations must be reported to the Federal Awarding Agency and the Regional Office of the Environmental Protection Agency (EPA).

8. Debarment and Suspension (Executive Orders 12549 and 12689)

The Recipient certifies that it is not listed on the governmentwide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 and 2 CF 1200 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension."

9. Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)

The Recipient certifies that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or

employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. If applicable, the Recipient shall disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award, using form SF-LLL, available at: https://apply07.grants.gov/apply/forms/sample/SFLLL_1_2_P-V1.2.pdf.

10. Procurement of Recovered Materials

The Recipient must comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act as described in 2 CFR part 200.322.

11. Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment

The Recipients and subrecipients are prohibited from obligating or expending loan or grant funds to procure or obtain; extend or renew a contract to procure or obtain; or enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. See Section 889 of Public Law 115-232 (National Defense Authorization Act 2019). Also, see 2 CFR 200.216 and 200.471.

12. Domestic Preferences for Procurement

The Recipients and subrecipients must to the greatest extent practical give preference to the purchase, acquisition, or use of goods, products, or materials produced in the United States in accordance with 2 CFR 200.322.

ADMINISTRATIVE

1. General Federal Regulations

Recipients **shall comply with the regulations listed in 2 CFR 200, 48 CFR 31, and 40 U.S.C. 1101 *et sequence.***

2. **Rights to Patents and Inventions Made Under a Contract or Agreement**

Rights to inventions made under this assistance agreement are subject to federal patent and licensing regulations, which are codified at Title 37 CFR Part 401 and Title 35 U.S.C. 200 through 212.

3. **Compliance** with the Trafficking Victims Protection Act of 2000 (2 CFR Part 175)

Recipients, their employees, subrecipients under this award, and subrecipients' employees may not:

A. Engage in severe forms of trafficking in persons during the period of time that the award is in effect;

B. Procure a commercial sex act during the period of time that the award is in effect; or

C. Use forced labor in the performance of the award or subawards under the award.

4. Whistleblower Protection

Recipients shall comply with U.S.C. §4712, Enhancement of Recipient and Subrecipient Employee Whistleblower Protection. This requirement applies to all awards issued after July 1, 2013 and effective December 14, 2016 has been permanently extended (Public Law (P.L.) 114-261).

A. This award, related subawards, and related contracts over the simplified acquisition threshold and all employees working on this award, related subawards, and related contracts over the simplified acquisition threshold are subject to the whistleblower rights and remedies in the pilot program on award recipient employee whistleblower protections established at 41 U.S.C. 4712 by section 828 of the National Defense Authorization Act for Fiscal Year 2013 (P.L. 112-239).

B. Recipients, their subrecipients, and their contractors awarded contracts over the simplified acquisition threshold related to this award, shall inform their employees in writing, in the predominant language of the workforce, of the employee whistleblower rights and protections under 41 U.S.C. 4712.

C. The Recipient shall insert this clause, including this paragraph C, in all subawards and in contracts over the simplified acquisition threshold related to

this award; best efforts should be made to include this clause, including this paragraph C in any subawards and contracts awarded prior to the effective date of this provision.

5. Notification of Termination (2 CFR § 200.340)

In accordance with 2 CFR § 200.340, in the event that the Agreement is terminated prior to the end of the period of performance due to the Recipient's or subcontractor's material failure to comply with Federal statutes, regulations or the terms and conditions of this Agreement or the Federal award, the termination shall be reported to the Office of Management and Budget (OMB)-designated integrity and performance system, accessible through System for Award Management (SAM) currently the Federal Awardee Performance and Integrity Information System (FAPIIS). The Non-Federal Entity will notify the Recipient of the termination and the Federal requirement to report the termination in FAPIIS. See 2 CFR § 200.340 for the requirements of the notice and the Recipient's rights upon termination and following termination.

6. Additional Lobbying Requirements

   A. The Recipient certifies that no funds provided under this Agreement have been used or will be used to engage in the lobbying of the Federal Government or in litigation against the United States unless authorized under existing law.

   B. The Lobbying Disclosure Act of 1995, as amended (2 U.S.C. §1601 *et seq.*), prohibits any organization described in Section 501(c)(4) of the Internal Revenue Code, from receiving federal funds through an award, grant (and/or subgrant) or loan unless such organization warrants that it does not, and will not engage in lobbying activities prohibited by the Act as a special condition of such an award, grant (and/or subgrant), or loan. This restriction does not apply to loans made pursuant to approved revolving loan programs or to contracts awarded using proper procurement procedures.

   C. Pursuant to 2 CFR §200.450 and 2 CFR §200.454(e), the Recipient is hereby prohibited from using funds provided by this Agreement for membership dues to any entity or organization engaged in lobbying activities.

COMPLIANCE WITH ASSURANCES

7. Assurances

Recipients shall comply with any and all applicable assurances made by the Department or the Recipient to the Federal Government during the Grant application process.

FEDERAL REPORTING REQUIREMENTS

Grant Recipients awarded a new Federal grant greater than or equal to $30,000 awarded on or after October 1, 2015, are subject to the FFATA the Federal Funding Accountability and Transparency Act ("FFATA") of 2006. The FFATA legislation requires that information on federal awards (federal financial assistance and expenditures) be made available to the public via a single, searchable website, which is www.USASpending.gov. The Grantee agrees to provide the information necessary, within one (1) month of execution, for the Department to comply with this requirement.

EXHIBIT B

SCRUTINIZED COMPANIES.

(1) The Receiver certifies that it and any contractors, subcontractors or other agents are not on the Scrutinized Companies that Boycott Israel List. Pursuant to Section 287.135, F.S., the Department may immediately terminate this Agreement at its sole option if the Receiver or its contractors, subcontractors or agents are found to have submitted a false certification; or if the Receiver, or its contractors, subcontractors or agents are placed on the Scrutinized Companies that Boycott Israel List or is engaged in the boycott of Israel during the term of the Agreement.

(2) If this Agreement is for more than one million dollars, the Receiver certifies that it, its affiliates, contractors, subcontractors and agents are also not on the Scrutinized Companies with Activities in Sudan, Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or engaged with business operations in Cuba or Syria as identified in Section 287.135, F.S. Pursuant to Section 287.135, F.S., the Department may immediately terminate this Agreement at its sole option if the Receiver, its affiliates, contractors, subcontractors or agents are found to have submitted a false certification; or if the Receiver, its affiliates, or its subcontractors are placed on the Scrutinized Companies that Boycott the Scrutinized Companies with Activities in Sudan List, or Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or engaged with business operations in Cuba or Syria during the term of the Agreement.

(3) The Receiver agrees to observe the above requirements for applicable subcontracts entered into for the performance of work under this Agreement.

(4) As provided in Subsection 287.135(8), F.S., if federal law ceases to authorize these contracting prohibitions then they shall become inoperative.

[Note: this requirement is part of the Receiver's Funding Agreement with the FDEP. It must be incorporated by reference in all contracts between the Receiver and service providers, suppliers, or contractors. Accordingly, service providers, suppliers, or contractors and their contractors, subcontractors or other agents are bound by the requirement and must provide the same certifications.]

ATTACHMENT VI

CONTRACT AND GENERAL CONDITIONS

CLOSURE OF NGS-S POND

DONICA RECEIVERSHIP SERVICES, LLC
PINEY POINT PHOSPHOGYPSUM STACK SYSTEM
MANATEE COUNTY, FLORIDA

AGREEMENT BETWEEN OWNER AND CONTRACTOR

(FINAL CLOSURE OF THE NEW GYPSUM STACK-SOUTH ("NGS-S") COMPARTMENT)

This Agreement between Owner and Contractor (this "Agreement") is by and between **Donica Receivership Services, LLC** ("Receiver") and **_____** ("Contractor"). [**NOTE**: Receiver does not own the property but is acting pursuant to the Order Appointing Receiver entered by the Manatee Circuit Court on August 25, 2021 authorizing Receiver to take necessary steps to close the Stack System (hereinafter defined). For purposes of this Agreement, references to "Owner" shall be deemed to refer to Receiver.]

Terms used in this Agreement but not defined herein have the meanings stated in Attachment 9 the modified EJCDC C-700 General Conditions (the "General Conditions") attached to and incorporated by reference in this Agreement.

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents (the "Scope of Work"). The Work is generally described **as final closure of the New Gypsum Stack-South ("NGS-S") compartment (as defined in Paragraph 2.01). The Work is more particularly described in Attachment 1 attached hereto and incorporated herein by reference. Contractor agrees to provide sufficient equipment and manpower, including additional haul roads, trucks, shifts and overtime as needed to achieve Substantial Completion within the Contract Time specified in Paragraph 4.02.**

1.02 Owner-furnished materials or equipment to be used or incorporated into the Work, including **Soil/Sand, 6-inch Diameter DR 17 Slotted HDPE Pipe, HDPE Geomembrane Double Sided Textured 60 mil 23' x 500' liner and welding rods, geonet–geotextile geocomposite ("Owner-Furnished Materials"),** will be delivered to staging areas at the base of the stack system. Contractor shall be solely responsible for receiving, examining, handling, storing, transporting to the final usage location(s) and installing the Owner-Furnished Materials in accordance with the Contract and with such skill and care as to provide satisfactory and proper installation. Contractor is responsible for tracking inventory of Owner-Furnished Materials and notifying Owner and Engineer with sufficient lead time to permit timely ordering and delivery. Loss or damage to Owner-Furnished Materials while in the care, custody and control of Contractor and due to acts or omissions of Contractor shall be the responsibility of Contractor and may be deducted from any amounts due or to become due Contractor. Any defects discovered in Owner-Furnished Materials shall be reported to Owner and Engineer promptly upon discovery. Following receipt of written notice from Contractor of defects, Owner and/or Engineer shall promptly inform Contractor what action, if any, Contractor shall take. For the avoidance of doubt, Owner-Furnished Materials exclude, and Contractor shall provide and install as part of the Work**, all necessary HDPE pipes and fittings (except only the slotted pipe provided by Owner), aggregates, sod for grassing soil cover, and other materials required for the Work** that are not provided by Owner.

1.03 Contractor is responsible for protecting all existing structures, facilities, utilities, equipment, liner, pipes, culverts, irrigation lines, slope and toe drains, manholes, monitor wells, piezometers and

**Modified EJCDC® C-520, Agreement between Owner and Contractor for Construction Contract (Stipulated Price).
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies,
and American Society of Civil Engineers. All rights reserved.**

any other equipment or property near and/or within the Project site during construction activities. Without limitation, Contractor shall (a) take all appropriate precautions and implement safeguards to avoid damage to the existing liner (80 mil geomembrane), whether inside or outside the limits of construction, including field-verifying the location prior to carrying out any work that may damage the liner, (b) notify Owner and Engineer promptly of any damage to the existing liner, and (c) to the extent attributable to Contractor, perform at Contractor's sole expense repairs to damage to the existing liner.

1.04 The Contractor shall comply with all applicable safety regulations and standards including all federal, state and local laws, ordinances, rules and regulations. The Contractor shall also comply with all OSHA safety requirements and with the Trench Safety Act (Fla. Stat. 553.63). The Contractor shall submit applicable Job Safety Analyses (JSA) associated with all activities onsite. The contractor safety plan must address open cuts stability and trench fall protection. Additional JSA's may be requested by the Receiver during construction as specific work tasks are observed by the Receiver's representatives; provided, however, for the avoidance of doubt, Contractor shall be solely responsible for all safety issues related to the Work.

1.05 It is the responsibility of Contractor to control runoff and seepage collection within the Project area at all times and transfer the flow to designated areas. The method(s) of dewatering, surface water control and routing of water shall be the responsibility of Contractor, subject to approval by Owner and Engineer. Contractor's proposed method(s) for dewatering, surface water control and routing of water to the designated areas shall be submitted to Owner and Engineer for approval at least 2 weeks prior to implementation of any work, including site preparation. No water shall be released off-site or into any grassed areas outside the limits of construction by Contractor. Additional berms, ditches, etc. may be required to prevent water or other materials from impacting the grassed areas of the Closed Gypsum Stack. All equipment must be washed down within the lined areas of the stack. All roads used by Contractor must be labeled with signage and maintained clear of any debris.

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Piney Point Phosphogypsum Stack System, 13500 Scale Avenue, Palmetto, Florida in Manatee County, a former fertilizer processing plant holding stacks of phosphogypsum in four partially-closed phosphogypsum compartments (the "Stack System"), located within Sections 5, 6, 7, and 8 of Township 33 South, Range 18 East, in Manatee County, Florida. **The NGS-S compartment is a 72-acre lined phosphogypsum pond that had been partially closed but subsequently used to support activities related to the dredging of marine sediments from Port Manatee. Marine sediments that are still present in the 52-acre base of the pond are in the process of being removed. The geomembrane at the base of the pond will also be removed to expose the gypsum subgrade for inspection and repairs. Those activities will be completed by others prior to mobilization.**

Modified EJCDC® C-520, Agreement between Owner and Contractor for Construction Contract (Stipulated Price).
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 3—ENGINEER

3.01 The Owner has retained Ardaman & Associates, Inc. ("Engineer") to act as Owner's representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

3.02 The part of the Project that pertains to the Work has been designed by Engineer.

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence:*

A. The time limit for Substantial Completion as stated in the Contract Documents is of the essence of the Contract.

4.02 *Contract Times:*

A. Contractor must achieve Substantial Completion of the entire Work on or before **September 30, 2026.**

4.03 ***Intentionally deleted.***

4.04 *Final Completion*

A. Contractor must achieve final completion of the entire Work and satisfy all preconditions to final payment in accordance with Paragraph 15.06 of the General Conditions no later than 30 days after Substantial Completion.

4.05 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence with respect to the Contract Time stated in Paragraph 4.02 above, as such Contract Time may be adjusted in accordance with the terms of the Contract, and that Owner will suffer financial and other losses if the Contractor does not timely achieve Substantial Completion of the entire Work. The Parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if Substantial Completion of the Work is not achieved on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Owner Five Thousand Dollars ($5,000) for each day of delay in achieving Substantial Completion after the expiration of the Contract Time stated in Paragraph 4.02 above, as such Contract Time may be adjusted in accordance with the terms of the Contract.

B. The parties agree that the foregoing liquidated damages amount represents a reasonable estimate of the damages Owner expects to suffer and bears a reasonable relationship to Owner's risk of loss due to the Contractor's failure to timely achieve Substantial Completion and does not constitute a penalty. Notwithstanding the foregoing, if Contractor challenges the liquidated damages provision and as a result the liquidated damages set forth in the Contract are determined by a court of competent jurisdiction or duly empaneled arbitrator(s) to be unenforceable, then Owner instead shall be entitled to recover those actual delay damages that it sustained as a result of Contractor's delay in achieving Substantial Completion. Owner may deduct liquidated damages prescribed herein from any unpaid amounts then or thereafter due Contractor under this Agreement and any liquidated damages not so deducted shall be payable to Owner by Contractor upon demand. Owner's

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

assessment of the foregoing liquidated damages is Owner's sole and exclusive monetary remedy against Contractor for any delay in achieving Substantial Completion of the Work. However, it is mutually understood and agreed that Owner's assessment of liquidated damages for delays shall not release Contractor from liability from any other breach of Contract Document requirements. The Owner's right to liquidated damages hereunder is, at the Owner's sole election, self-executing and no prior notice or claim by Owner is required as a condition precedent to Owner's right to offset liquidated damages from amounts otherwise due Contractor or to otherwise pursue recovery of liquidated damages.

ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

[ALTERNATIVE A - LUMP SUM WITH UNIT PRICING.]

A. For all Work other than Unit Price Work, a lump sum of $[number].

All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.

B. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).

Unit Price Work					
Item No.	**Description**	**Unit**	**Estimated Quantity**	**Unit Price**	**Extended Price**
				$	$
				$	$
				$	$
				$	$
				$	$
Total of all Extended Prices for Unit Price Work (subject to final adjustment based on actual quantities)					$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

C. Total of Lump Sum Amount and Unit Price Work (subject to final Unit Price adjustment) $[number].

[ALTERNATIVE B – TIME AND MATERIALS.]

A. Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents on a time and materials unit price basis subject to a not-to-exceed ceiling of _____ ($_____). The not-to-exceed Contract Price is broken out in schedule a to Contractor's bid included as Attachment 2

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

hereto. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer. Contractor shall submit equipment usage and time sheets daily.

B. Contractor represents and warrants to Owner that the Contract Price, represents adequate and sufficient compensation for Contractor's timely provision of all the Work within the Contract Times. Subject to the other terms and conditions of the Contract Documents, costs which would cause the Contract Price, as it may be adjusted in accordance with the terms of the Contract, to be exceeded shall be paid by the Contractor without reimbursement from the Owner.

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on the basis of Contractor's Applications for Payment, together with all required supporting documentation and information, on or about the **5th** day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment, and all required supporting documentation and information, have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.

a. **ninety** percent of the value of the Work completed (with the balance being retainage).

b. **ninety** percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

B. Upon final completion of the Work and satisfaction of all conditions precedent to final payment, Owner shall pay an amount sufficient to increase total payments to Contractor to **one hundred** percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions.

C. Except with Owner's prior written approval, payments to Subcontractors shall be subject to retention of not less than five percent (5%). Upon mutual written agreement between Owner and Contractor, and before the Project's Substantial Completion date, reduction of retainage or payment in full, including release of applicable retainage, may be made to Contractor for a particular Subcontractor's Work that is fully and satisfactorily completed, provided that Contractor and Subcontractor provide a satisfactory complete release of all claims, including claims of lien and claims against bond, for such Work and provided that both have complied

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

with all requirements for final payment to such Subcontractor in accordance with the Contract Documents.

D. Any reduction or release of retainage, or portion thereof shall not be a waiver of (a) any of Owner's rights to retainage in connection with other payments to Contractor or (b) any other right or remedy that the Owner has under the Contract Documents, at law or in equity.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

A. Owner will not make final payment, or return or release retainage, unless Contractor submits written consent of the surety to such payment, return, or release.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

A. The Contract Documents consist of this Agreement and all of the following, all of which are as fully a part of the Contract as if attached to this Agreement or repeated herein and collectively with the Agreement form the "Contract":

1. Attachment 1 – Description of Work.
2. Attachment 2 – Contractor's Bid.
3. Attachment 3 - The Drawings listed on the sheet index included as Attachment 3.

   Attachment 3.1 – Q&A __ (if any) __ composite (clarifications in response to bidder questions).
4. Attachment 4 – The Specifications as listed in the Technical Specifications table of contents included as Attachment 4.
5. Attachment 5 – Contract Provisions for Federally Funded Agreement.
6. Attachment 6 – Statement Regarding Scrutinized Companies.
7. Attachment 7 – Schedule of Key Personnel.
8. Attachment 8 – Motion to Appoint Receiver & Agreed Order.
9. Attachment 9 – General Conditions (modified EJCDC C-700).
10. The following which may be delivered or issued on or after the Effective Date of the Contract are not attached hereto:
    a. Notice to Proceed.
    b. Work Change Directives.
    c. Change Orders.
    d. Field Orders.
    e. Warranty Bond, if any.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 7.

D. The Contract represents the entire and integrated agreement between the parties hereto with respect to its subject matter and supersedes prior negotiations, representations, or agreements, either written or oral.

E. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

F. A COPY OF THE DRAWINGS AND SPECIFICATIONS HAVE BEEN PROVIDED TO THE CONTRACTOR. LISTS OF THE DRAWINGS AND SPECIFICATIONS HAVE BEEN PROVIDED IN ATTACHMENT 3 AND ATTACHMENT 4, RESPECTIVELY, FOR EXPEDIENCY. HOWEVER, THE DRAWINGS AND SPECIFICATIONS THEMSELVES THAT ARE LISTED THEREIN ARE THE "DRAWINGS" AND "SPECIFICATIONS" AND ARE INCORPORATED INTO THIS AGREEMENT BY REFERENCE.

7.02 *Order of Precedence*

A. In the event of conflicts or discrepancies among the Contract Documents, Contractor shall proceed with the Work that is unaffected by the conflict or discrepancy, and interpretations of the conflict will be based upon the following Contract Documents, which are set forth and ranked in order of precedence:

1. Duly executed Modifications, including Change Orders, Work Change Directives, and Field Orders, with those of a later date having precedence over those of an earlier date, PROVIDED THAT IN THE EVENT OF A CONFLICT BETWEEN THE TERMS OF SUCH A MODIFICATION AND THE AGREEMENT, THE TERMS AND CONDITIONS OF THE AGREEMENT SHALL CONTROL, EXCEPT TERMS AND CONDITIONS OF SUCH MODIFICATION, IF ANY, THAT EXPRESSLY STATE THAT THEY AMEND AND SUPERSEDE A CONTRADICTORY TERM OF THE AGREEMENT;

2. Not Used.

3. The Agreement, including Attachment 1, Attachment 5 and Attachment 6, but not including the other Attachments, which are addressed below;

4. The General Conditions;

5. Attachment 2;

6. Attachment 3.1 – Q&A (if any) composite;

7. The Drawings, provided that precedence shall be given to Drawings of a larger scale over those of a smaller scale, noted dimensions on the Drawings shall control over scaled dimensions and noted materials shall control over graphic indications;

8. The Technical Specifications;

9. The other Attachments to the Agreement, with more stringent requirements thereof taking precedence over any less stringent requirements, such that in the event of conflicts the Contractor shall provide the higher level of service or quality of materials that has been specified; and

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

10. All other Contract Documents, if any.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 *Contractor's Representations*

A. In order to induce Owner to enter into this Contract, Contractor makes the following representations, which representations are in addition to any other representations contained in the Contract and shall survive the execution and delivery of this Agreement, any termination of this Agreement, and the final completion of the Work:

1. Contractor has examined and carefully studied the Contract Documents, including Addenda, and all documents referenced in the Contract Documents.

2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Contract Documents, or that have otherwise been made available to Contractor, with respect to the Technical Data in such reports and drawings.

5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Contract, with respect to Technical Data in such reports and drawings.

6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Contract Documents or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor. Owner acknowledges and

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

agrees that Contractor's review of the Contract Documents is done in its capacity as a contractor and not as a design professional and Contractor does not assume any design liability with respect to any such review or otherwise under the Contract Documents, all such design liability remaining with the Engineer or others whom Owner or Engineer has hired.

10. The Contract Documents are sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

12. Contractor is authorized to do business in the State of Florida and properly licensed by all necessary governmental and public and quasi-public authorities having jurisdiction over it and over the Work and Project.

13. Contractor possesses the requisite experience and expertise in the construction of projects of the size, complexity and nature of this particular Project and that it will perform the Work with care, skill and diligence of such a contractor. Contractor acknowledges that Owner is relying upon Contractor's skill and experience in connection with the Work called for hereunder.

8.02 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 9— MISCELLANEOUS

9.01 *Key Personnel*

A. Contractor shall furnish only skilled and properly trained staff for the Project. The key members of Contractor's staff ("Key Personnel") shall be persons agreed upon by Owner and Contractor and identified in the "Schedule of Key Personnel" included as Attachment 7 hereto. Such Key Personnel shall not be changed without the written consent of Owner,

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

unless such person(s) become unable to perform any required duties due to death, disability or termination of employment with Contractor. If any of the Key Personnel is no longer capable of performing in this capacity, Owner and Contractor shall agree on a mutually acceptable substitute. Owner reserves the right to require Contractor to change a member of the Key Personnel when Owner deems such change to be in Owner's best interests and Contractor shall promptly comply with Owner's request at no additional cost to Owner.

9.02 *Relationship of the Parties*

A. Contractor accepts the relationship of trust and confidence established by this Agreement and covenants with Owner to cooperate with Engineer and Owner and exercise Contractor's skill and judgment in furthering the interests of Owner; to furnish efficient business administration and supervision; to furnish at all times an adequate supply of workers and materials; and to perform the Work in an expeditious manner consistent with Owner's interests. Notwithstanding anything to the contrary in the Contract Documents, Contractor is fully responsible to Owner for all duties of the Contractor under the Contract Documents, including the construction means, methods, techniques, sequences and procedures in performing the Work, for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract despite Contractor's delegation of the responsibility therefor to any of its Subcontractors. In addition, if the Work required under the Contract Documents requires Contractor to subcontract with any party to provide any professional services constituting the practice of architecture, design, or engineering, Contractor shall be directly responsible to Owner for any portion of the Work so required. Contractor is an independent contractor, and not an agent or employee, of Owner. Nothing herein shall be construed to make Contractor the agent, servant, or employee of Owner or create any partnership, joint venture, or other association.

9.03 *Intentionally deleted.*

9.04 Contract Provisions for Federally Funded Agreements / Scrutinized Companies.

A. The requirements imposed by Attachment 5 - Contract Provisions for Federally Funded Agreements are part of Receiver's Funding Agreement with the Florida Department of Environment Protection ("Department" or "FDEP"). It is incorporated by reference in this Contract and shall be incorporated by reference in agreements between Contractor and its Subcontractors, suppliers and other service providers.

B. Attachment 6 – Statement Regarding Scrutinized Companies is part of Receiver's Funding Agreement with the Department. It is incorporated by reference in this Contract and shall be incorporated by reference in agreements between Contractor and its Subcontractors, suppliers and other service providers.

C. The terms "Recipient," "Grantee" and "Receiver" in Attachment 5 and Attachment 6: (i) for purposes of this Contract, shall mean Contractor, and (ii) for purposes of Contractor's agreements with Subcontractors and suppliers of every tier, shall mean the applicable counter-party to the agreement. Contractor and its Subcontractors and suppliers of every tier shall be

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

deemed to make the certifications required by Attachment 5 and Attachment 6 by virtue of executing this Contract or the applicable lower-tier agreement.

9.05 *Prior contracts with the Department, if any*:

A. To the extent Contractor has previously contracted directly with the Department relating to the Project, if at all, Contractor hereby releases the Department from any claims under such previous contracts, excluding work that has been performed but not yet paid.

9.06 Interpretation

A. In the Contract, the singular shall include the plural, the plural the singular, and the use of any gender shall include all genders. Unless expressly stated otherwise, whenever the word "include" or "including" is used in the Contract it shall be deemed to be followed by the words "without limitation." Each party, together with their respective legal counsel, has contributed substantially to the preparation of the Contract, and, as such, the Contract shall not be interpreted more favorably against one party than the other solely upon the basis of which party actually drafted the Contract. Headings are for convenience only and shall not be used for interpretation of the language in this Agreement.

9.07 *Counterparts*

A. This Agreement may be executed in counterparts, a complete set of such executed counterparts shall constitute the same Agreement, and the signature of any party to any counterpart shall be deemed as signature to, and may be appended to, another counterpart. For purposes of executing this Agreement, a document signed and transmitted by docusign or by emailed PDF scan shall be treated as an original document. The signature of either party via docusign or emailed PDF scanned version of this Agreement shall be considered as an original signature and the document transmitted shall be considered to have the same binding legal effect as if it were originally signed. Neither party to this Agreement may raise the use of docusign, emailed PDF scan or the fact that any signature was transmitted by docusign or email as a defense to the enforcement of this Agreement or any amendment executed in compliance with this Section.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement is effective as of _____ ___, **2025** (which is the Effective Date of the Contract).

Owner: Donica Receivership Services, LLC

By: _____
(individual's signature)

Date: _____
(date signed)

Name: Herbert R. Donica
(typed or printed)

Title: Manager
(typed or printed)

Address for giving notices:

Herbert R. Donica, Receiver

301 W. Platt Street, PMB #A410

Tampa, Florida 33606

herb@pineypoint.org

Engineer's Representative:

Name: Dr. Reinaldo Rolo, P.E. & Mr. Phong Vo
(typed or printed)

Title: Ardaman & Associates, Inc.
(typed or printed)

Address:

8008 S. Orange Avenue

Orlando, Florida 32809

Email: rrolo@ardaman.com

Email: pvo@ardaman.com

Contractor:

By: _____
(individual's signature)

Date: _____
(date signed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

Designated Representative:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

Phone: _____

Email: _____

License No.: _____
(where applicable)

State: _____

Modified EJCDC® C-520, Agreement between Owner and Contractor for Construction Contract (Stipulated Price).
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Attachment 1

Description of Work

[Note: this is an abbreviated description of work and is used only to give potential bidders a preview of this project. The version that will be provided with the bid documents will have a more complete description of the work along with plans, drawings and technical specifications.]

The NGS-S compartment is a 72-acre lined phosphogypsum pond that had been partially closed but subsequently used to support activities related to the dredging of marine sediments from Port Manatee. Marine sediments that are still present in the 52-acre base of the pond are in the process of being removed. The geomembrane at the base of the pond will also be removed to expose the gypsum subgrade for inspection and repairs. Those activities will be completed by others prior to mobilization.

This contract covers the terminal closure of the NGS-S compartment and includes the following major tasks:

- Regrade roughly 30% of the pond base to establish positive drainage toward the south. Work will also include cutting a broad-crested weir into the south gypsum perimeter dike and reconfiguring two existing access ramps in the north dike.
- Repair the gypsum subgrade at three locations known to have leaked in the past. Final repair methods will be determined once the liner is removed and the subgrade is exposed. Two of the locations contain metal formwork cofferdams and steel plates that were used to temporarily stop the leaks. The third location is covered by a steel plate only. This contract will include removal of the cofferdams and steel plates.
- Identify and repair any other cracks or voids in the exposed subgrade.
- Abandon the existing inlet structure in the southwest corner by filling it with flowable cementitious material.
- Install approximately 60 acres of HDPE geomembrane liner, including all welding to the adjacent existing liner. The geomembrane is onsite and provided by DRS.
- Install roughly 22 acres of geonet–geotextile geocomposite on the inside slopes of the perimeter dike. The geocomposite will be provided by DRS.
- Construct about 6,000 linear feet of geotextile-wrapped gravel drain along the inside toe of the perimeter dike, tied into the Geocomposite.
- Place and compact a 2-foot soil cover over the entire 72-acre lined area. The soil is onsite and provided by DRS.
- Furnish and install a stormwater drainage system comprising: (i) a sand and gravel drain with collection pipes; (ii) an HDPE sump structure; (iii) reinforced concrete erosion protection (4-inch-thick slab with steel-wire mesh) over the broad-crested weir; and (iv) a discharge pipe through the south gypsum dike.

The Contractor shall be aware that other contractor(s) may be working in or near the designated construction area. The Contractor and its sub-contractor(s) shall coordinate all work activities with the Receiver as well as with other contractor(s) to assure a smooth, safe operation, and to prevent

disruption to other operations at the site. The Contractor shall be required to maintain or restore all access roads in coordination with the Receiver so as not to disrupt their operations.

Attachment 2

Contractor's Bid

(see attached)

Attachment 3

Drawing index

(see attached)

Attachment 3.1

Q&A (if any) composite

(see attached)

Attachment 4

Technical Specifications table of contents

(see attached)

Attachment 5

Contract Provisions for Federally Funded Agreement

(see attached)

Attachment 6

Statement Regarding Scrutinized Companies

(see attached)

Attachment 7

Schedule of Key Personnel

(see attached)

Attachment 8

Motion to Appoint Receiver & Agreed Order

(see attached)

Attachment 9

General Conditions (modified EJCDC C-700)

(see attached)

GENERAL CONDITIONS

The Engineers Joint Contract Documents Committee's (EJCDC's) Standard General Conditions for the Construction Contract (C-700) have been modified to satisfy the requirements of the Project.

Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

TABLE OF CONTENTS

Page

ARTICLE 1 DEFINITIONS AND TERMINOLOGY 1
1.01 Defined Terms 1
1.02 Terminology 7
ARTICLE 2 PRELIMINARY MATTERS 8
2.01 Delivery of Performance and Payment Bonds; Evidence of Insurance 8
2.02 Copies of Documents 9
2.03 Before Starting Construction 9
2.04 Preconstruction Conference; Designation of Authorized Representatives 9
2.05 Acceptance of Schedules 10
2.06 Electronic Transmittals 10
ARTICLE 3 CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE 10
3.01 Intent 10
3.02 Reference Standards 11
3.03 Reporting and Resolving Discrepancies 12
3.04 Requirements of the Contract Documents 13
3.05 Reuse of Documents 14
ARTICLE 4 COMMENCEMENT AND PROGRESS OF THE WORK 14
4.01 Commencement of Contract Times; Notice to Proceed 14
4.02 Starting the Work 14
4.03 Reference Points 15
4.04 Progress Schedule 15
4.05 Delays in Contractor's Progress 16
ARTICLE 5 SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS 18
5.01 Availability of Lands 18
5.02 Use of Site and Other Areas 19
5.03 Subsurface and Physical Conditions 20
5.04 Not Used 20
5.05 Underground Facilities 20

TABLE OF CONTENTS
(continued)

Page

5.06 Hazardous Environmental Conditions at Site 23
5.07 Intentionally deleted 25
ARTICLE 6 BONDS AND INSURANCE 25
6.01 Performance, Payment, and Other Bonds 25
6.02 Insurance General Provisions 25
6.03 Contractor's Insurance 26
6.04 Owners Liability Insurance 29
6.05 Contractor Responsibility for Tools and Equipment 29
6.06 Waiver of Rights 29
ARTICLE 7 CONTRACTOR'S RESPONSIBILITIES 30
7.01 Contractor's Means and Methods of Construction 30
7.02 Supervision and Superintendence 30
7.03 Labor; Working Hours 30
7.04 Services, Materials, and Equipment 31
7.05 "Or Equals" 31
7.06 Substitutes 33
7.07 Concerning Subcontractors and Suppliers 35
7.08 Patent Fees and Royalties 36
7.09 Permits 37
7.10 Taxes 37
7.11 Laws and Regulations 37
7.12 Record Documents 39
7.13 Safety and Protection 39
7.14 Hazard Communication Programs 42
7.15 Emergencies 42
7.16 Submittals 42
7.17 Contractor 's General Warranty and Guarantee 46
7.18 Indemnification 48

EJCDC® C-700, Standard General Conditions of the Construction Contract.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

SARDOCS 22622941 1

TABLE OF CONTENTS
(continued)

Page

7.19 Intentionally deleted 49
ARTICLE 8 OTHER WORK AT THE SITE 49
8.01 Other Work 49
8.02 Coordination 50
8.03 Legal Relationships 50
ARTICLE 9 OWNER'S RESPONSIBILITIES 51
9.01 Intentionally Deleted 51
9.02 Replacement of Engineer 51
9.03 Furnish Data 51
9.04 Pay When Due 52
9.05 Lands and Easements; Reports, Tests, and Drawings 52
9.06 Insurance 52
9.07 Change Orders 52
9.08 Inspections, Tests, and Approvals 52
9.09 Limitations on Owner's Responsibilities 52
9.10 Undisclosed Hazardous Environmental Condition 52
9.11 Evidence of Financial Arrangements 52
9.12 Safety Programs 53
ARTICLE 10- ENGINEER'S STATUS DURING CONSTRUCTION 53
10.01 Generally 53
10.02 Visits to Site 53
10.03 Resident Project Representative 54
10.04 Engineer's Authority 57
10.05 Determinations for Unit Price Work 58
10.06 Decisions on Requirements of Contract Documents and Acceptability of Work 58
10.07 Limitations on Engineer's Authority and Responsibilities 58
10.08 Compliance with Safety Program 59

EJCDC® C-700, Standard General Conditions of the Construction Contract.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

TABLE OF CONTENTS
(continued)

Page

ARTICLE 11 CHANGES TO THE CONTRACT 59
11.01 Amending and Supplementing the Contract 59
11.02 Change Orders 59
11.03 Work Change Directives 60
11.04 Field Orders 60
11.05 Owner-Authorized Changes in the Work 61
11.06 Unauthorized Changes in the Work 61
11.07 Change of Contract Price 61
11.08 Change of Contract Times 63
11.09 Change Proposals 63
11.10 Notification to Surety 65
11.11 Contractor Good Faith Review of Subcontractor Requests For Changes 65
ARTICLE 12 CLAIMS 65
12.01 Claims 65
ARTICLE 13- COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK 67
13.01 Cost of the Work 67
13.02 Allowances 71
13.03 Unit Price Work 72
ARTICLE 14- TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK 73
14.01 Access to Work 73
14.02 Tests, Inspections, and Approvals 73
14.03 Defective Work 74
14.04 Acceptance of Defective Work 75
14.05 Uncovering Work 75
14.06 Owner May Stop the Work 76
14.07 Owner May Correct Defective Work 76

EJCDC® C-700, Standard General Conditions of the Construction Contract.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

SARDOCS 22622941 1

TABLE OF CONTENTS
(continued)

Page

ARTICLE 15- PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD 77
15.01 Progress Payments 77
15.02 Contractor's Warranty of Title 82
15.03 Substantial Completion 83
15.04 Partial Use or Occupancy 84
15.05 Final Inspection 85
15.06 Final Payment 85
15.07 Waiver of Claims 87
15.08 Correction Period 88
ARTICLE 16- SUSPENSION OF WORK AND TERMINATION 89
16.01 Owner May Suspend Work 89
16.02 Owner May Terminate for Cause 89
16.03 Owner May Terminate for Convenience 91
16.04 Contractor May Stop Work or Terminate 92
ARTICLE 17- FINAL RESOLUTION OF DISPUTES 92
17.01 Methods and Procedures 92
ARTICLE 18- MISCELLANEOUS 93
18.01 Giving Notice 93
18.02 Computation of Times 94
18.03 Cumulative Remedies; Set-off 94
18.04 Limitation of Damages 94
18.05 No Waiver 95
18.06 Survival of Obligations 95
18.07 Controlling Law 95
18.08 Assignment of Contract 95
18.09 Successors and Assigns 95
18.10 Headings 95

EJCDC® C-700, Standard General Conditions of the Construction Contract.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Page

18.11 Disposal of Surplus Materials..... 95

18.12 Severability..... 96

EJCDC® C-700, Standard General Conditions of the Construction Contract.
Copyright© 2018 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

SARDOCS 22622941 1

STANDARD GENERAL CONDITIONS

OF THE CONSTRUCTION CONTRACT

ARTICLE 1--DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the Parties and Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*

    a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

    b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.

    c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.

    d. A demand for money or services by a third-party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract—The* entire and integrated written contract between Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including Shop Drawings and other Submittals, that are in an electronic or digital format.

21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allows: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by the Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.

23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.

    a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.

b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.

c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

25. *Indemnitees* – Owner and its, direct and indirect, parents, subsidiaries and other affiliates, and the respective officers, directors, members, managers, partners, employees, and successors and assigns of any of them.

26. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

27. *Liens*—Charges, security interests, or encumbrances, or legal actions to assert the same, upon Contract-related funds, real property, or personal property.

28. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.

29. *Modification*—(a) A written amendment of the Contract Documents signed by both Parties, including a Change Order, or (b) a Work Change Directive signed by Owner. A Modification may only be issued after the Effective Date of the Contract.

30. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

31. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

32. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

33. *Parties* -- Owner and Contractor, together.

34. *Party* -- Each of Owner and Contractor.

35. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.

36. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

37. *Intentionally deleted*.

38. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.

39. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

40. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals.

41. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

42. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

43. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.

44. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

45. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

46. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings

and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers' instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; Record Documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

47. *Substantial Completion*—The time at which (a) the Work (or a specified part thereof) has progressed to the point where the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can lawfully be utilized for the purposes for which it is intended, (b) successful testing, commissioning, and start-up have occurred, if required for the scope of Work, (c) Contractor has duly completed, executed and delivered to the relevant governmental authority or authorities the required engineering report that details the construction and affirms that the Work has been constructed in accordance with the requirements of the Contract, including the requirements of the Drawings and Specifications,, and (d) a certificate of completion or its equivalent is issued by the applicable governmental authority or, if there is no such equivalent, evidence acceptable to Owner is provided that the Work has passed all required inspections under permits for the Work. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion of such Work.

48. *Successful Bidder*—The Bidder to which Owner makes an award of contract.

49. *Supplier*—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

50. *Technical Data*

    a. Those items expressly identified as Technical Data in these General Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

51. *Underground Facilities*—All underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

52. *Unit Price* Work—Work to be paid for on the basis of unit prices.

53. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

54. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:* The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition,

the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. Except where otherwise stated or indicated, the terms “including” and “include” shall be deemed to mean “including, without limitation” or “include, without limitation”, respectively.

C. *Day:* The word “day” means a calendar day of twenty-four (24) hours measured from midnight to the next midnight.

D. *Defective:* The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:

1. does not conform to the Contract Documents;

2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

3. has been damaged prior to Engineer’s recommendation or certification of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).

E. *Furnish, Install, Perform, Provide*

1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. *Contract Price or Contract Times:* References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.

G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2--PRELIMINARY MATTERS

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

A. Within 10 days prior to commencement of the Work, Contractor shall deliver to Owner performance and payment bonds as Contractor may be required to furnish in accordance with Paragraph 6.01 of these General Conditions, if any.

B. *Evidence of Contractor's Insurance:* When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner declarations pages, certificates of insurance and endorsements in forms acceptable to Owner issued by Contractor's insurer or its authorized agent or broker (including all endorsements, and identification of applicable self-insured retentions and deductibles) required to be provided by Contractor in Article 6. Contractor may block out (redact) any confidential premium or pricing information contained in any endorsement furnished under this provision.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor a printed copy of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals as warranted or required. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Owner and Engineer for review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the

Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective Party.

2.05 *Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, Owner, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will provide for an orderly progression of the Work to completion within the Contract Times. Further, the Progress Schedule shall contain detail appropriate for the Project, including: (1) the date of commencement of the Work, (2) interim schedule Milestone Dates, (3) the date(s) of Substantial Completion, (4) an apportionment of the Work by construction activity; and (5) the time required for completion of each portion of the Work. The initial Progress Schedule and all updates thereto shall use the "critical path method", accurately reflect the relationships between activities, contain no activities of greater than 30 days duration and clearly indicate the critical path activities and float values for non-critical activities. Any acceptance of a Progress Schedule by Engineer will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor’s full responsibility therefor.

2. Contractor’s Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor’s Schedule of Values is attached as an Attachment to the Agreement.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. When transmitting Electronic Documents, the Owner and Engineer make no representations as to long term compatibility, usability, or readability of the items resulting from the Contractor's use of software application packages, operating systems, or computer hardware differing from those, if any, expressly permitted by established protocols for Electronic Means.

ARTICLE 3--CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided by Contractor.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

F. Whenever any product is specified by the Contract, Contractor shall present documentation from the manufacturer certifying that the product complies with the particular standard or specification. Where necessary, requested, or specified, supporting test data shall be submitted to substantiate compliance.

G. Where material is specified solely by reference to Standards and/or Specifications, Contractor shall prepare and submit complete lists of such material proposed for the Work. The lists shall be in duplicate, unless otherwise specified, and shall include the names and addresses of the vendor, the

manufacturer or producer, and the trade or brand name of each material so listed. Only approved material shall be used in the Work. Material lists shall be identified as to the subcontract or Specification section to which they apply.

3.02 *Reference Standards*

A. *Standards Specifications, Codes, Laws and Regulations*

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any responsibility for directing the performance of the Work or a duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* The exactness of grades, elevations, dimensions, locations and field measurements or any Drawings or Specifications issued by Engineer, or the work installed by other contractors are not guaranteed by Owner. Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall, therefore, verify the accuracy of all

grades, elevations, dimensions, locations and field measurements. In all cases of interconnection of its Work with existing or other work, Contractor shall verify at the Site all dimensions relating to such existing or other work. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01. Any errors due to Contractor's failure to so verify such grades, elevations, dimensions, locations or field measurements shall be promptly rectified by Contractor without additional cost to Owner and without an extension of the Contract Times.

2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Owner and Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof or, through the exercise of reasonable diligence as an experienced contractor (but not as a licensed design professional), should have discovered such conflict, error, ambiguity or discrepancy.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

   a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either Party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

C. Contractor hereby provides, and shall cause its Subcontractors and Suppliers of every tier to provide, to Owner a perpetual, irrevocable, non-exclusive license to all Work Product prepared by Contractor and its Subcontractors and Suppliers of every tier in the performance of the Work allowing Owner and Owner's other consultants and contractors to reproduce and use the Work Product in connection with the Project. Contractor shall obtain non-exclusive licenses from its Subcontractors and Suppliers that will allow Contractor to satisfy its obligations to Owner under this Paragraph. For purposes hereof, the term "Work Product" includes all plans, drawings, designs, specifications, systems, reports, data, materials, models, prototypes, methodologies, studies, processes, improvements, sketches, documents, diagrams, graphs, charts, notes, writings, discoveries, customizations, modifications, fixes and research produced, prepared or developed in connection with the Work. The provisions of this Paragraph shall survive the expiration or termination of the Contract. .

D. Contractor shall not use Owner's or any of Owner's affiliates' tradenames, trademarks, logos, or other designations for any reason without Owner's express prior written consent.

ARTICLE 4--COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. As time is of the essence, Owner intends that construction will commence in a timely manner. The Contract Time will commence to run on the date of Notice to Proceed.

B. The Work will be Substantially Complete and available for Owner's in the timeframe outlined in the Agreement. Further, Contractor shall meet the Milestones set forth in the Agreement.

4.02 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer and Owner in writing whenever any reference point or property monument is lost or destroyed or

requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. The initial Progress Schedule, and any updates thereto shall not exceed Contract Times current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, and shall provide for expeditious and practicable execution of the Work. The Progress Schedule shall be updated monthly with Contractor's progress report to reflect the actual progress of the Work. If any Progress Schedule update shows that the progress of the Work is delayed in comparison to the previous Progress Schedule, then Contractor shall, if required by Owner, provide to Owner for its review and consideration a proposed "recovery schedule" that provides options to recover or mitigate the delay, which options may include, without limitation, overtime and additional labor.

2. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

3. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

C. Contractor shall perform the Work in general accordance with the most recent schedules submitted to and approved by Owner; provided, however, no schedule updates shall modify the Substantial Completion date or Milestone Dates required by the Contract unless the Parties execute a Change Order which modifies the Contract Times.

D. Progress Reports: Contractor shall submit to Owner at least monthly a written progress report which describes the Work completed since the delivery of the last such report. Each progress report shall include:

1. A statement of the estimated percentages of completion of the Work;

2. Work completed for the period;

3. Progress Schedule status;

4. Submittal schedule and status report, including a summary of outstanding Submittals;

5. Responses to requests for information to be provided by Owner;

6. Approved Change Orders and Work Change Directives;

7. Pending Change Order and Work Change Directive status reports;

8. Tests and inspection reports;

9. Status report of Work rejected by Owner;

10. Status of Claims previously submitted; and

11. Additional information, if any, required by Owner's lender, if any.

E. In no event shall any progress report constitute an adjustment in the Contract Times, any Milestone date contained in the Progress Schedule approved by Owner, or the Contract Price unless any such adjustment is agreed to by Owner and authorized pursuant to a written Change Order.

4.05 *Delays in Contractor's Progress*

A. If Contractor is delayed at any time in the critical path of the Work by (i) improper acts or omissions of Owner, Engineer, or any separate contractor of Owner, or (ii) other causes beyond Contractor's control that Contractor asserts and Owner agrees in good faith justify delay, then Contractor shall be entitled to an extension of the Contract Time specified in 4.02 of the Agreement (as it may have been adjusted in accordance with the Contract) by Change Order to the extent such delay will prevent Contractor from achieving Substantial Completion within such Contract Time and, by exercise of reasonably diligent effort, Contractor is unable to prevent or overcome the delay, and an adjustment of the Contract Price by the actual and necessary additional cost of the Work incurred by Contractor as a direct result of such delay for which Contractor is entitled to extension of the Contract Time without mark-up for profit; provided, however, that adjustments in the Contract Time will be permitted for a delay only to the extent such delay (a) is not caused and could not have been reasonably anticipated by Contractor, and (b) delays the critical path of the Work and is of a duration not less than 1 day, and only if (c) Contractor delivers written notice of the delay to Owner and Engineer within 5 days after commencement of each such delay and Contractor submits a Change Proposal seeking adjustment of the Contract Times and, if applicable, the Contract Price within 30 days of the commencement of the delay.

B. Without limitation, Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and

within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.

2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.

3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

D. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in reasonably sufficient detail the following:

1. The circumstances that form the basis for the requested adjustment;

2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;

3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;

4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and

5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may reasonably require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work. Without limitation, if abnormal adverse weather conditions are the basis for a request for a Change Order or a Claim for additional time, Contractor shall as a condition precedent to any consideration or granting of relief under such request for Change Order or Claim shall deliver with such request for Change Order or Claim data substantiating that weather conditions were abnormal for the period of time and had an adverse effect on the critical path of the scheduled progress of the Work

and that all "weather days" provided for in the Contract Times, if any, have been consumed by previous delays to the critical path lost due to abnormal adverse weather (which delays must be supported with the information described in this Paragraph 4.05.D).

E. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

F. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

G. If Contractor seeks an adjustment in Contract Price or Contract Times under this Paragraph 4.05, Contractor shall submit a request for a Change Order to Owner the time period prescribed in Paragraph 11.09.

H. Owner shall have no liability to Contractor for any failure of Contractor to complete the Work prior to the expiration of the Contract Times.

ARTICLE 5--SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

B. *Intentionally deleted*.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or

areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless the Indemnitees from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading of Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. If Contractor encounters conditions at the Site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an

unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, Contractor shall promptly provide notice to Owner and Engineer before conditions are further disturbed and in no event later than 14 days after first observance of the conditions. Engineer will promptly investigate such conditions and, if Engineer determines that they differ materially and cause an increase or decrease in Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Price specified in Section 5.01.A of the Agreement (as such amount may have been adjusted in accordance with the Contract) or Contract Time specified in Section 4.02 of the Agreement (as such Contract Time may have been adjusted in accordance with the Contract), or both. If Engineer determines that the conditions at the Site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, Engineer shall promptly notify Owner and Contractor, stating the reasons. If either Party disputes Engineer's determination or recommendation, that Party may submit a Claim as provided in Article 12.

5.04 *Not Used*

5.05 *Underground Facilities*

A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by others. Unless it is otherwise expressly provided in the Contract Documents, Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

2. complying with applicable state and local utility damage prevention Laws and Regulations;

3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof, but in no event more than 5 days after obtaining knowledge of the condition, and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

C. Engineer's Review: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding Contractor's resumption of Work in connection with the Underground Facility in question;

3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and

4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then Engineer may at its discretion instruct Contractor to resume such Work.

F. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an adjustment in the Contract Price, subject to Paragraph 4.05.C, or Contract Times, subject to Paragraph 4.05.A, to the extent that any existing Underground Facility at the Site that Contractor did not know of and could not have reasonably been expected to be aware of or to have anticipated the existence of and was not shown or indicated on the Drawings or other Contract Documents or information referenced therein, or was not shown or indicated with reasonable accuracy therein, or any related delay, disruption, or interference, causes: (i) an increase or decrease in Contractor's cost the actual and direct Cost of the Work necessarily incurred by Contractor for, performance of the Work, or (ii) a necessary adjustment to the critical path of the Work; subject, however, to the following:

    a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

    b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

    c. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of Owner's written statement to Contractor regarding the Underground Facility in question.

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

A. *Intentionally deleted.*

B. *Reliance by Contractor on Technical Data Authorized:* Contractor may reasonably rely upon the accuracy of the Technical Data expressly identified in the Contract Documents with respect to such reports and drawings, but such reports and

drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Article 1. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). If Owner desires to proceed with the Work, then Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.

H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. To the fullest extent permitted by laws and regulations, Contractor shall indemnify and hold harmless Indemnitees from and against all claims, costs, losses, and damages (including all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent Of Concern brought to the site by Contractor or by anyone for whom Contractor is responsible, or any Hazardous Environmental Condition created or exacerbated by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

5.07 *Intentionally deleted.*

ARTICLE 6--BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. If required by Owner, Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor's obligations under the Contract. These

bonds must remain in effect at least one (1) year after the date of final payment or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the specific requirements listed below, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by the Agreement or other specific provisions of the Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or Regulations, and must be issued and signed by a surety named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in the State in which the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.

F. If Contractor has failed to obtain a required bond, Owner may exclude Contractor from the Site and exercise Owner's termination rights under Article 16.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 *Insurance General Provisions*

A. Owner and Contractor shall each obtain and maintain insurance, and Contractor shall cause its Subcontractors to obtain and maintain insurance, as required in this article and elsewhere in the Contract Documents.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated elsewhere in the Contract Documents, all companies that provide insurance policies required under the Contract shall have an A.M. Best rating of A-X or better.

C. Alternative forms of insurance coverage, including self-insurance and "Occupational Accident and Excess Employer's Indemnity Policies," are not sufficient to meet the insurance requirements of the Contract.

D. Before starting Work and, thereafter, upon renewal or replacement of each required policy of insurance until Contractor's obligation to procure and maintain the required insurance expires, Contractor shall provide evidence of insurance described in Section 2.01.B for the insurance coverages required of Contractor and specified in Section 6.03 from companies that are duly licensed or authorized in the jurisdiction in which the Project is located with a minimum AM Best rating of A-X or better. All insurance policies required to be purchased and maintained will have a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the insured and additional insured. Contractor's commercial general liability and automobile liability, umbrella or excess, and pollution liability policies shall include and list the Receiver and Engineer and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each as additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis.

E. Additional insured endorsements will include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 and CG 20 37 (together). If the Contractor demonstrates to Receiver that the specified ISO endorsements are not commercially available, then the Contractor may satisfy this requirement by providing equivalent endorsements.

F. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements, or failure of Owner to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of Contractor's obligation to obtain and maintain such insurance.

G. If either Party does not purchase or maintain the insurance required of such Party by the Contract, such Party shall notify the other Party in writing of such failure

to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

H. If Contractor has failed to obtain and maintain required insurance, Contractor's entitlement to enter or remain at the Site will end immediately, and Owner may exercise Owner's termination rights under Article 16.

I. Owner does not represent that insurance coverage and limits established in the Contract necessarily will be adequate to protect Contractor or Contractor's interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

J. The covenants and agreements contained in this Article 6 shall survive the termination or expiration of the Contract.

K. Contractor and its insurance carriers waive, release, and shall not exercise any right of recovery or subrogation for any claim, damage, or loss covered or insured by any insurance policy required of Contractor under the Contract Documents, that Contractor or its insurers may have at any time against the Indemnitees and each insurance policy required to be maintained by Contractor under the Contract Documents shall include such a waiver of subrogation in favor of the Indemnitees.

6.03 *Contractor's Insurance*

A. Required Insurance: Contractor shall procure and/or maintain, and cause its Subcontractors to procure and maintain, for the full term of the Contract or thereafter as required, at Contractor's sole cost and expense, the following insurance coverage:

1. Workers' Compensation and Employers' Liability for all persons whom Contractor employs (or uses as contract labor if a Subcontractor is uninsured) in carrying out any Work.

   Workers Compensation shall be in amounts required by applicable Laws and Regulations. Employers' Liability limits shall be not less than:

   $1,000,000 Bodily Injury by Accident, for each accident.

   $1,000,000 Bodily Injury by Disease, policy limit.

   $1,000,000 Bodily Injury by Disease, each employee

2. Commercial General Liability on an "occurrence" basis (claims-made or modified occurrence forms are not acceptable) for bodily injury, sickness or disease, including occupational sickness or disease, and death of any

person; property damage; personal injury; premises/operations; independent contractors; and contractual liability applicable to Contractor's indemnification, defense and hold harmless obligations, including those obligations under Paragraph 7.18 of these General Conditions, that may arise out of or result from Contractor's operations and completed operations, whether such operations be by Contractor, or by a Subcontractor, or by any other person or entity for whom Contractor is responsible. Such coverage shall be written on an "occurrence" basis using an ISO CG 00 01 form or its equivalent ("claims made" is not acceptable), with the following minimum coverage:

$1,000,000 Each Occurrence,

$1,000,000 Personal and Advertising Injury,

$2,000,000 General Aggregate Limit (Other than Products – Completed Operations), and

$2,000,000 Products – Completed Operations Aggregate.

Commercial General Liability—Form and Content: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) or its equivalent and include the following coverages and endorsements:

a. Such insurance shall be maintained until the expiration of the applicable statute of repose period.

b. Underground, explosion, and collapse coverage.

c. Separation of Insureds (as provided by ISO CG 00 01 form); with no additional restrictions, modifications, "Cross Liability" or "Cross Suits" endorsements or exclusions.

Contractor's commercial general liability policy shall be written on a 1996 or later ISO commercial general liability occurrence form. Commercial

3. Automobile Liability Insurance, with minimum limits of $2,000,000 per accident. Automobile liability insurance provided by Contractor shall provide coverage against claims for damages because of bodily injury or death of any person or property damage arising out of the Receivership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.

   If hazardous materials are being transported, then Pollution Liability – Broadened Pollution for Covered Autos endorsement ISO CA 99 48.

4. Umbrella or excess liability: This insurance shall cover all operations of Contractor and shall be follow form of the employers' liability,

commercial general liability, commercial automobile liability, pollution liability and professional liability insurance policies required of Contractor, with an effective date that is concurrent with such primary insurance policies, with limits of not less than:

$20,000,000 General Aggregate Limit.

$20,000,000 Each Occurrence Limit.

$20,000,000 Products – Completed Operations Aggregate.

Such umbrella or excess liability insurance shall provide that:

a. Coverage shall be written on an "occurrence" basis form which is acceptable to Owner ("claims made" is not acceptable).

b. Drop down provision for exhaustion of underlying limits.

Contractor shall maintain Umbrella Liability Insurance until the expiration of the applicable statute of repose period; including Products - Completed Operations coverage and Additional Insured status as detailed above.

5. Contractor's pollution liability insurance covering all work and/or services to be performed for Owner, including coverage for third-party injury and property damage Claims, including on-site and off-site clean-up costs, as a result of Hazardous Environmental Conditions arising from or made worse by Contractor's operations and completed operations, with limits not less than $1,000,000 each loss/claim and $1,000,000 policy aggregate.

   a. If written on a "claims made and reported" form, Contractor warrants that any applicable retroactive date precedes the date on which Contractor first performed any of the Work and that continuous coverage or an extended reporting period shall remain in force until the expiration of the applicable statute of repose period for the State in which the Project is located.

6. Professional liability insurance with limits not less than $1,000,000 per claim and $2,000,000 annual aggregate, which Professional Liability insurance policy shall: (a) be maintained in effect for a period equivalent to the statute of repose for the State in which the Project is located, and (b) have a retroactive date prior to the performance of any services to be provided under this Agreement. This insurance shall provide coverage for claims for damages, bodily injury, or property damage arising out of the rendering or failure to render professional, engineering design, construction management or other related construction management services performed under this Contract, and caused by a negligent error, omission, or act for which Contractor is legally liable.

7. "Leased/Rented Equipment" coverage with limits not less than $350,000 per item, and "Installation Floater" coverage with limits specific to the site of the Work of not less than $2,000,000.

B. Subcontractor and Supplier Insurance. Contractor shall require its Subcontractors to maintain worker's compensation/employer's liability, commercial general liability, umbrella liability, auto liability and pollution liability insurance coverages with coverage limits that Contractor in its reasonable judgment deems appropriate to such Subcontractor's scopes of work and no less than One Million Dollars ($1,000,000). Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner and the other Indemnitees consistent with the provisions of Section 6.02.K.

6.04 *Owners Liability Insurance*

A. Owner may purchase such commercial general liability insurance at Owner's expense as will protect Owner against claims or suits arising out of the negligence of Owner, Owner's employees or agents, which may arise with respect to the Project.

B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to Owner or third-parties.

6.05 *Contractor Responsibility for Tools and Equipment*

A. Contractor acknowledges and agrees that it is solely responsible for Contractor's and Subcontractors' tools and equipment.

6.06 *Waiver of Rights*

A. Owner and Contractor shall waive, and cause their insurers to waive, all rights of subrogation under the Contractor's property and equipment policy against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work to the extent of proceeds paid by such insurance; and, in addition, waive all such rights against the Indemnitees, all individuals or entities identified in the Agreement as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to

the proceeds of insurance held by Owner or Contractor for the benefit of such party, or otherwise payable under any policy so issued.

B. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner and the other Indemnitees consistent with the provisions of Section 6.06.A.

ARTICLE 7--CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under the Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

C. In no event shall Owner have any responsibility for construction means, methods, techniques, sequences or procedures or for safety precautions and programs in connection with the Work, notwithstanding any of the rights and authority granted Owner in the Contract Documents.

7.02 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.

B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their

employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.

C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during the Site's permitted working hours.

7.04 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents. To the extent not issued in the name of Owner, Contractor shall assign to Owner at the time of Substantial Completion any and all Supplier's or manufacturer's warranties relating to materials and labor used in the Work and further shall perform the Work in such manner so as to preserve any and all such warranties.

B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 *"Or Equals"*

A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more "brand names" or specific Suppliers, the design has been based upon Contractor furnishing items meeting the design and/or performance criteria of these products or Suppliers. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and

sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that the proposed item:

1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

3) has a proven record of performance and availability of responsive service; and

4) is not objectionable to Owner.

b. Contractor certifies that if the proposed item is approved and incorporated into the Work:

1) there will be no increase in cost to Owner or increase in Contract Times; and

2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. Engineer's denial of an "or-equal" request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

E. *Treatment as a Substitution Request:* If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 *Substitutes*

A. *Contractor's Request; Governing Criteria:* Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:

a. will certify that the proposed substitute item will:

1) perform adequately the functions and achieve the results called for by the general design;

2) be similar in substance to the item specified; and

3) be suited to the same use as the item specified.

b. will state:

1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;

2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with

Owner for other work on the Project) to adapt the design to the proposed substitute item; and

3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

c. will identify:

1) all variations of the proposed substitute item from the item specified; and

2) available engineering, sales, maintenance, repair, and replacement services.

d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. Engineer's denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.

E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis, Contractor shall submit to Owner and Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.

J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers and all other individuals or entities performing or furnishing any of the Work.

K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.

L. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.

M. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.08 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.

B. Contractor shall promptly notify Owner and Engineer in writing of any discovered infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents.

C. To the fullest extent permitted by laws and regulations, Contractor shall indemnify and hold harmless Indemnitees, from and against all claims, costs, losses, and damages (including all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.09 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work. Contractor's responsibility to pay all such applicable taxes shall: (i) include the obligations to pay any interest or penalties that may be assessed as a result of Contractor's late payment or failure to pay such taxes, and (ii) survive final payment, completion and acceptance of the Work and termination or completion of the Contract.

B. In addition to Owner's other rights and remedies, Owner shall be entitled to set off against monies otherwise due Contractor hereunder the amount of any sales

and use tax, or any other tax, which Owner is required to pay be reason of Contractor's failure to do so.

7.11 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Indemnitees, from and against all claims, costs, losses, and damages (including all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written notice to the other Party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

Contractor shall comply with all Laws and Regulations applicable to the Work including the following:

1. All Laws and Regulations addressed in Attachment 5 to the Agreement;

2. All applicable provisions of Federal and State Laws and Regulations dealing with the prevention of environmental pollution and the preservation of natural resources.

3. applicable provisions of Federal Laws and Regulations pertaining to health and safety, including the following:

   a. Williams-Steiger Occupational Safety & Health Act of 1970, Public Law 91-596.

   b. Part 1910 -Occupational Safety & Health Standards, Chapter XIII of Title 29, Code of Federal Regulations.

4. Nothing contained in the Contract shall be construed as relieving Contractor in any way of Contractor's responsibility for strict compliance with all Laws and Regulations pertaining to health and safety.

D. Contractor represents and warrants that, to the best of its knowledge, information, and belief, all Subcontractors or others for which Contractor seeks or will seek Owner's approval to provide the Work are also in compliance with all applicable Laws and Regulations, including all federal, state, and local immigration Laws and Regulations. Contractor shall be responsible and liable for any failure of Subcontractors or others for whom Contractor is responsible to be in compliance with applicable Laws and Regulations, including federal, state, and local immigration laws and regulations.

7.12 *Record Documents*

A. Contractor shall maintain electronically copies of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings (collectively, "**Record Documents**"). Contractor shall keep such Record Documents in good order and annotate them to show changes made during performance of the Work. These Record Documents, together with all approved Samples, will be available to Owner and Engineer for reference. Upon completion of the Work, Contractor shall deliver electronically these Record Documents to Owner with a copy to Engineer.

B. Test, Inspections and Record Documents

1. Contractor shall also maintain electronically:

a. Field Test Records

b. Quality Control/Quality Assurance Records

c. Reviewed Shop Drawings

2. Contractor shall obtain all inspection and approvals as required in Article 14 of these General Conditions.

7.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.

B. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities are the prevention of Work-related

accidents and the maintenance and supervision of safety precautions and programs.

C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except to the extent such damage or loss is attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable).

E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Specifications.

H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is

acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).

J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

K. Intentionally deleted.

L. Throughout all phases of the Work, including suspension of the Work, and until final acceptance of the Work, Contractor shall keep the Work Site clean and free from rubbish and debris.

M. Contractor shall maintain the Site in accordance with Laws and Regulations applicable to Site cleanliness, and in a neat, orderly and hazard-free condition until final acceptance of the Work. Contractor shall keep the Site and adjacent areas free from hazards caused by construction activities and regularly inspect for hazardous conditions caused by construction activities.

N. Contractor shall store volatile wastes generated or used in connection with the Work in covered metal containers and shall remove such containers from the Site daily. Contractor shall prevent accumulations of wastes which create hazardous conditions. Contractor shall conduct cleaning and disposal operations in accordance with all Laws and Regulations applicable to those operations. Contractor shall not dispose of rubbish, volatile wastes, or other wastes on Owner's property without the prior written approval of, and coordination with, Owner's operations personnel.

O. Contractor shall use the types of cleaning materials recommended by the manufacturer of the surface to be cleaned.

P. Contractor shall execute interim cleaning every work day during the performance of the Work. Structures, grounds, areas of the Site, public and private properties immediately adjacent to the Site, and temporary sanitary facilities shall be maintained by Contractor free from accumulations of waste materials and rubbish which have been caused by construction operations. Waste materials and rubbish shall be placed by Contractor in dump containers.

Q. Loose material on exposed surfaces shall be removed or secured by Contractor either at the end of each work day (or more often) to maintain the Site in hazard-free condition. Contractor shall secure materials to prevent their dislodgement by wind and/or other forces.

R. If Contractor fails to make repairs or does not properly maintain the Site, each in accordance with Contractor's obligations under this Paragraph 7.13, then Owner may have the necessary repairs and/or maintenance performed by others and the full costs of such work shall be charged to and payable by Contractor upon demand. Except in an emergency, Contractor shall be given five (5) days' written

notice and opportunity to cure before commencement of such repairs and/or maintenance by others.

S. Intentionally deleted.

T. Nothing contained in the Drawings and Specifications or in any other document(s) relating to this Project shall be construed to make Engineer or Owner in any way responsible for Contractor's compliance with any applicable safety regulations or codes or the like. Engineer and Owner shall have no duty to inform Contractor of any safety violations and, should Engineer or Owner voluntarily point out safety violations, such actions shall not be construed to mean that Engineer or Owner has assumed any responsibility for Contractor's compliance with any applicable safety regulations, codes or the like. Contractor is solely responsible for Project safety.

U. Contractor shall, at all times, and especially during inclement weather or suspension of Work, carefully protect the Work and materials against damage or injury. If, in the opinion of Owner or Engineer, any Work or material shall have been damaged or injured by reason of failure on the part of Contractor or any of its Subcontractors to protect the Work, such materials shall be promptly removed and replaced by Contractor without additional cost to Owner.

V. Remedy of damage done to any property referred to in Paragraphs 7.13.C.2 or 7.13.C.3 of these General Conditions caused directly or indirectly by Contractor shall be promptly made by Contractor without additional cost to Owner.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Owner and Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued, provided that the emergency was not caused by the act or omission of Contractor, a Subcontractor or anyone for whom either of them are responsible.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:

a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determine and verify:

1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;

c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.

3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. *Shop Drawings*

    a. Contractor shall submit the number of copies required in the Specifications.

    b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. *Samples*

    a. Contractor shall submit the number of Samples required in the Specifications.

    b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Engineer's Review of Shop Drawings and Samples*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer's review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given

written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. *Resubmittal Procedures for Shop Drawings and Samples*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.

2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

a. Contractor shall submit all such Submittals to Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.

b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.

d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03. 2.04, and 2.05.

F. *Intentionally deleted*.

G. Contractor shall not perform any portion of the Work for which the Contract Documents require Submittals until Engineer has approved the respective Submittal.

H. The Work shall be in accordance with approved Submittals except that Contractor shall not be relieved of its responsibility to perform the Work consistent with the requirements of the Contract Documents. The Work may deviate from the Contract Documents only if Contractor has notified Engineer in writing of a deviation from the Contract Documents at the time of the Submittal and a Change Order or Work Change Directive is executed authorizing the identified deviation. Contractor shall not be relieved of responsibility for errors or omissions in Submittals by Engineer's approval of the Submittals.

I. Intentionally deleted.

7.17 *Contractor 's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor's warranty and guarantee.

B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights

under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.

C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

1. Observations by Engineer;

2. Recommendation by Engineer or payment by Owner of any progress or final payment;

3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. Use or occupancy of the Work or any part thereof by Owner;

5. Any review and approval of a Shop Drawing or Sample submittal;

6. The issuance of a notice of acceptability by Engineer;

7. The end of the correction period established in Paragraph 15.08;

8. Any inspection, test, or approval by others; or

9. Any correction of defective Work by Owner.

E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction

obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify, defend, and hold harmless the Indemnitees from and against any and all claims, damages, losses and expenses (including all fees and charges of engineers, architects, attorneys and other professionals, and all court, arbitration and other dispute resolution costs) in any manner arising out of, resulting from, or caused by the performance or furnishing of the Work, provided that any such claims, damages, losses, and expenses are attributable to bodily injury, sickness, disease, or death, or damage to or destruction of property, but only to the extent caused by any negligent, reckless, intentional or wrongful act or omission of Contractor, any of its subcontractors, sub-subcontractors, suppliers, or agents of any tier or their respective employees. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to an Indemnitee.

B. If the indemnification obligations of Section 7.18.A are determined by a Court of competent jurisdiction to require a monetary limitation to be enforceable under applicable Laws and Regulations, then the Parties agree that Contractor's total cumulative liability to Owner under Section 7.18.A above shall be limited to a maximum cumulative amount equal to twice the Contract Price. Owner and Contractor agree said limitation bears a reasonable commercial relationship to the Contract and is part of the Project Specifications or bid documents.

C. In any and all claims or actions against the Indemnitees by any employee (or the survivor or personal representative of such employee) of Contractor, or any Subcontractor, any Supplier, any individual or entity directly or indirectly employed or retained by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor, or any Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

D. The duty of Contractor to indemnify and hold harmless the Indemnitees includes the separate and independent duty to defend the Indemnitees, which duty arises immediately upon receipt by Contractor of the tender of any claim for indemnification from an Indemnitee which reasonably appears to be within Contractor's indemnification obligation.

7.19 *Intentionally deleted*

ARTICLE 8--OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between Owner and third-parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.

D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Owner and Engineer and the others whose work will be affected.

E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Owner and Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.A.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Paragraph 8.02(C) or provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. An itemization of the specific matters to be covered by such authority and responsibility; and

3. The extent of such authority and responsibilities.

B. Contractor may not have exclusive occupancy of the Site. In its operations for Work under the Contract, it shall cooperate with, and coordinate its operations with, those of Owner, other contractors, trades and work forces, if required.

8.03 *Legal Relationships*

A. If, in the course of performing other work for Owner at or adjacent to the Site, Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall, subject to Paragraph 4.05.C, be entitled to an adjustment in the Contract Price for the additional actual and direct Cost of the Work necessarily incurred by Contractor in performing the Work as a result of the damage, delay, disruption or interference, or, subject to Paragraph 4.05.A, the Contract Times. Contractor must submit any Change Proposal seeking an adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Indemnitees from and against any such claims, and against all costs, losses, and damages (including all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9--OWNER'S RESPONSIBILITIES

9.01 *Intentionally Deleted*

A. Intentionally deleted.

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. Owner shall not be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

A. Contractor acknowledges that prior to the execution of the Agreement, Owner provided reasonable evidence that Owner has made financial arrangements to fulfill Owner's obligations under the Contract. Thereafter, Contractor may only request such evidence if (1) Owner fails to make payments to Contractor as the Contract requires; (2) a change in the Work materially increases the Contract Price; or (3) Contractor identifies in writing a reasonable concern regarding

Owner's ability to make payment when due. Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change.

9.12 *Safety Programs*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10--ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Generally*

A. Contractor acknowledges that the Engineer will be Owner's representative during the construction period, will be on-site during all construction activities, will conduct regular tests and inspections associated with the Work, and will participate in daily meetings with Contractor to review progress. Contractor agrees that it will cooperate, facilitate, and not interfere with Owner or Engineer in performing these inspections or tests. Contractor further agrees that it has accounted for such testing and inspections in its schedule and shall not be entitled to a time extension or any damages associated with any inspections or testing conducted by Owner or its Engineer in accordance with the agreed-to testing specifications.

10.02 *Visits to Site*

A. Based on site observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Contractor shall make the Site available for safe access for Engineer's and other Owner's representatives to observe, inspect, and test at all phases of the Project.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Resident Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Paragraph

10.03(C) and (D), and limitations on the responsibilities thereof will be as provided in Paragraph 10.03(C), Paragraph 10.03(D), and in Paragraph 10.07.

B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Paragraphs 10.03(C) and 10.03(D).

C. The Resident Project Representative ("RPR") will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.

1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the approval of Contractor.

2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor.

3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.

4. Liaison

   a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.

   b. Consult with Owner and Contractor when Contractor's operations affect Owner's on-Site operations regarding coordination of such operations.

   c. Assist in obtaining from Owner additional details or information, when required for Contractor's proper execution of the Work.

5. Interpretation of Contract Documents: Transmit to Contractor clarifications and interpretations of Contract Documents.

6. Shop Drawings and Samples:

   a. Record date of receipt of Samples and Contractor-approved Shop Drawings.

   b. Receive Samples which are furnished at the Site by Contractor.

c. Advise Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.

7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications. Transmit to Contractor in writing decisions as issued by Engineer.

8. Review of Work and Rejection of Defective Work

a. Conduct on-site observations of the Work to assist in determining, to the extent set forth in Paragraph 10.02, if the Work is in general proceeding in accordance with the Contract Documents.

b. Report to Owner whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Owner of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

9. Inspections and Tests

a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.

b. Observe, record, and report to Owner appropriate details relative to the test procedures and systems start-ups.

10. Records

a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Owner.

b. Record names, addresses, e-mail addresses, website locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.

c. Maintain records for use in preparing Project documentation.

11. Reports

a. Furnish to Owner periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing, Tests, and Sample submittals.

b. Draft and recommend to Owner proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.

c. Immediately notify Owner of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.

12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Owner, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Owner prior to payment for that part of the Work.

14. Completion

a. Participate in visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.

b. Participate in final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.

c. Observe whether all items on the final list have been completed or corrected and make recommendations to Owner concerning acceptance and issuance of the notice of acceptability of the work.

D. The RPR (and Engineer whom RPR represents) shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items) without Owner's prior written approval.

2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.

3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.

5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.

6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Owner in writing.

7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.

8. Authorize Owner to occupy the Project in whole or in part.

10.04 *Engineer's Authority*

A. Engineer has the authority to reject Work in accordance with Article 14.

B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.

C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.

D. Engineer's authority as to changes in the Work is set forth in Article 11.

E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11--CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

A. The Contract may be amended or supplemented only by a Change Order, a Work Change Directive, or a Field Order. Accordingly and notwithstanding anything to the contrary in the Contract Documents, no course of conduct or dealings between the Parties, nor express or implied acceptance of alterations or additions to the Work, and no claim that Owner has been unjustly enriched by any alteration of or addition to the Work, whether or not there is, in fact, any unjust enrichment to the Work, shall be a basis of any claim to an increase in any amounts due under the Contract Documents or a change in any time period provided in the Contract Documents.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of Engineer.

11.02 *Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. Changes in Contract Price or Contract Times which are agreed to by the Parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the Parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

C. Except as otherwise set forth therein, any Change Order shall constitute a final agreement of all changes in the Work that is the subject of the Change Order, all direct and indirect costs associated with such change, and any and all adjustments to the Contract Price and the Contract Times.

11.03 *Work Change Directives*

A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the Parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the Parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.

B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.

B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);

2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may

include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or

3. Where the Work involved is not covered by unit prices (or time and equipment rates) contained in the Contract Documents and the Parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).

C. *Contractor's Fee:* When applicable, Contractor's fee for overhead and profit will be determined as follows:

1. A mutually acceptable fixed fee; or

2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, Contractor's fee will not exceed 5 percent;

b. For costs incurred under Paragraph 13.01.B.3, Contractor's fee will not exceed 5 percent;

c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that Contractor's fee will be based on: (1) a fee not to exceed 10 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee not to exceed 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 10 percent of the costs incurred by the Subcontractor that actually performs the Work;

d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and

f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. *Change Proposal Procedures*

1. *Submittal:* Contractor shall submit each Change Proposal to Owner and Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.

2. *Supporting Data:* Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to Engineer and Owner within 15 days after the submittal of the Change Proposal.

a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.

b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer 's Initial Review:* Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.

4. *Engineer 's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other Party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. *Binding Decision:* Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

C. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the Parties in writing that Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

D. *Post-Completion:* Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

11.11 *Contractor Good Faith Review of Subcontractor Requests For Changes*

A. Contractor shall make a good faith determination of the validity of the nature and amount of changes requested by Subcontractors before passing through such requests to Owner. It is Contractor's responsibility to check all Subcontractor requests for Change Order for correctness, completeness, detail and fairness before submitting to Owner.

ARTICLE 12--CLAIMS

12.01 *Claims*

A. *Claims Process:* The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and

4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.

B. *Submittal of Claim:* The Party submitting a Claim shall deliver it directly to the other Party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The Party submitting the Claim shall also furnish a copy to Engineer, for its information only. The responsibility to substantiate a Claim rests with the Party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution:* The Party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The Parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The Parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other Party, with a copy to Engineer.

D. *Mediation*

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval:* If the Party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other Party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim:* If efforts to resolve a Claim are not successful, the Party receiving the Claim may deny it by giving written notice of denial to the other Party. If the receiving Party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other Party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other Party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results:* If the Parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13--COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work:* The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included:* Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Unless otherwise agreed in writing by the Parties, such employees are limited to superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.

5. Other costs consisting of the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

        1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

    c. *Construction* Equipment Rental

        1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary

for the Work. In no event shall the total rental cost of any such equipment exceed the purchase price of any comparable item.

2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the Contract Documents. These computed rates will include all operating costs.

3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work, provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded:* The term Cost of the Work does not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by Contractor's fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.

3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

6. Expenses incurred in preparing and advancing Claims.

7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B

D. *Contractor's Fee*

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.

b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis

of Cost of the Work, Contractor's fee will be determined as follows:

1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. *Documentation and Audit:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, (a) Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices, (b) subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee, (c) Contractor shall maintain and preserve all such documents for a period of 5 years after the date of final payment, (d) Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor, and (e) completion and delivery to Owner of Owner's auditors' report shall be an additional condition precedent to Contractor's entitlement to final payment (if Owner elects to have such an audit performed). Owner shall be entitled to review and audit all fixed lump sum amounts, hourly rates and unit prices, in each case, that have been agreed upon in advance in writing by the Parties, provided that such audit right shall be for the limited purpose of reviewing relevant documentation and verifying that Applications for Payment are in compliance with the Contract Documents (e.g., to confirm that Owner actually received the item for which such amount is being charged); such audit right shall not be deemed to permit Owner to dispute an agreed upon fixed lump sum amount, hourly rate or unit price (other than with respect to any Application for Payment errors) or to renegotiate or modify any such mutually agreed upon fixed lump sum amounts, hourly rates or unit prices.

13.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:* Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.

C. *Owner's Contingency Allowance:* Contractor agrees that an Owner's contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Contract Documents.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities. Unless Engineer has directed in writing that an item unit quantity shall exceed the item unit estimated quantity indicated in the Contract, the payment quantity will not exceed the item unit cost based on the estimated quantity in the Contract Documents.

C. Each unit price is considered complete and includes (i) all supplies, materials, equipment, labor, delivery and installation, and (ii) all other costs and expenses in connection with, or incidental to, the performance of that portion of the Work to which such unit price applies and will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor.

E. Regardless of the quantity of Unit Price Work performed by Contractor, there shall be no claim for an increase of unit prices nor shall there be a corresponding price adjustment with respect to any other item of Work.

F. Estimated quantities and unit prices (as applicable) which are associated with Unit Price Work have been established for the purpose of comparing bids and providing a fixed unit price for compensation. Engineer and Owner do not warrant or represent that Unit Price Work covered will be encountered. Contractor shall have no claim nor receive additional compensation above the unit or lump sum prices established in Article 5 of the Agreement, regardless of the quantities encountered during construction.

ARTICLE 14--TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Owner and Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Owner and Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;

3. by manufacturers of equipment furnished under the Contract Documents;

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Owner or Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Owner and Engineer timely notice of Contractor's intention to cover the same and Owner and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects:* Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's warranty and guarantee, if any, on said Work.

F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable setoff against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the Parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Each of Owner and Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Owner or Engineer, then Contractor shall, if requested by Owner or Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Owner or Engineer considers it necessary or advisable that covered Work be observed by Owner or Engineer or inspected or tested by others, then Contractor, at Owner's or Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Owner or Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or

relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the Parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them. If Owner stops the Work under this Paragraph 14.06.A, Contractor shall not be entitled to an extension of the Contract Times or to an increase in the Contract Price.

14.07 *Owner May Correct Defective Work*

A. If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within twenty-four (24) hours in the event of an emergency threatening imminent harm to person or property or, otherwise, within a 7-day period after receipt of written notice from Owner to commence and continue correction of such default or neglect with diligence and promptness, Owner may, without prejudice to other remedies Owner may have, correct such deficiencies. In such case, an appropriate Change Order shall be issued deducting from payments then or thereafter due Contractor the reasonable cost of correcting such deficiencies. If payments then or thereafter due Contractor are not sufficient to cover such amounts, Contractor shall pay the difference to Owner. No action taken by Owner pursuant to this Paragraph shall affect or diminish any of Owner's other rights or remedies under the Contract, at law or in equity, nor shall it relieve Contractor from any consequences or liabilities arising from its acts or omissions.

B. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid

Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15--PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Owner and Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period, with each pay period being one calendar month unless otherwise agreed in writing by Owner.

B. *Applications for Payments*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Owner and Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

a. Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment. The percentage of completion shall be the lesser of (1) the percentage of that portion of the Work which has actually been completed; or (2) the percentage obtained by dividing (a) the expense that has actually been incurred by Contractor on account of that portion of the Work for which Contractor has made or intends to make actual payment prior to the next Application for Payment by (b) the share of the not-to-exceed Contract Price allocated to that portion of the Work in the Schedule of Values.

b. With each Application for Payment, Contractor shall submit: (i) duly executed waivers and releases of Lien in a form compliant with Laws and Regulations and otherwise satisfactory to Owner from Contractor for the amounts sought in the current Application for Payment, conditioned only upon receipt of the amount requested in the current Application for Payment; (ii) commencing with the second Application for Payment, duly executed unconditional waivers and release of Lien in a form compliant with Laws and Regulations and otherwise satisfactory to Owner, from Contractor and any Lienors (as defined in Chapter 713, Florida Statutes) under Contractor, establishing receipt of payment or satisfaction of payment of all amounts requested on behalf of such persons or entities and disbursed through the previous Application for Payment period; and (iii) such other information, documentation and materials Owner, Engineer or the Department reasonably request. Additionally, the Contractor shall submit to the Owner before the first Application for Payment, all certificates and other evidence of insurance required by the Contract and a listing of all agreements (awarded at that time), in each case to the extent not previously delivered to Owner.

c. Each Application for Payment shall constitute a certification and representation by the Contractor to the Owner that: (i) the construction has progressed to the point indicated; (ii) the quality of the Work covered by the Application is in accordance with the Contract Documents; (iii) there are no liens or claims outstanding or known to exist at the date of the Application, except as may be indicated in the Application for Payment; (iv) all due and payable bills with respect to the Work have been paid to date or included in the amount requested in the current Application, and there is no known basis for the filing of any construction liens or claims or any other lien or claim on the Work; (v) duly executed waivers and releases have been obtained from all Subcontractors and Suppliers for work done and materials furnished through the last date of payment from the Owner for such Subcontractors and suppliers; (vi) Contractor is entitled to payment in the amount requested; (vii) such Application for Payment represents a just estimate of cost reimbursable to Contractor under the terms of the Contract Documents, and (viii) such Application for Payment has not been front-end-loaded by Contractor (including placing a value on a line item that is in excess of its cost, increasing unit prices on early completed items while decreasing unit prices on later completed ones, and/or inflating the percentage of completion on line items).

d. In taking action on Contractor's Applications for Payment, Owner shall be entitled to rely on the accuracy and completeness of the

information furnished by Contractor and shall not be deemed to have made a detailed examination, audit or arithmetic verification of the documentation or supporting data submitted with Contractor's Application for Payment; to have made exhaustive or continuous on-site inspections; or to have made examinations to ascertain how or for what purposes Contractor has used amounts previously paid. Such examinations, audits and verifications, if required by Owner, will be performed by Owner's auditors or other representatives acting in the sole interest of Owner.

2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 15 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

b. there may not be other matters or issues between the Parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work;

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;

d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*

1. Fifteen (15) days after presentation of the Application for Payment to Owner with all required supporting documentation and information and Engineer's recommendation, the undisputed amount (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. The Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. The Contract Price has been reduced by Change Orders;

i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;

j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Substantial Completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

l. Contractor has failed to make payments properly to Subcontractors or Suppliers or for services, labor, materials or equipment;

m. There is reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;

n. There is reasonable evidence that the Work will not be completed within the Contract Time for achieving Substantial Completion as specified in Section 4.02 of the Agreement (as such Contract Time may have been adjusted in accordance with the Contract), and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or

o. Other items entitle Owner to a set-off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to

by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

B. No materials or supplies for the Work shall be purchased by Contractor or any Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

C. If Owner determines in good faith that Contractor is failing to or has failed to properly pay Subcontractors, Suppliers, or other person or entity providing services or work for Contractor, amounts paid by Owner to Contractor for the Work, Owner may, at its sole option, issue joint checks to Contractor and to Subcontractors, Suppliers, or other person or entity providing services or work for Contractor, amounts paid by Owner to Contractor for the Work to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. Owner's right and option to issue joint checks shall not be construed as creating any obligation to do so.

D. Contractor shall indemnify, defend, and hold harmless Owner from all loss, liability, damage or expense, including reasonable attorneys' fees and litigation expenses, arising out of any Lien claim or other claim for payment by any Lienor of any tier. Upon receipt of notice of a Lien claim or other claim for payment, Owner shall notify Contractor. If any Lien or Liens are claimed on Owner's or any other person's or entity's property by any person or entity as a result of the Work, then Contractor shall cause the Lien or Liens to be satisfied or transferred to other security in accordance with applicable Laws and Regulations. If Contractor fails to do so within twenty (20) days after receiving notice of such Lien or claim of Lien, then Owner may take such action as it deems advisable to protect itself, the Site or other person's or entity's property from such Lien or claim of Lien and Contractor shall pay to Owner the amounts incurred by Owner, including reasonable attorneys' fees in taking such protective action. The Contractor's obligations set in this Section 15.02.C are subject to the condition that Owner have paid to Contractor undisputed amounts due for sums correlating to sums claimed under any such Lien or claim for payment.

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Owner or Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as are justified.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

E. After Substantial Completion, Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

In accordance with Paragraph 15.03 of these General Conditions, the general descriptions below will be used by Owner and Engineer to ascertain whether the requirements for Substantial Completion have been met by Contractor.

1. All Work described in the Drawings and Specifications and Scope of Work shall be completed, tested as required by the Contract Documents, and shall be ready for Owner's use.

2. All submittals for the materials and equipment as required by the contract documents shall be submitted to and approved by Owner and Engineer.

3. All warranties for equipment incorporated into the Work shall be executed and submitted to Owner and Engineer

4. All "As-Built" record documentation incorporated into the Work shall be completed, certified by Contractor, submitted to and approved by Owner and Engineer.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Owner and Engineer consider that part of the Work that Owner has agreed in writing to accept separately to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

15.05 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*

1. After Contractor has, in the opinion of Owner and Engineer, satisfactorily completed all corrections identified during the final inspection; has completed its final Site clean-up and restoration, including removal of all excess materials, rock, sand, paving and miscellaneous debris, supplies, equipment and trailers; has disconnected all temporary utilities (if any); and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated Record Documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

2. The final Application for Payment must be accompanied (except as previously delivered) by:

a. all as-built drawings and an as-built survey, prepared in accordance with ALTA-ACSM standards by a properly licensed surveyor showing the location of all improvements constructed on the Site;

b. consent of the surety, if any, to final payment;

c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

d. a list of all duly pending Change Proposals and Claims;

e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work;

f. a complete list of Subcontractors and Suppliers on the Project, including addresses and telephone numbers;

g. evidence reasonably acceptable to Owner that the Work has passed all requisite governmental inspections;

h. all maintenance manuals, inspection reports, permits, and temporary and final certificates of completion or occupancy, as applicable, and third-party warranty documents applicable to the Work;

i. a duly executed and notarized final payment affidavit in statutory form;

j. if the Contract Price is based in whole or in part on Cost of the Work, a final accounting for the Cost of the Work;

k. all documentation called for in the Contract Documents; and

l. such other information, documentation and materials as Owner, Engineer, or any funding or regulatory entities may reasonably require.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved in writing by Owner, which approval may be granted or withheld by Owner in its sole and absolute discretion, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in Liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Final Application and Recommendation of Payment:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that

Engineer finds the Work to be acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Notice of Acceptability:* In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.

D. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by Engineer's written recommendation of final payment and issuance of notice of the acceptability of the Work.

E. *Final Payment Becomes Due:* Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including set-offs for liquidated damages and set-offs allowed under the provisions of the Contract with respect to progress payments. Owner shall pay the resulting undisputed balance due to Contractor within 30 days of Owner's receipt of the final Application for Payment from Engineer.

15.07 *Waiver of Claims*

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim, appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such adjacent areas;

2. correct such defective Work;

3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.

B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor pursuant to this Section 15.08.

C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including all costs of repair or replacement of work of others). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

E. The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 15.08.

F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

G. Nothing contained in this Paragraph 15.08 shall be construed to establish a period of limitation with respect to other obligations Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in this Paragraph 15.08 relates only to the specific obligation of Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be

enforced, nor to the time within which proceedings may be commenced to establish Contractor's liability with respect to Contractor's obligations other than specifically to correct the Work.

ARTICLE 16-- SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's failure to perform the Work in accordance with the Contract Documents (including failure to supply sufficient skilled workers or suitable materials or equipment, failure to adhere to the Progress Schedule, or failure to demonstrate its ability to complete the Work within the Contract Times);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or

4. Contractor's repeated disregard of the authority of Owner or Engineer.

5. Contractor fails to make payment to Subcontractors or Suppliers for materials or labor in accordance with the respective agreements between Contractor and the Subcontractors or Suppliers.

6. Contractor abandons the Work.

7. Contractor assigns or attempts to assign the Contract or any part thereof without the previous written consent of Owner or if the Contract or any claim thereunder shall be assigned by Contractor otherwise than as permitted in the Contract.

8. Contractor is adjudged a bankrupt, or if it makes a general assignment for the benefit or its creditors, or if a receiver is appointed on account of this insolvency.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

A. Upon 7 days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items): (1) completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including appropriate overhead and profit on such Work; and (2) actual and necessary expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work,.

B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

C. Upon receipt of a notice of termination for convenience, Contractor shall immediately, in accordance with instructions from Owner, proceed with performance of the following duties, regardless of delay in determining or adjusting amounts due under this Paragraph:

1. Cease operations as specified in the notice;

2. Place no further orders and enter into no further agreements for materials, labor, services or facilities except as necessary to complete continued portions of the Contract;

3. Terminate all subcontracts and orders to the extent they relate to the Work terminated;

4. Proceed to complete the performance of Work not terminated; and

5. Take actions that may be necessary, or that Owner may direct, for the protection and preservation of the Work.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 45 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 45 days to pay Contractor any sum

finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17--FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and

2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.

B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, the method of binding dispute resolution shall be litigation in a court of competent jurisdiction and, in that regard, each of the Parties hereby (a) irrevocably and unconditionally consents to submit itself to the sole and exclusive personal jurisdiction of the 12th Judicial Circuit in and for Manatee County Florida and to be joined as parties by intervention, consolidation or otherwise in the action entitled Fortress 2020 Landco, LLC v. HRK et al, Case No. 2020-CA-004459-AX (the "**Applicable Courts**"), (b) waives any objection to the laying of venue of any such litigation in any of the Applicable Courts, (c) agrees not to plead or claim in any such court that such litigation brought therein has been brought in an inconvenient forum and agrees not otherwise to attempt to deny or defeat such personal jurisdiction or venue by motion or other request for leave from any such court, and (d) agrees that such Party will not bring any action, suit, or proceeding in connection with any dispute, claim, or controversy arising out of or relating to this Agreement or the Project in any court or other tribunal other than any of the Applicable Courts.

C. WAIVER OF JURY TRIAL: SHOULD THERE BE ANY LITIGATION INVOLVING ANY MATTER WHATSOEVER ARISING OUT OF OR IN ANY WAY CONNECTED WITH (A) THE CONTRACT, (B) THE PROJECT, (C) ANY COURSE OF CONDUCT, COURSE OF DEALING, STATEMENTS (WHETHER VERBAL OR WRITTEN), OR (D) ANY ACTION OF EITHER PARTY, OWNER AND CONTRACTOR HEREBY WAIVE TRIAL BY JURY IN SUCH LITIGATION. THE WAIVER SET FORTH IN THIS SECTION ARE MADE KNOWINGLY, INTENTIONALLY, AND VOLUNTARILY BY BOTH PARTIES. THIS PROVISION IS A MATERIAL INDUCEMENT FOR OWNER AND CONTRACTOR IN AGREEING TO ENTER INTO THE CONTRACT.

D. *Chapter 558, Florida Statutes: The Parties expressly opt out of the provisions of Chapter 558, Florida Statutes, with respect to the Project, the Work and the Contract Documents.*

E. *Continuing Contract Performance*: Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Paragraph 18.12 and Article 16, Contractor shall proceed diligently with performance of the Contract and Owner shall continue to make payments in accordance with the Contract.

F. *Attorneys' Fees*: In any suit, action, or other proceeding, including arbitration or bankruptcy, arising out of or in any manner relating to this Agreement, the Contract Documents or the Project, including: (a) the enforcement or interpretation of either Party's rights or obligations under the Contract, whether in contract, tort, or both, or (b) the declaration of any rights or obligations under the Contract, the prevailing Party, as determined by the court or arbitrator, shall be entitled to recover from the losing party Attorneys' Fees. For purposes of this paragraph, "Attorneys' Fees" shall mean all reasonable fees and disbursements (including disbursements that would not otherwise be taxable as costs in the proceeding) which are incurred by a Party, including all experts', legal assistants', paralegals', and law clerks' fees and all fees incurred through all post award or judgment and appellate levels and in connection with arbitration, bankruptcy, and collection proceedings (post-judgment and otherwise).

ARTICLE 18--MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, such notice shall be effective (a) upon personal delivery of such notice to the person to whom addressed, (b) upon electronic transmission confirmed as-received by the giver of such notice, (c) upon deposit in the United States mail, postage prepaid for first class, registered or certified mail, or (d) upon being sent by recognized overnight courier delivery service, delivery charges prepaid. Any notice shall be addressed to the business address of the recipient of the notice as reflected on the business records of the giver of the notice.

B. The notice address of Owner and Contractor are as set forth on the signature page of the Agreement. Either Party may change its address for notices by giving notice of the new address in accordance with this Paragraph 18.01.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies; Set-off*

A. The duties and obligations imposed by these General Conditions and, except as may be expressly stated otherwise in the Contract Documents, the rights and remedies available hereunder to the Parties are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

B. If Owner is entitled to reimbursement or payment from Contractor pursuant to the Contract, such payment shall be made within 10 days after Owner's written demand (unless a different time for such payment is expressly provided for in the Contract Documents). Notwithstanding anything in the Contract Documents to the contrary, if Contractor fails to timely make any payment due Owner or if Owner incurs any costs and expenses to cure any default of Contractor or to correct defective Work, Owner shall have the right to set-off such amount against the Contract Price and may elect either to: (i) deduct an amount equal to that which Owner is entitled from any payment then or thereafter due Contractor from Owner, or (ii) issue a Work Change Directive to Contractor reducing the Contract Price by an amount equal to that which Owner is entitled.

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project. Further, notwithstanding anything in the Contract to the contrary, in no event shall Contractor be entitled to receive termination expenses, unabsorbed overhead or lost profit or any other consequential, special, punitive or incidental damages, all of which are hereby expressly waived by Contractor.

18.05 *No Waiver*

A. A Party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of the Contract.

18.06 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and

acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

A. The Contract is to be governed by the law of the state in which the Project is located, without regard to its choice of law provisions.

18.08 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a Party to the Contract of any rights under or interests in the Contract will be binding on the other Party without the written consent of the Party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other Party, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

18.11 *Disposal of Surplus Materials*

A. All surplus materials, not specified for on-Site disposal or stockpiling elsewhere in the Contract Documents, shall be disposed of by Contractor at a location determined by Contractor. Access to any off-Site areas for disposal, permission of property owner, all payments for right of use of the property, all permits and approvals and correction of all damages or conditions to the property owner's satisfaction shall be the responsibility of Contractor. Contractor shall notify Owner and Engineer of the location of any off-Site disposal areas being used by Contractor.

18.12 Severability

A. The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed,

to the fullest extent permitted by law, to give effect to the Parties' intentions and purposes in executing the Contract.