ADDENDUM NUMBER THREE
TO
BIDDING AND CONTRACT DOCUMENTS
FOR
RUNWAY 5R-23L REHABILITATION PROJECT - CONSTRUCTION PHASE 3
PIEDMONT TRIAD INTERNATIONAL AIRPORT
GREENSBORO, NORTH CAROLINA

TO: **All Prospective Bidders**

Date: **Friday, December 7, 2018**

This addendum forms a part of the Contract Documents and modifies the original Bidding Documents as noted below. Acknowledge receipt of this addendum in the space provided on the Bid Form (B-4) AND by acknowledging receipt of this Addendum by returning the attached Acknowledgement Form (Attachment A) via fax, email or mail**.** FAILURE TO DO SO MAY SUBJECT A BIDDER TO DISQUALIFICATION.

SPECIFICATIONS AND CONTRACT DOCUMENTS

- BIDDING REQUIREMENTS
  - The DBE goal has changed from 12.3% to 12.5%. Note this update on NTB-2.

- BID FORMS
  - The DBE goal has changed from 12.3% to 12.5%. Note this update B-8 and B-12.

- TECHNICAL SPECIFICATIONS
  - Replace the cover sheet with the attached sealed cover sheet.
  - Delete D-751 and replace with attached D-751.
  - Delete paragraph L-105-2.5 and replace with the following:

105-2.5 ELECTRICAL EQUIPMENT AND FIXTURES.

All unused conduit/duct in concrete-encased ductbank not removed shall have a pull string installed and shall be noted on the record drawings as spare.

Primary, secondary, control, communication, and signal circuits shall be disconnected at the point of attachment to their distribution system.

The Contractor shall remove and salvage electrical fixtures. Incandescent lamps, mercury-vapor lamps, and fluorescent lamps shall be salvaged, boxed and tagged for identification, and protected from breakage. Salvaged fixtures and lamps shall be protected against damage. Lamps and fixtures shall be cleaned and individually wrapped in bubble wrap, palletized and covered with shrink wrap. Pallets shall be marked with the number of fixtures and lamps, type of fixtures and lamps and pallets shall be delivered to a location on the airport as designated by the airport.

The Contractor shall remove existing taxiway and runway signage as indicated on the drawings. Signs shall be protected against damage and weather. Contractor shall store signs in a safe location. Contractor shall be responsible for any damage to the signs that is caused by the contractor and construction associated with this contract.
The Contractor shall remove and salvage light fixtures, transformers, constant current regulators, and similar items. These items shall be boxed and tagged for identification according to type and size.

The Contractor shall fill each removed Runway Centerline Light Base Core with P-610 Concrete. Concrete shall be level with existing grade.

The Contractor shall remove and dispose of conductors and conduits not used in the finished work and shown to be demolished on the plans.

The Contractor shall fill all single abandoned conduits, as indicted on the plans, with excavatable flowable fill. The flowable fill shall be capable of filling a 2" conduit and shall meet the requirements of Table 1000-1 of the NCDOT Standard Specifications.

- Delete paragraph L-110-5.1 and replace with the following:

110-5.1 Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank completed and accepted. This price shall be full compensation for furnishing all materials and labor, including excavation, conduit, couplings, termination at light bases, electrical enclosures or structures, conduit supports and spacers, CLSM or concrete encasement, conduit terminations and counterpoise, ground rods and exothermic welds, ground lugs for ductbank, backfill, restoration of area for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item per the provisions and intent of the plans and specifications.

Payment will be made under:

Item L-110-5.1	Controlled Low Strength Material Encased Electrical Ductbank, 2-Way, 2" PVC Conduit, Schedule 40 – per linear foot (includes conduit for runway edge lights)
Item L-110-5.2	Concrete Encased Electrical Ductbank, 2-Way, 2" PVC Conduit, Schedule 40 - per linear foot (includes conduit for inpavement runway edge and centerline lights)
Item L-110-5.3~~V~~	Controlled Low Strength Material Encased Electrical Ductbank, 1-Way, 2" PVC Conduit, Schedule 40 - per linear foot (includes conduit for airfield signs)
Item L-110-5.4	1-Way, 2" PVC Conduit, Schedule 40, Unpaved Area- per linear foot

- Delete paragraph L-125-2.3 and replace with the following:

125-2.3 LIGHT BASES. Light base transformer housings shall be Type L-867, Size B for all elevated light fixtures, either two section or adjustable bases. Light base transformer housings shall be Type L-868, Size B for all in-pavement light fixtures. Light Base Transformer Housing and Junction box shall conform to Advisory Circular 150/5345-42, entitled "Specification for Airport Light Base and Transformer Housings, Junction Boxes, and Accessories." Furnish and install the complete light base assembly including concrete foundation, connectors, cover plate and incidentals required for each complete installation. All light bases shall be supplied with a sufficient number of conduit openings to allow for proper circuiting and drainage as shown on the plans."

- Delete Item L-125-5.1-2 and replace with the following:

Item L-125-5.1-2 New L-862 Runway Elevated Edge Light on New Base – per each

L-862 Bi-directional, HIRL runway elevated edge light, mounted on a L-867B ~~two section~~ light base, couplings, base plate, properly sized L-830 transformers, L-823 connectors, ground rod, PVC drain pipes, and all incidentals. Lens color as specified on plans. Align and level as required – per Each.

- Delete paragraph L-125-5.2 and replace with the following:

125-5.2 REINSTALLATION OF EXISTING FIXTURE ON NEW/ADJUSTED BASE. Payment will be made at the contract unit price for each item reinstalled on a new contractor furnished base or adjusted base in accordance with the plans and specifications that is installed by the Contractor and accepted by the Engineer. This price shall be full compensation for excavation, core drilling, furnishing all materials and for all preparation, assembly and installation of these materials, testing of lighting fixture separately and as a system, coordination with paving operations, and for all labor, equipment, tools, incidentals, and appurtenances necessary to complete these items.

Payment will be made under:

Item L-125-5.2-1: Reinstall Existing L-850A Runway Centerline Light and Isolation Transformer on New Base – per each

Reinstallation of existing L-850A, unidirectional, HIRL R/W centerline light, style 3 connected to existing L-830 transformers on a new L-868B, two section light base, properly sized spacer rings (with concrete ring), L-823 connectors, ground rod, and all incidentals. Align and level as required - per Each.

Item L-125-5.2-2: Reinstall Existing Taxiway Edge Light and Isolation Transformer on New Base – per each

Reinstallation of existing L-861T, taxiway edge light, connected to existing L-830 transformers on a new L-867B light base, refurbished base plate, L-823 connectors, and all incidentals. Align and level as required - per Each.

Item L-125-5.2-3 Reinstall Existing L-861T Taxiway Edge Light and Isolation Transformer on ~~Light~~ Existing Base – per each

Reinstallation of existing L-861T, taxiway edge light, connected to existing L-830 transformers on an existing L-867B ~~two section~~ light base and new top section, refurbished base plate, L-823 connectors, and all incidentals. Align and level as required - per Each.

- Delete paragraph 125-5.3 and replace with the following:

125-5.3 ALCMS SUPPORT SERVICES. Payment for this item shall be made at the contract unit price for each day of coordination required to support the efforts of the ALCMS vendor. The price shall be full compensation for furnishing all materials and labor in support of the modifications to the ALCMS, including site coordination and escorting of ALCMS manufacturer, corrections or modifications of contractor installed material in support of the ALCMS equipment, testing and commissioning support of the ALCMS by the ALCMS manufacturer and for all other preparation, management, coordination, assembly and installation of the materials, and for all labor equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:
Item L-125-5.3-1: ALCMS Support Services – per ~~each~~ day

- APPENDICES
  - Add the attached CSPP to Appendix E.

- DRAWINGS
  - A complete sealed set of drawings is issued. A note for Addendum #3 has been added to the Revision block indicating this change.

  - Note the additional revisions made on the following sheets:
    - G-002
    - G-004
    - G-101
    - G-102
    - Deleted sheet G-305
    - Replace C-405 and C-406 with C-405 which removed modification of existing drainage structure D-61 and renumbered subsequent sheet.
    - C-421 to remove structure D-61
    - C-451
    - E-253

PLANHOLDER QUESTIONS

1. L-125 Spec, Bases of Payment, L-125-5.1-2: Would an L-867B Adjustable Base be acceptable instead of the L-867B Two Section Light Base consisting of a (22" Depth Base with a 4-6" Top Section) as noted on Drawing Sheet E-253?

   - ***Yes. See revised Spec L-125 in Addendum #3 and added note on revised E-253.***

2. Sheet C-451. Detail 1/C-401. What is the required thickness of the 3' x 3' steel plate?

   - ***Requirement for steel plate has been removed on revised C-451.***

3. During the total runway closure, can small sized equipment (skid steers and mini-excavators) remain on the shoulder of the runway? Or will they have to be taken back to the staging area?
   -AND-

Will the contractor be allowed to leave equipment on the runway or a closed taxiway during the full runway closure?

- ***See additional note on G-101. "Specialty equipment that is significantly complex to set up or break down may be left on the runway at the end of each shift. At the end of each shift, the equipment must be parked in an area within the project limits as directed by the Engineer and must be lit in such a way that shows the vehicle."***

4. What items will be considered for stored materials?

    - ***Items to be considered for stored materials are in accordance with Paragraph 90-07 of the General Provisions.***
    - ***Contractor may determine which items the Contractor wishes to procure and store and may submit a list of items requested for storage for approval during the pre-construction phase.***

5. Will items be considered for partial payments? Which Items? What %?

    - ***Items to be considered for partial payments are in accordance with Paragraph 90-06 of the General Provisions.***

6. Structures for removal and fill. Do we have any Photos? What type of boxes are these? Precast/Brick? Need dimensions of boxes.

    - ***All the information known is provided. See additional notes in the attached Drainage Investigation Report.***

7. What type of pipe are we reconnecting? Sheet C-451, Detail 6, C-403 Coupling Band? if RCP will need Collars, not bands. Can we get a detail?

    - ***The attached Drainage Field Investigation Report indicates this pipe is RCP.***
    - ***See new detail 8 on C-451***

8. No Item for Erosion Control Matting. Will this be needed on Runway Shoulders?

    - ***No. Shoulders are to be graded, top soiled, mulched and seeded in accordance with the specifications.***

9. We understand that the contractor must provide support personnel for the testing of the adjusted PAPI's; however, please clarify if the contractor is responsible for paying for any flight check related to the PAPI adjustment as indicated in L-125-4.4.

    - ***Adjustment of PAPI does not require a flight check.***

END OF ADDENDUM NUMBER THREE

ATTACHMENT A
ACKNOWLEDGEMENT FORM

Contract Supervisor,

I, (we) am/are returning this acknowledgement to your office as a receipt to the following Addendum:

PIEDMONT TRIAD INTERNATIONAL AIRPORT

RUNWAY 5R-23L REHABILITATION PROJECT, CONSTRUCTION PHASE 3

ADDENDUM NO. 3

_____
Company Name

BY: _____
Recipient's Signature

Date: _____

This acknowledgement must be returned to:

Carly Reimer
Michael Baker Engineering, Inc.
200 Centreport Drive, Suite 350
Greensboro, NC 27409
Phone: (412) 269-2017
Fax: (412) 375-3990
carly.reimer@mbakerintl.com

SEALED COVER SHEET

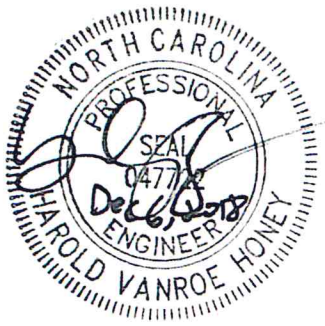
PIEDMONT TRIAD AIRPORT AUTHORITY

Specifications and
Contract Documents for

Runway 5R-23L Rehabilitation Project, Construction Phase 3

PIEDMONT TRIAD INTERNATIONAL AIRPORT

PIEDMONT TRIAD INTERNATIONAL AIRPORT
Guilford County, North Carolina



Michael Baker
INTERNATIONAL

MICHAEL BAKER ENGINEERING, INC.
200 Centreport Drive, Suite 350
Greensboro, North Carolina 27409

November 12, 2018

SET NO. _____

D-751

Item D-751 Manholes, Catch Basins, Inlets and Inspection Holes

DESCRIPTION

751-1.1 This item shall consist of the construction, removal, abandonment, ~~modification,~~ and adjustment to grade of manholes, catch basins, inlets, and inspection holes, in accordance with these specifications, at the specified locations and conforming to the lines, grades, and dimensions shown on the plans or required by the Engineer.

MATERIALS

751-2.1 Concrete. Plain and reinforced concrete used in structures, connections of pipes with structures, and the support of structures or frames shall conform to the requirements of Item P-610.

751-2.2 Precast concrete pipe manhole rings. Precast concrete pipe manhole rings shall conform to the requirements of ASTM C478. Unless otherwise specified, the risers and offset cone sections shall have an inside diameter of not less than 36 inches nor more than 48 inches. There shall be a gasket between individual sections and sections cemented together with mortar on the inside of the manhole.

751-2.6 Frames, covers, and grates. The castings shall conform to one of the following requirements:

a. ASTM A48, Class 35B: Gray iron castings

b. ASTM A47: Malleable iron castings

c. ASTM A27: Steel castings

d. ASTM A283, Grade D: Structural steel for grates and frames

e. ASTM A536, Grade 65-45-12: Ductile iron castings

f. ASTM A897: Austempered ductile iron castings

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings, aircraft gear configuration and/or direct loading, specified.

Each frame and cover or grate unit shall be provided with fastening members to prevent it from being dislodged by traffic but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A123.

751-2.7 Steps. The steps or ladder bars shall be gray or malleable cast iron or galvanized steel. The steps shall be the size, length, and shape shown on the plans and those steps that are not galvanized shall be given a coat of bituminous paint, when directed.

751-2.8 Precast inlet structures. Manufactured in accordance with and conforming to ASTM C1433.

3

~~**751-2.9 Crushed Aggregate Base.**~~

~~**a. Crushed aggregate base.** Crushed aggregate shall consist of clean, sound, durable particles of crushed stone, or crushed gravel and shall be free from coatings of clay, silt, organic material, or other objectionable materials. Aggregates shall contain no clay lumps or balls. Fine aggregate~~

passing the No. 4 sieve shall consist of fines from the coarse aggregate crushing operation. If necessary, fine aggregate may be added to produce the correct gradation. The fine aggregate shall be produced by crushing stone or gravel, that meet the coarse aggregate requirements for wear and soundness.

The coarse aggregate portion, defined as the material retained on the No. 4 sieve, shall not have a loss of greater than 45% when tested per ASTM C131. The sodium sulfate soundness loss shall not exceed 12%, or the magnesium sulfate soundness loss shall not exceed 18%, after five cycles, when tested in accordance with ASTM C88. The aggregate shall contain no more than 15%, by weight, of flat, elongated, or flat and elongated particles per ASTM D4791. A flat particle is one having a ratio of width to thickness greater than three; an elongated particle is one having a ratio of length to width greater than three (3). The aggregate shall have at least 90% by weight of particles with at least two fractured faces and 100% with at least one fractured face per ASTM D5821. The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

1. Sampling and testing for initial aggregate base requirements. Samples shall be taken by the Contractor in the presence of the Engineer. Material shall meet the requirements in paragraph 751-2.9.a and 751-2.9.b. This sampling and testing will be the basis for approval of the aggregate base quality requirements

b. Gradation requirements. The gradation of the aggregate base material shall meet the requirements of the gradation given in the following table when tested per ASTM C117 and ASTM C136. The gradation shall be well graded from coarse to fine as defined by ASTM D2487 and shall not vary from the lower limit on one sieve to the high limit on an adjacent sieve or vice versa. The fraction of material passing the No. 200 sieve shall not exceed one-half the fraction passing the No. 40 sieve.

Requirements For Gradation Of Aggregate Base

Sieve Size	**Design Range Percentage by Weight**	**Contractor's Final Gradation**	**Job Control Grading Band Tolerances for Contractor's Final Gradation Percent**
2 inch	100		0
1-1/2 inch	95-100		±5
1 inch	70-95		±8
3/4 inch	55-85		±8
No. 4	30-60		±8
No. 40	10-30		±5
No. 200	0-8		±3

The "Job Control Grading Band Tolerances for Contractor's Final Gradation" in the table shall be applied to "Contractor's Final Gradation" to establish a job control grading band. The full tolerance still applies if application of the tolerances results in a job control grading band outside the design range.

1. Sampling and testing for gradation. Gradation tests shall be performed by the Contractor per ASTM C136 and sieve analysis on material passing the No. 200 sieve per ASTM C117. The Contractor shall take at least two aggregate base samples per lot to check the final

~~gradation. Sampling shall be per ASTM D75. The lot will be consistent with the lot size used for density. The samples shall be taken from the in-place, un-compacted material in the presence of the Engineer. Sampling points and intervals will be designated by the Engineer.~~

CONSTRUCTION METHODS

751-3.1 Unclassified excavation.

a. The Contractor shall excavate for structures and cover slabs to the lines and grades or elevations, shown on the plans, or as staked by the Engineer. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or cover slab(s) shown. The elevations of the bottoms of cover slab(s), as shown on the plans, shall be considered as approximate only; and the Engineer may direct, in writing, changes in dimensions or elevations of footings necessary for a satisfactory foundation.

b. Boulders, logs, or any other objectionable material encountered in excavation shall be removed. All rock or other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped, or serrated, as directed by the Engineer. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. Where concrete will rest on a surface other than rock, the bottom of the excavation shall not be disturbed and excavation to final grade shall not be made until immediately before the concrete or reinforcing is placed.

c. The Contractor shall do all bracing, sheathing, or shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheathing, or shoring shall be included in the unit price bid for the structure.

d. All bracing, sheathing, or shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall not disturb or damage or undermine adjacent structure (such as cover slab or pavement). The cost of removal shall be included in the unit price bid for the structure.

e. After excavation is completed for each structure, the Contractor shall notify the Engineer. No concrete or reinforcing steel shall be placed until the Engineer has approved the depth of the excavation and the character of the foundation material.

751-3.2 Concrete structures. Concrete structures shall be built on prepared foundations, conforming to the dimensions and shape indicated on the plans. The construction shall conform to the requirements specified in Item P-610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the Engineer before the concrete is placed.

All invert channels shall be constructed and shaped accurately to be smooth, uniform, and cause minimum resistance to flowing water. The interior bottom shall be sloped to the outlet.

751-3.3 Precast concrete structures. Precast concrete structures shall conform to ASTM C478. Precast concrete structures shall be constructed on prepared or previously placed slab foundations conforming to the dimensions and locations shown on the plans. All precast concrete sections necessary to build a completed structure shall be furnished. The different sections shall fit together readily. Joints between precast concrete risers and tops shall be full-bedded in cement mortar and shall be smoothed to a uniform surface on both interior and exterior of the structure. The top of the upper precast concrete section shall be suitably formed and dimensioned to receive the metal frame and cover or grate, or other cap, as required. Provision shall be made for any connections for lateral pipe, including drops and leads that may be installed in the structure. The flow lines shall be smooth, uniform, and cause minimum resistance to flow. The metal steps that are embedded or built into the side walls shall be aligned and placed at vertical intervals of 12 inches. When a metal ladder replaces the steps, it shall be securely fastened into position.

751-3.4 Inlet and outlet pipes. Inlet and outlet pipes shall extend through the walls of the structures a sufficient distance beyond the outside surface to allow for connections. They shall be cut off flush with the wall on the inside surface of the structure, unless otherwise directed. For concrete or brick structures, mortar shall be placed around these pipes to form a tight, neat connection.

751-3.5 Placement and treatment of castings, frames, and fittings. All castings, frames, and fittings shall be placed in the positions indicated on the plans or as directed by the Engineer, and shall be set true to line and elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

When frames or fittings are placed on previously constructed masonry, the bearing surface of the masonry shall be brought true to line and grade and shall present an even bearing surface so the entire face or back of the unit will come in contact with the masonry. The unit shall be set in mortar beds and anchored to the masonry as indicated on the plans or as directed by the Engineer. All units shall set firm and secure.

After the frames or fittings have been set in final position, the concrete or mortar shall be allowed to harden for seven (7) days before the grates or covers are placed and fastened down.

751-3.6 Installation of steps. The steps shall be installed as indicated on the plans or as directed by the Engineer. When the steps are to be set in concrete, they shall be placed and secured in position before the concrete is placed. When the steps are installed in brick masonry, they shall be placed as the masonry is being built. The steps shall not be disturbed or used until the concrete or mortar has hardened for at least seven (7) days. After seven (7) days, the steps shall be cleaned and painted, unless they have been galvanized.

When steps are required with precast concrete structures, they shall be cast into the side of the sections at the time the sections are manufactured or set in place after the structure is erected by drilling holes in the concrete and cementing the steps in place.

When steps are required with corrugated metal structures, they shall be welded into aligned position at a vertical spacing of 12 inches.

Instead of steps, prefabricated ladders may be installed. For brick or concrete structures, the ladder shall be held in place by grouting the supports in drilled holes. For metal structures, the ladder shall be secured by welding the top support to the structure and grouting the bottom support into drilled holes in the foundation or as directed by the Engineer.

751-3.7 Backfilling.

a. After a structure has been completed, the area around it shall be backfilled with approved material, in horizontal layers not to exceed 8 inches in loose depth and compacted to the density required in Item P-152. Each layer shall be deposited evenly around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the Engineer.

b. Backfill shall not be placed against any structure until approved by the Engineer. For concrete structures, approval shall not be given until the concrete has been in place seven (7) days, or until tests establish that the concrete has attained sufficient strength to withstand any pressure created by the backfill and placing methods.

c. Backfill shall not be measured for direct payment. Performance of this work shall be considered an obligation of the Contractor covered under the contract unit price for the structure involved.

3 ~~**751-3.8 Crushed Aggregate Base.** When aggregate backfill is required, placement will be as shown on the plans.~~

a. Preparing underlying subgrade and/or subbase. The underlying subgrade and/or subbase shall be checked and accepted by the Engineer before base course placing and spreading operations begin. Scarifying and recompacting a 6" depth, in accordance with P-152, may be required by the Engineer if the Contractor fails to ensure proper drainage or protect the subgrade and/or subbase. Any ruts or soft, yielding areas due to improper drainage conditions, hauling, or any other cause, shall be corrected before the base course is placed.

b. Production. The aggregate shall be uniformly blended and, when at a satisfactory moisture content per paragraph 751-3.8.d, the approved material may be transported directly to the spreading equipment.

c. Placing. The aggregate base material shall be placed on the prepared underlying subgrade and/or subbase and compacted in layers to the thickness shown on the plans. Work shall progress without interruption. The aggregate base course shall be constructed in layers of uniform thickness of not more than 7 inches when compacted. The compacted surface at final grade shall not be higher than the surrounding surface. The aggregate as spread shall be of uniform grading with no pockets of fine or coarse materials. Care shall be taken to prevent cutting into the underlying layer during spreading. No material shall be placed in snow or on a soft, muddy, or frozen course. The aggregate base material shall be spread by equipment approved by the Engineer. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

When more than one layer is required, the construction procedure described herein shall apply similarly to each layer.

d. Compaction. Immediately after completion of the spreading operations, compact each layer of the base course, as specified, with approved compaction equipment. The equipment on site shall be sufficient to compact the material to the required density within the same day that the aggregate is placed on the subgrade. The moisture content of the material during placing operations shall be within ±2 percentage points of the optimum moisture content as determined by ASTM D6938 using Procedure A, the direct transmission method. The machine shall be calibrated per ASTM D6938.

e. Acceptance sampling and testing for density. Aggregate base course shall be accepted for density on a lot basis. A lot will consist of one day's production. The Contractor's laboratory shall perform all density tests in the Engineer's presence and provide the test results upon completion to the Engineer for acceptance on a daily basis.

Each lot shall be divided into two equal sublots. One test shall be made for each sublot and shall consist of the average of two random locations for density determination. Sampling locations will be determined by the Engineer on a random basis per ASTM D3665.

Each lift will be accepted for density when the field density is at least 100% of the maximum density of laboratory specimens. The specimens shall be compacted and tested per ASTM D1557. The in-place field density shall be determined per ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. If the specified density is not attained, the entire lot shall be reworked and/or recompacted and two additional random tests made at the Contractor's expense. This procedure shall be followed until the specified density is reached.

f. Protection. Perform construction when the atmospheric temperature is above 35°F. When the temperature falls below 35°F, protect all completed areas by approved methods against detrimental effects of freezing. Correct completed areas damaged by freezing, rainfall, or other weather conditions to meet specified requirements. When the aggregates contain frozen materials or when

~~the underlying course is frozen or wet, the construction shall be stopped. Hauling equipment may be routed over completed portions of the base course, provided no damage results. Equipment shall be routed over the full width of the base course to avoid rutting or uneven compaction. The Engineer will stop all hauling over completed or partially completed base course when, in the Engineer's opinion, such hauling is causing damage. Any damage to the base course shall be repaired by the Contractor at the Contractor's expense.~~

~~**g. Maintenance.** The Contractor shall maintain the base course in a satisfactory condition until the full pavement section is completed and accepted by the Engineer. The surface shall be kept clean and free from foreign material and properly drained at all times. Maintenance shall include immediate repairs to any defects and shall be repeated as often as necessary to keep the area intact. Any base course that is not paved over prior to the onset of winter shall be retested to verify that it still complies with the requirements of this specification. Any area of base course that is damaged shall be reworked or replaced as necessary to comply with this specification.~~

~~Equipment used in the construction of an adjoining section may be routed over completed base course, if no damage results and the equipment is routed over the full width of the base course to avoid rutting or uneven compaction.~~

~~The Contractor shall remove all survey and grade hubs from the base courses prior to placing any bituminous surface course.~~

3 **751-3.9 Abandon existing structure**. Existing structures shall be modified by removing the top portion as shown on plans and filling with flowable fill per Item P-153 *to the top of the remaining structure. The remainder of the fill is to be placed to the milled surface in accordance with Item P-610 as shown on the plans.*

3 **751-3.10 Remove existing drainage structure**. Prior to the removal of drainage structures, the Contractor shall locate all piping connected to inlets. The Contractor shall cleanly saw cut the pipe prior to removing the structure to ensure a clean separation. The entire structure shall be removed *and backfilled as shown on the plans. Pipe reconnections shall be made as necessary.*

751-3.11 Adjust inlet to grade. Existing inlet structures to be adjusted to grade shall be adjusted as shown on plans.

3 ~~**751-3.12 Existing Structure Modification.** Existing structures shall be modified by constructing a top concrete slab as shown on the plans. All work necessary at existing structures to construct this slab shall be incidental to the item, including removal and disposal of the existing frame, cover, steps, and brick necessary to construct the concrete slab. Aggregate base shall be placed in accordance with paragraph 751-3.8. Asphalt material shall conform to the material and placement requirements in Item P-401.~~

751-3.~~13~~ *12* Cleaning and restoration of site. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. Surplus dirt may be deposited in embankments, shoulders, or as approved by the Engineer. The Contractor shall restore all disturbed areas to their original condition. The Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

METHOD OF MEASUREMENT

751-4.1 New underdrain cleanouts shall be measured per each.

751-4.2 The quantity of existing structures to be abandoned shall be measured on the basis of the number of each item abandoned as shown on the plans. There will be no separate measurement made for grouting

or otherwise plugging holes in the structures that are to remain in place. There will be no separate measurement made for placing or compacting the backfill material.

3 **751-4.3** The quantity of existing structures to be removed shall be measured on the basis of the number of each item removed and disposed. There will be no separate measurement made for grouting or otherwise plugging holes in any pipes that are to remain in place. There will be no separate measurement made for placing or compacting the backfill material. *Reconnection of pipes shall be paid for under Item D-701.*

751-4.4 The quantity of existing inlets to be adjusted to grade shall be measured on the basis of the number of each item adjusted and accepted by the Engineer.

3 ~~**751-4.5** The quantity of structures to be modified with a cover slab shall be measured on a lump sum basis. This item will include all excavation, removal of the existing grate, frame, brick, and steps, backfill, placement of concrete slab, steps, cover, pavement, and grading around the structure as shown on plans.~~

BASIS OF PAYMENT

751-5.1 The accepted quantities of underdrain cleanouts will be paid for at the contract unit price per each in place when completed. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials; furnishing and installation of such specials and connections to pipes and other structures as may be required to complete the item as shown on the plans; and for all labor, equipment, tools and incidentals necessary to complete the structure. This price shall also include the furnishing, placement, maintenance, and removal of steel plates as shown on the plans.

3 **751-5.2** Payment for existing structures to be abandoned shall be made at the contract unit price per each item filled and accepted by the Engineer. This price shall be full compensation for furnishing all labor, equipment, tools, disposal, ~~disconnection of pipes,~~ backfill, ~~restoration (i.e. topsoil, seed, and mulch)~~ and incidentals necessary to complete the item.

3 **751-5.3** Payment for existing drainage structures to be removed shall be made at the contract unit price per each item removed and accepted by the Engineer. This price shall be the full compensation for furnishing all labor, equipment, tools, disposal ~~pipe reconnection~~, backfill, restoration (i.e. topsoil, seed, and mulch) and incidentals necessary to complete the item.

751-5.4 The accepted quantities of existing inlets to be adjusted to grade will be paid for at the contract unit price per each in place when completed. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials; furnishing and installation of such specials and connections to pipes and other structures as may be required to complete the item as shown on the plans; and for all labor, equipment, tools and incidentals necessary to complete the structure.

3 ~~**751-5.5** Payment for the structures to be modified with a cover slab will be paid for at the contract lump sum price in place when completed. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling, placing, and installation of the materials, and for all labor, equipment, tools, and incidentals necessary to complete the structure.~~

Payment will be made under:

Item D-751-5.1	Underdrain Cleanout – per each
Item D-751-5.2	Abandon Existing Structure – per each
Item D-751-5.3	Remove Existing Drainage Structure – per each
Item D-751-5.4	Adjust Inlet to Grade – per each
3 ~~Item D-751-5.5~~	~~Modify Existing Structure with Cover Slab – per lump sum~~

MATERIAL REQUIREMENT

ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A897	Standard Specification for Austempered Ductile Iron Castings
ASTM C32	Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale)
~~ASTM C88~~	~~Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate~~
~~ASTM C117~~	~~Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing~~
~~ASTM C131~~	~~Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine~~ASTM C144 Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C478	Standard Specification for Precast Reinforced Concrete Manhole Sections
ASTM C1433	Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers
~~ASTM D75~~	~~Standard Practice for Sampling Aggregates~~
~~ASTM D1557~~	~~Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3)~~
~~ASTM D2487~~	~~Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System) ASTM D3665 Standard Practice for Random Sampling of Construction Materials~~
~~ASTM D4791~~	~~Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate~~
~~ASTM D5821~~	~~Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate~~
~~ASTM D6938~~	~~Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)~~
AASHTO M36	Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains

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END OF ITEM D-751

CONSTRUCITON PHASING SAFETY PLAN (CSPP)

CONSTRUCTION SAFETY AND PHASING PLAN

PIEDMONT TRIAD AIRPORT AUTHORITY

PIEDMONT TRIAD INTERNATIONAL AIRPORT

RUNWAY 5R-23L REHABILITATION PROJECT – CONSTRUCTION PHASE 3

December 2018

Prepared by:

Michael Baker Engineering, Inc.
200 Centrepoint Drive, Suite 350
Greensboro, North Carolina 27409

Contents

General

This Construction Safety and Phasing Plan (CSPP) was prepared to meet the requirements of FAA Advisory Circular 150/5370-2G, "*Operational Safety on Airports During Construction*" for the Runway 5R-23L Rehabilitation Project – Construction Phase 3, at Piedmont International Airport (GSO). See attached Project Description Plan (Appendix 1) and Project Layout Plan (Appendix 2).

The scope of this project consists of the following elements:

- Rehabilitation of 3,000' of Runway 5R-23L pavement and existing paved shoulders
- An Add Alternate of total rehabilitation of 1,450' of Runway 5R-23L and existing paved shoulders
- Replacement of runway centerline light system including bases, cables, and conduit. Existing fixtures will be reinstalled.
- Replacement of runway edge lighting and threshold lighting system including fixtures, bases, cables and conduit.
- Adjustment of Runway 5R PAPI
- Partial reconfiguration of the Runway 23L touchdown zone lighting homerun conductors
- Pavement marking within paving limits
- Grooving of new runway pavement
- Removal of Taxiway M3
- Abandonment of various drainage structures
- Installation of Runway underdrain within paving limits
- Installation of Erosion and Sedimentation Controls
- Grading, seeding and mulching of infields along runway edge

2.5 Coordination

As the party responsible for airport safety, Piedmont Triad Airport Authority (PTAA) has established and will enforce this CSPP. The Contractor that is awarded the contract will be required to comply with the provisions of this CSPP as a condition of the contract by executing the attached Safety Plan Compliance Document (SPCD). The Contractor shall incorporate into the SPCD details of how it will comply with the CSPP along with any supplemental information that could not be included in this CSPP prior to the award of the contract. The supplemental information in the SPCD must be written to match the format of this CSPP indicating each subject by corresponding CSPP subject number and title. If no supplemental information is necessary for any specific subject, the statement, "No supplemental information," should be written after the corresponding subject title. The SPCD should not duplicate the information in the CSPP.

Coordination of the project will begin with a pre-construction meeting that will be scheduled as soon as practical after the award of the contract, but prior to the Notice-To-Proceed being issued to the Contractor. A pre-paving meeting will be scheduled prior to commencing physical construction of the project to discuss the Contractor's paving plan. The following individuals will be invited to each of these meetings:

- Project Design Engineer
- Project Resident Engineer
- Airport Management (Airport Communications, Airport Operations, Airport Rescue Fire Fighting (ARFF), Police, Maintenance, Engineering)
- Contractor's Testing Laboratory Representative
- Project Resident Engineer's Testing Laboratory Representative
- Contractor, including appropriate Subcontractor(s)
- Contractor's Project Superintendent
- Contractor's Project Clerk
- Local Airport Users, including Airline Representatives and Fixed Base Operators
- Federal, State, or Local Agencies Affected by the Proposed Construction
- Representative of FAA Airports District Office
- Representative of GSO FAA Air Traffic Manager
- Representative of GSO FAA ATO Technical Operations (Tech Ops)

These meetings will be conducted within the guidelines of AC 150/5370-12B, *"Quality Management for Federally Funded Airport Construction Projects."*

2.5.1 Contractor Progress Meetings

Once the construction begins, the Contractor will be required to hold weekly or bi-weekly Progress Meetings to discuss the work accomplished and the work that is anticipated before the next meeting. Airfield safety will be a standing agenda item at each of these meetings. The following personnel will be invited to each meeting from the Airport; Executive Director, Planning and Engineering Project Manager, Deputy Director of Airfield Operations, Airfield Operations Manager, Airport Security Manager.

2.5.2 Scope or Schedule Changes

All changes in the Scope of Work or the schedule will be submitted to PTAA for review and approval, and coordinated with the affected parties prior to being incorporated into the project CSPP revisions.

2.5.3 FAA ATO Coordination

Coordination with the FAA will be done by the Contractor through the Airport to facilitate the anticipated facility shutdowns and restarts.

Airport Operations will coordinate with GSO Air Traffic with respect to phasing and any aircraft movement area closures during the project.

2.6 Phasing

This project involves work on Runway 5R-23L and is to be completed in two separate phases. These phases have been developed in order to reduce the impact on daily airport operations. Detailed Phasing Plans and notes are included in Appendix 3. The project is to be completed in close conformance to the phasing plan and notes as contained in the contract documents.

2.6.1 Phase Elements

Information regarding elements of the project phasing are shown in the project plans and/or specifications as follows:

Sheet G-003, General Notes

- Work zone lighting for nighttime construction (Note 36)

Sheet G-004, Project Description Plan

- Lighting and marking changes

Sheet G-005, Project Layout Plan

- Construction Staging, stockpile, and borrow areas
- Construction access and haul routes

Sheet G-100, Phasing Notes

- Construction Activity Sequencing

Sheets G-101-102, Safety and Phasing Plan

- Areas closed to aircraft operations
- Duration of closures
- Required hazard marking, lighting, and signing

Project specifications

- Lead times for required notifications

2.6.2 Construction Safety Drawings

Additional Safety and Phasing requirements are included on the Phasing Plans (Appendix 3).

2.7 Areas and Operations Affected by Construction Activity

2.7.1 Identification of Affected Areas

All Runway and Taxiway Closures are to be coordinated with the Engineer and ATCT to ensure the impact to the airport is minimized. Throughout the entire duration of Phase I and sub-phase IA, Runway 5R-23L and Taxiways D, K1, K2, K3 M1, M3, M4 west of Taxiway M, and M5 and M between M2 and M4 will be closed to aircraft traffic. In Phase II, Taxiways D, K2, M1, M4 west of Taxiway M, and M between M2 and M4 will be closed to aircraft traffic. Taxiway K1 will be closed during work hours and opened at the end of each shift. Taxiway M3 will no longer exist.

All construction activity shall be coordinated between the contractor, engineer, ARFF and airport personnel to minimize disruptions. The contractor is responsible for verifying all underground utilities with North Carolina 811 (811 or 1-800-632-4949) before the start of any construction.

2.7.2 Mitigation of Effects

The impacts described in Section 2.7.1 for Phases I and II will be mitigated by coordinating the work in the vicinity of Runway 5R-23L between Airfield Operations, the Contractor, the Engineer, and the Air Traffic Control Tower. The runway closure is to be coordinated with the Engineer to ensure the impact to the airport is minimized.

2.8 Navigational Aid (NAVAID) Protection

During construction, the ILS equipment shutdowns will be coordinated by the Contractor through the Engineer, Airport, and FAA Technical Operations. The 23L glide slope, 5R localizer/glide slope and 23L PAPI, 5R MALSR, and ALSF-2 will be shut down for the duration of Phase I. When Runway 5R-23L is opened for nightly operations in Phase II, the NAVAIDs will be shut down during closure and reenergized when the Runway is opened at the end of each work shift. The 5R PAPI will be out of service for adjustment in Phase I. All shut downs and restoration of service will be performed by FAA Technical Operations Personnel.

2.9 Contractor Access

The Contractor shall access the work areas following airport security procedures at one location as indicated on the attached Project Layout Plan (Appendix 2). No prohibited items (weapons, oxygen/acetylene tanks, welding equipment, or other tools not required for work on the project) are to be in the vehicles brought in to the Air Operations Area (AOA). The Contractor shall provide security-trained gate guards at the access point when construction personnel require access to the AOA through each the designated gate. The only exception to this are those times when the number of personnel is small enough that the job foreman can readily identify and observe all personnel on the project site and the gate will be locked once all personnel have entered the AOA.

2.9.1 Location of Stockpiled Construction Materials

All stockpiled construction materials shall be in the Contractor's Staging Area shown on the attached Project Layout Plan. All materials shall be stored in a manner to prevent Foreign Object Debris (FOD) within and around the Airport as indicated in Section 2.11. All materials shall also be stored in a manner as to not attract wildlife within and around the Airport, as indicated in Section 2.10.

2.9.2 Vehicle and Pedestrian Operations

Contractor's personnel vehicles that are not required on the project site shall be parked in the Contractor's Staging Areas shown on the attached Project Layout Plan or in areas designated by PTAA prior to the start of construction. During Phase I, specialty equipment that is significantly complex to set up or break down may be left on the Runway at the end of each shift. At the end of each shift, the equipment must be parked in an area within the project limits as directed by the Engineer and must be lit in such a way that shows the vehicle. During Phase II, construction equipment must be returned and stored in the Contractor's staging areas at the end of each shift.

Vehicles operating on the AOA must display company identification and be marked and lighted per AC 150/5210-5D, "*Painting, Marking, and Lighting of Vehicles Used on Airports*," including a yellow, 360-degree rotating beacon, and orange and white checkered flags. Yellow beacons must be used at night and at other times of low visibility.

All unescorted drivers must complete GSO specific AOA driver training. Any individual who will be driving unescorted in the non-movement area (ramp) must complete the computerized ramp driver training; any individual who will be driving unescorted in the movement area (taxiways and runway) must complete AOA movement area driver training with Airport Operations.

At all times, vehicles must yield to aircraft under power, aircraft being towed, and emergency response vehicles.

2.9.3 Two-Way Radio Communication

The Contractor shall provide radio escorts while working on the AOA at all times. The Contractor shall have on site at all times while on the AOA a minimum of two escort personnel, who have passed the GSO driving training, to coordinate all movements within the AOA movement area with the Air Traffic Control Tower (ATCT). At no time shall the Contractor move from the work site without being escorted.

2.9.4 Airport Security

Everyone is responsible for security. The Contractor is responsible to notify the Airport Authority when security-related facilities and equipment within their work area is malfunctioning or are no longer adequate to perform the control function they were intended to perform. All badged employees are responsible for challenging unidentified persons or ground vehicles that are not displaying the appropriate permit and/or ID medium and must report incidents to Airport police at 336-665-5642. The Contractor is responsible for the access point under their control as stated in paragraph 2.9.

Prior to beginning work that requires access within a security-controlled area of the airport, the Contractor must attend a pre-construction meeting with PTAA staff and complete a "Notice of Contractor Work" form (provided in Appendix B of the Technical Specifications) before access area ID cards or access keys are issued to the Contractor.

A contractor primary and alternate security representative will be assigned to coordinate with PTAA Planning and Engineering Department for the issuance and return of GSO ID badges to the Contractor. The Contractor's security representative will provide a list to the Planning and Engineering department of all Contractor personnel that will require a GSO issued ID badge. As the project progresses, the security representative will maintain this list by adding or deleting employees, reporting lost or stolen badges, and coordinating all other security issues that may be required.

All contractor employees shall display security badges at all times while working within the AOA, or be escorted by a badged employee. One badged employee may be responsible for no more than five un-badged employees. Escorts must have the un-badged individuals under their continual visual control. Badged employees who forget their badges may not be escorted by another badged employee; they must obtain a one-day badge at the airport police office. One-day badges must be returned to the police office at the end of the work day.

Lost, stolen, or misplaced ID badges and keying devices must be immediately reported to the Airport Authority ID badging office at 336-665-5689 during normal work hours or Airport Communications at 336-665-5642 during non-working hours, weekends, and holidays.

Security violations including but not limited to: improper access or allowing unauthorized access into a Secured Area, failure to display one's GSO ID badge, use of another person's GSO ID badge, permitting use of one's own GSO ID badge by another person, unauthorized testing, tampering or vandalism of a checkpoint, screening, or security system, and failure to remain at an activated alarm door for law enforcement response will be penalized by one or more of the following: badge suspension, retraining, badge revocation or fines. Notifications of each violation will be sent to the employee's supervisor.

For other GSO specific requirements, forms, and penalties, see Appendices A and B, "Airport Badging Requirements" and "Contractor Guidelines" of the Technical Specifications.

2.10 Wildlife Management

Wildlife can be a very serious hazard within the AOA. Therefore, precautions must be taken to mitigate the following elements that attract wildlife.

2.10.1 Trash

All trash, including food scraps, generated by the Contractor from the construction activities or the activities of the Contractor's personnel shall be collected and placed in a container that prevents animals from rummaging through it. This container shall be emptied before it becomes full.

2.10.2 Standing Water

During the construction the Contractor shall ensure that there is no standing water within the work site and within the staging areas.

2.10.3 Tall Grass and Seeds

Any area that has become disturbed by the Contractor shall become the responsibility of the Contractor until vegetation has been established and accepted. Only the seed indicated in the project documents shall be allowed for use in and around the Airport. The maintenance of the turf areas shall be coordinated with the Engineer and Airport at the progress meetings.

2.10.4 Poorly Maintained Fencing and Gates

Access to the AOA will be through existing gates in the airport security fence. There will be no temporary fence or gates installed as part of this project.

2.10.5 Disruption of Existing Wildlife Habitat

It is not anticipated that existing wildlife habitat will be disrupted during the construction of this project.

2.11 Foreign Object Debris (FOD) Management

Foreign Object Debris (FOD) is a serious hazard on the AOA. It can cause serious damage to aircraft, equipment, or personnel. FOD can also lead to serious accidents resulting in injury or death. Sources of FOD include but are not limited to material containers, tools, and food/beverage containers.

The Contractor shall instruct all personnel to recognize FOD and the hazards it presents and provide receptacles for FOD collection throughout the project's duration. The Contractor shall conduct all

operations in a manner to prevent FOD, which include materials such as bituminous millings, material containers, and other such items. These items shall be cleaned up as they are produced, and placed in a secure location or receptacle where they will not be subject to wind or other means of dispersal within the AOA. Before leaving the site at the end of each work period the Contractor is required to inspect the area and clear it of any FOD. The Contactor shall be required to have a vacuum sweeper with plastic brushes (steel is not permitted) and an operator on site and ready at all times during construction activities to remove FOD.

2.12 Hazardous Materials (HAZMAT) Management

Management of hazardous material is required in order to prevent environmental damage as well as to protect property and personnel.

Hazardous materials common to construction sites include vehicle fuels, oils, lubricants, and hydraulic fluid as well as many materials/compounds used for the actual construction of the work.

The Contractor shall store all such materials in containers approved for such use, shall have the Material Safety Data Sheets (MSDS) on site for all such materials, and shall have cleanup materials recommended by the MSDS on site and readily available for use in the event of a spill. All materials shall be used in strict accordance to the manufacturer's instructions and should be prepared to meet inspection at any time.

Transfer of materials from one container to another shall be done in areas where a spill is least likely to cause damage such as away from streams, storm sewer inlets, etc. Fueling of vehicles and equipment shall be done at designated areas within the staging areas shown on the attached Project Layout Plan. No fueling shall occur in areas inside the AOA, such as runways, taxiways, or aprons outside of the staging areas.

Appropriate spill kits shall be available for all refueling operations. All contaminated materials from used spill kits shall be removed from the site and properly disposed of immediately after use.

Any spill, regardless of size, must be reported to the Airport. The Airport's Spill Prevention, Control and Countermeasures Plan is included in Appendix F of the technical specifications.

2.12.1 Cleanup-General

The following instructions are taken from AC 150/5320-15A, *"Management of Airport Industrial Waste'"* and the Airport's spill management plan should be followed in the event of a hazardous spill:

Clean up leaks and spills immediately. Use a rag, absorbent pad, or other suitable material for small spills on paved surfaces, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to either a certified laundry (rags) or disposed of as hazardous waste in designated areas. Never hose down or bury dry material spills. Clean up as much of the material as possible and properly dispose of legally off airport property.

Refer to the PTAA Spill Prevention, Control and Countermeasures Plan or contact Airport Communications at 336-665-5642 for additional instructions.

2.12.2 Minor Spills

Minor spills typically involve small quantities of oil, gasoline, paint, etc. which can be controlled by the first responder at the discovery of the spill. This response may require the cessation of all other activities. The Contractor shall immediately notify Airport Communications at 336-665-5642.

- Contain the spread of the spill.
- Notify the project foreman immediately.
- Use absorbent materials on small spills – DO NOT hose down or bury the spill. Recover spilled materials.
- Absorbent materials should be promptly removed and properly disposed of legally off airport property.
- Clean the contaminated area and properly dispose of contaminated materials legally off airport property.

2.12.3 Semi-Significant Spills

Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities. The Contractor shall immediately notify Airport Communications at 336-665-5642 who may contact Guilford Metro/ 911.

- Contain the spill.
- Notify the project foreman immediately.
- If the spill occurs on paved or impermeable surfaces, clean it up using “dry” methods (absorbent materials) and do not let the spill spread widely.
- If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soils.
- If the spill occurs during rain, cover the spill with tarps or other material to prevent contaminating runoff.

2.12.4 Significant/ Hazardous Spills

For significant or hazardous spills that cannot be controlled by personnel in the immediate vicinity, the following steps should be taken:

- The Contractor shall immediately notify Airport Communications at 336-665-5642 and the Guilford Metro/911.
- The Airport will notify the proper county officials as per the spill plan.
- The construction personnel should not attempt to clean up the spill until the appropriate and qualified staffs have arrived at the spill site.
- The Contractor shall complete the airport’s spill form written report.
- The services of a spill contractor or a HAZMAT team should be obtained immediately, and such response will be coordinated between the Airport and the Contractor.

2.12.5 Reporting

The Contractor must report significant spills to the Airport and shall comply with all Airport reporting requirements outlined in the Airport's Spill Prevention, Control and Countermeasures Plan.

Federal regulations require that any significant oil spill into a water body or onto adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hours). The Contractor will make any required notifications and notify the airport when this has been done.

2.13 Notification of Construction Activities

The Contractor shall coordinate all construction activities with the Engineer at the weekly progress meetings. Prior to any airfield closure, the Contractor shall notify the Engineer 72 hours in advance.

2.13.1 List of Responsible Representatives

A contact list will be developed prior to the start of the project and must be updated as needed by both the Airport and the Contractor. This list will be provided to Airport Operations, Airport Communications, Airport Planning & Engineering, ARFF, the Project Resident Engineer/Inspector, and the Project Design Engineer.

The contact list will include at a minimum both emergency and routine phone numbers for at least three on-site contractor personnel who will be available 24 hours a day, and the following airport staff:

- Deputy Director of Facilities (Mike Kuhn).....336-665-5633
- Deputy Director of Public Safety and Security (Mike Wood).....336-665-5629
- Deputy Director of Airfield Operations (Chris Bishop).....336-665-5625
- Airport ID Badging Supervisor (Annie White).....336-665-5689
- Airport Security Manager (Michael Maul).....336-665-5638
- Airport Police 24/7.....336-665-5642
- Medical Emergencies.....911

2.13.2 NOTAMs

All NOTAMs shall be issued by Airport Operations to provide anticipated notice of construction and phase durations for the project. Airport Operations will advise the Contractor of any activities for which NOTAMs must be issued, and the Contractor shall not initiate such activities until it is advised by Airport Operations that the NOTAM has been issued.

2.13.3 Emergency Notification Procedures

For fire and emergency medical response, call 911. For police emergencies, call 336-665-5642.

2.13.4 Coordination with ARFF

The Contractor will coordinate with the ARFF fire chief (336-665-5642) with respect to the impact of construction phasing with respect to ARFF operations and notify the Airport when this has been done. The Contractor shall advise Airport Operations of changes to its work or the character of the work to be done well in advance so that any impact to ARFF operations is mitigated.

2.13.5 Notification to the FAA

The FAA will be notified of the construction activities and the impact to the airfield via FAA Form 7460-1, "*Notice of Proposed Construction or Alternation"*, which will be submitted to the FAA Airports Regional or District Office. The Contractor shall file a separate FAA Form 7460-1, if it intends to erect a batch plant on site.

The notification of any FAA facility shut downs will be made by the Airport as needed. The Contractor shall provide at least a 7-day notification to the Airport of when the phase requiring FAA facility shut downs is anticipated to begin.

FAA Air Traffic and FAA Technical Operations will be invited to the weekly progress meeting and will be provided a construction schedule, amended as necessary, throughout the project.

2.14 Inspection Requirements

This project is subject to inspections by the FAA, Airport, Engineer, NCDOT Division of Aviation, North Carolina Department of Environmental Quality Energy, Mineral and Land Resources Division (NCDEQ DEMLR), and Guilford County Permitting and Inspections at any time during the construction. In addition, the Contractor shall designate an employee as a safety officer whose duty shall be to periodically inspect the work area with respect to safety issues.

2.14.1 Daily Inspections

Airport representatives will meet the Contractor at the beginning and the end of each work day/shift to make sure that the required safety measures (barricades and lighted X's) are in place. In addition, these inspections will also verify that all lights are operating as required, identify any NOTAMs that need to be issued, discuss any impact on AOA marking, lighting, or signage, identify any hazards such as open trenches or other non-compliant Part 139 conditions, identify FOD issues, etc. The Contractor may not begin work at the beginning of the day nor may they vacate the AOA at the end of the work day until a sign-off is completed by a designated Airport representative.

2.14.2 Interim Inspections

One interim inspection is anticipated for the acceptance of the work in Phase I, prior to issuing the Notice to Proceed for Phase II.

2.14.3 Final Inspections

The Airport will coordinate with the FAA Airport Certification Safety Inspector (ACSI) to determine if a final inspection of the work area will be necessary.

2.15 Underground Utilities

The known utilities that traverse the site are shown on the contract documents. The Contractor shall contact the North Carolina 811 System at 1-800-632-4949 or 811 at least three days prior to the beginning of any work, and coordinate with the Engineer to locate any other utilities that traverse the site, including Airport and FAA owned utilities, prior to beginning any work on the site. In the event that a utility is damaged, the Contractor shall immediately notify the Engineer, and immediately begin to repair the utility. This repair shall be performed continuously until complete.

2.16 Penalties

Security related violations will result in the temporary suspension or revocation of an employee's Security ID Badge and are outlined in Paragraph 2.9.4. Other safety related violations of airport rules and regulations may result in temporary or permanent suspension of work or removal of the individual from the project. Certain violations could also result in fines being levied by the FAA and/or the Transportation Safety Administration.

2.17 Special Conditions

Contractor access may be restricted during times of poor weather conditions, during emergencies, security breaches, or safety violations. Notification will be made by Airport Operations to the Engineer and the Contractor. Work may not resume until notification from Airport Operations is received.

2.18 Runway and Taxiway Visual Aids

During construction, it will be necessary to completely close Runway 5R-23L. De-energizing of visual aids during construction are identified on the Phasing Plans (Appendix 3).

2.18.1 General

Airport marking, lighting, signage, and visual NAVAIDs must be clearly visible to pilots, and not misleading, confusing, or deceptive. All must be secured in place to prevent movement by prop wash, jet blast, wing vortices, or other wind currents and constructed of materials that would minimize damage to an aircraft in the event of inadvertent contact.

The Contractor shall at all times protect and avoid interfering with the items above. If the Contractor has reason to believe that his work may interfere with any of the items above that are not indicated on the attached Phasing Plans, it shall call this to the attention of the Engineer and await instructions before proceeding with the work.

The Contractor shall immediately notify the Engineer if and when any of the above items are damaged.

2.18.2 Markings

Taxiways that will remain closed for the duration of Phase II will not be temporarily painted with the Runway in Phase I to prevent aircraft from traveling onto closed pavement. Taxiway closure markers constructed of fabric will be placed on the runway side of the taxiways that will remain closed when the Runway is open as shown in the Phasing Plans (Appendix 3). During the extended Runway closure in Phase I, Runway closure markers constructed of fabric will be placed on the Runway designators. Dimensions of these closure markers shall be in accordance with the Phasing Plans.

When a runway is to be closed for more than 2 hours, a lighted X will be erected on each runway as shown in the Phasing Plans and remain in place and operational until the runway is reopened. Markings shall be in accordance with AC 150/5340-1L or most current version. Barricades, lighted Xs, and taxiway/runway closure markers are described in more detail in Appendix 5.

2.18.3 Signs

Since Taxiway M3 is being permanently removed, airfield signage associated with Taxiway M3 will also be removed during this rehabilitation project. It is not anticipated that any other sign work will be required.

2.18.4 Lighting

All airfield lighting in closed portions of taxiways will be obscured while the taxiway section is closed.

All new airfield lighting shall conform to AC 150/5340-30, most current version, "Design and Installation Details for Airport Visual Aids", AC 150/5345-50, most current version, "Specification for Portable Runway and Taxiway Lights", and AC 150/5345-53, most current version, "Airport Lighting Certification Program".

2.19 Marking and Signs for Access Routes

There is one access point to the AOA and one haul route within the AOA for this project. The Contractor will need to coordinate vehicle directional signage from the designated entry point along the haul route to the project area as required by the Airport. These signs shall comply with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or NCDOT highway specifications.

The Contractor shall provide flagmen and/or mark the haul route with signs and a line of barricades as described in Section 2.20.

2.20 Hazard Marking, Lighting, and Signing

2.20.1 Purpose

The Contractor shall place low profile barricades to ensure that aircraft do not enter a closed taxiway or runway, or a vehicle does not enter a hazardous area such as open trenches, small areas under repair, stockpiled material, and waste areas.

2.20.2 Low-Profile Barricades

Barricades shall be low profile and of the type detailed on the attached Phasing Plans. The spacing of the barricades shall be continuous unless indicated otherwise, or as directed by the Engineer or airport personnel. Each barricade shall be striped orange and white per the detail on the plans and be equipped with two flashing red lights visible from 360 degrees. The lights must remain operational during times of reduced visibility and from dusk to dawn. Each barricade shall be weighed down by the use of orange or white sandbags to prevent dislocation by wind, jet blast, or prop wash.

Supplemental barricades with signs shall be provided by the Contractor as required by the Airport.

No barricades shall be placed within 250 feet of an active runway or 160 feet of an active taxiway centerline.

All barricades and associated lighting erected by the Contractor shall be maintained by the Contractor and shall be repaired and/or replaced immediately as required. The Contractor shall identify a person on call 24 hours a day for emergency maintenance of barricades.

2.20.3 Temporary Airfield Signage

Temporary signage will be erected at the AOA access points for the duration of the project. The locations are shown on the Phasing Plans in Appendix 3. These signs will read: "AIRCRAFT MOVEMENT AREA: DO NOT CROSS WITHOUT PERMISSION FROM TOWER". The purpose of the signs is to prevent incursions of the AOA (including active Runways) by the Contractor. The signs must be portable and constructed in accordance with AC 150/5370-2G and Engineering Brief #93: Guidance for the Assembly and Installation of Temporary Orange Construction Signs. More information on the temporary signs is in Appendix 5.

2.20.4 Personnel Safety

Personnel on the construction site must wear reflective vests or safety green outer garments (t-shirts, coats, etc.). Personnel are strongly encouraged to wear ear protection when operating near aircraft noise.

2.21 Work Zone Lighting for Nighttime Construction

Lighting equipment must adequately illuminate the work area if construction is to occur during nighttime hours. The minimum illumination level required for nighttime paving is 20 horizontal foot-candles and must be maintained in the areas identified in AC 150/5370-10, most current version. Light towers should be positioned and adjusted to aim away from the ATCT and active runways to prevent blinding effects.

2.22 Protection of Runway and Taxiway Safety Areas

2.22.1 Runway Safety Area (RSA)

The Runway Safety Area (RSA) at GSO is 500 feet in width, centered on the runway centerline. The RSA extends 1000 feet beyond the runway departure ends.

The Contractor is not permitted to work within the RSA of an active runway. When work is required in the RSA the runway will be closed. There will be no stockpiling of material in the RSA at any time.

There will be no excavation permitted in an active RSA. If the runway must be opened prior to backfilling the excavation, the excavation must be covered in a manner to allow a Boeing 777 to safely traverse the excavation in accordance with AC 150/5320-6, most current version, "*Pavement Design*." In addition, the RSA should be free of FOD, personnel, ruts, holes, or drop-offs greater than three inches.

2.22.2 Runway Object Free Area (ROFA)

The Runway Object Free Area (ROFA) at GSO is 800 feet in width, centered on the runway centerline. The ROFA extends the same length as the RSA as described in Paragraph 2.22.1.

The Contractor will be permitted to work within an active ROFA, but not the RSA as indicated in Section 2.22.1. However, all equipment will be removed from the ROFA during times when the Contractor is not working. There will be no stockpiling of material permitted in the ROFA at any time.

2.22.3 Taxiway Safety Area (TSA)

The Taxiway Safety Area (TSA) at GSO extends for a distance of 69.5 feet from the edge of the taxiway.

The Contractor is not permitted to work within the TSA of an active taxiway at any time. As shown on the attached Phasing Plans, temporary taxiway closures have been included to allow the Contractor to work within the TSA.

There will be no excavation permitted in an active TSA. If the taxiway must be opened prior to backfilling the excavation, the excavation must be covered in a manner to allow a Boeing 777 to safely traverse the excavation in accordance with AC 150/5320-6, most current version, "*Pavement Design*." In addition, the TSA should be free of FOD, personnel, ruts, holes, or drop-offs greater than three inches.

2.22.4 Taxiway Object Free Area (TOFA)

The Taxiway Object Free Area (TOFA) at GSO extends for a distance of 122.5 feet from the edge of the taxiway. The Contractor will not be permitted to work within an active TOFA at any time.

The Contractor is not permitted to work within the TOFA of an active taxiway at any time. As shown on the attached Phasing Plans, temporary taxiway closures have been included in the phasing plan to allow the Contractor to work within the TOFA.

2.22.5 Runway Obstacle Free Zone (OFZ)

The Runway Obstacle Free Zone (OFZ) at GSO is 400 feet in width centered on the runway centerline and extends 200 feet beyond each end of the runway. There will be no work within the OFZ while the runway is open to aircraft.

2.22.6 Runway Approach/Departure Areas and Clearways

There will be no work within the approach or departure areas of an active runway. When there is work within these areas the affected runways will be closed to aircraft traffic.

2.23 Other Limitations on Construction

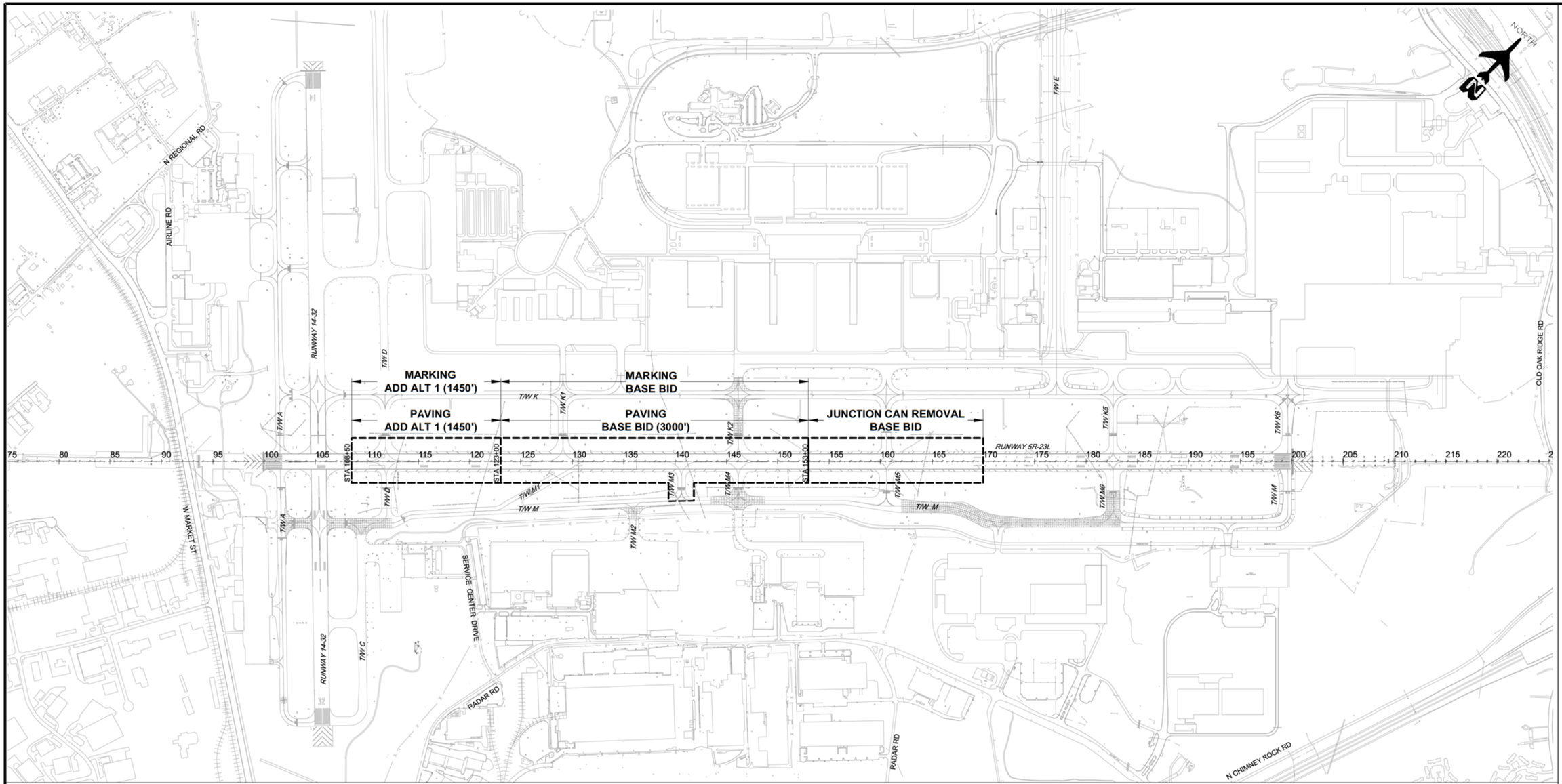
2.23.1 Prohibitions

- The Contractor shall not be permitted to use equipment that is over 30 feet in height.
- Smoking is not permitted anywhere on the AOA at any time.
- Hot work permits must be obtained from Mike Kuhn (336-665-5633) for any work involving an open flame.
- Electrical blasting caps on or within 1,000 feet of airport property are not permitted.
- Flare pots will not be permitted.

2.23.2 Restrictions

- Work may be temporarily restricted when conditions described in section 2.17 occur.
- The hours the work area is available to the Contractor vary for each phase of construction. During Phase I, the Contractor will have access to the work area 24 hours per day. During Phase II, the Contractor will have access to the work area from 7 am to 9 pm daily or as coordinated and approved by PTAA.

APPENDIX 1
PROJECT DESCRIPTION PLAN



BASE BID (STA: 153+00 TO STA: 123+00) WILL CONSIST OF:

- REHABILITATION OF RUNWAY 5R-23L (3,000 FEET)
- REPLACEMENT OF THE RUNWAY CENTERLINE LIGHT SYSTEM INCLUDING BASES, CABLES, AND CONDUIT. REINSTALL EXISTING FIXTURES.
- REPLACEMENT OF THE RUNWAY EDGE LIGHTING SYSTEM INCLUDING FIXTURES, BASES, CABLES AND CONDUIT
- REHABILITATION OF EXISTING PAVED RUNWAY SHOULDERS.
- PAVEMENT MARKINGS WITHIN THE LIMITS OF CONSTRUCTION, INCLUDING TAXIWAY CONNECTOR CENTERLINES
- INSTALLATION OF EROSION AND SEDIMENTATION CONTROLS
- GRADING, SEEDING AND MULCHING ALONG RUNWAY EDGES
- EXISTING STRUCTURE ABANDONMENT, ADJUSTMENT, REMOVAL AND/OR REPLACEMENT
- INSTALLATION OF UNDERDRAIN AND LIGHTING SYSTEM DRAIN LINES
- REMOVAL OF TAXIWAY M3
- REMOVAL OF ABANDONED JUNCTION CANS FROM STA: 153+00 TO STA: 170+00

ADD ALTERNATE 1 (STA: 123+00 TO STA: 108+50) WILL CONSIST OF:

- REHABILITATION OF RUNWAY 5R-23L (1,450 FEET)
- REPLACEMENT OF THE RUNWAY CENTERLINE LIGHT SYSTEM INCLUDING BASES, CABLES, AND CONDUIT. REINSTALL EXISTING FIXTURES
- REPLACEMENT OF THE RUNWAY EDGE LIGHT SYSTEM INCLUDING FIXTURES, BASES, CABLES, AND CONDUIT
- PAVEMENT MARKINGS WITHIN THE LIMITS OF CONSTRUCTION, INCLUDING TAXIWAY CONNECTOR CENTERLINES
- REHABILITATION OF EXISTING PAVED RUNWAY SHOULDERS
- INSTALLATION OF EROSION AND SEDIMENTATION CONTROLS
- GRADING, SEEDING AND MULCHING ALONG RUNWAY EDGES
- EXISTING DRAINAGE STRUCTURES TO BE ABANDONED
- INSTALLATION OF UNDERDRAIN

500 250 0 500
SCALE IN FEET

REVISIONS			
NO.	DATE	BY	DESCRIPTION

PIEDMONT TRIAD INTERNATIONAL AIRPORT
PIEDMONT TRIAD
AIRPORT AUTHORITY
1000A Ted Johnson Parkway
Greensboro NC 27409
OFC: (336) 665-5600
FAX: (336) 665-5694
www.flyfrompti.com

PIEDMONT TRIAD INTERNATIONAL AIRPORT
RUNWAY 5R - 23L REHABILITATION - CONSTRUCTION PHASE 3

PROJECT DESCRIPTION PLAN

KWO	KWO
DESIGNED	DRAWN
CAR	HVH
CHECKED	APPROVED

Michael Baker
INTERNATIONAL
www.mbakerintl.com
MICHAEL BAKER
ENGINEERING, INC.
200 Centreport Dr.
Suite 350
Greensboro,NC 27409
OFC: (336) 931-1500
FAX: (336) 931-1501

DATE: NOVEMBER 12, 2018

SCALE: AS SHOWN

SHEET

G-004

IF THIS DRAWING IS LESS THAN 22" x 34", IT IS A REDUCED SIZE DRAWING

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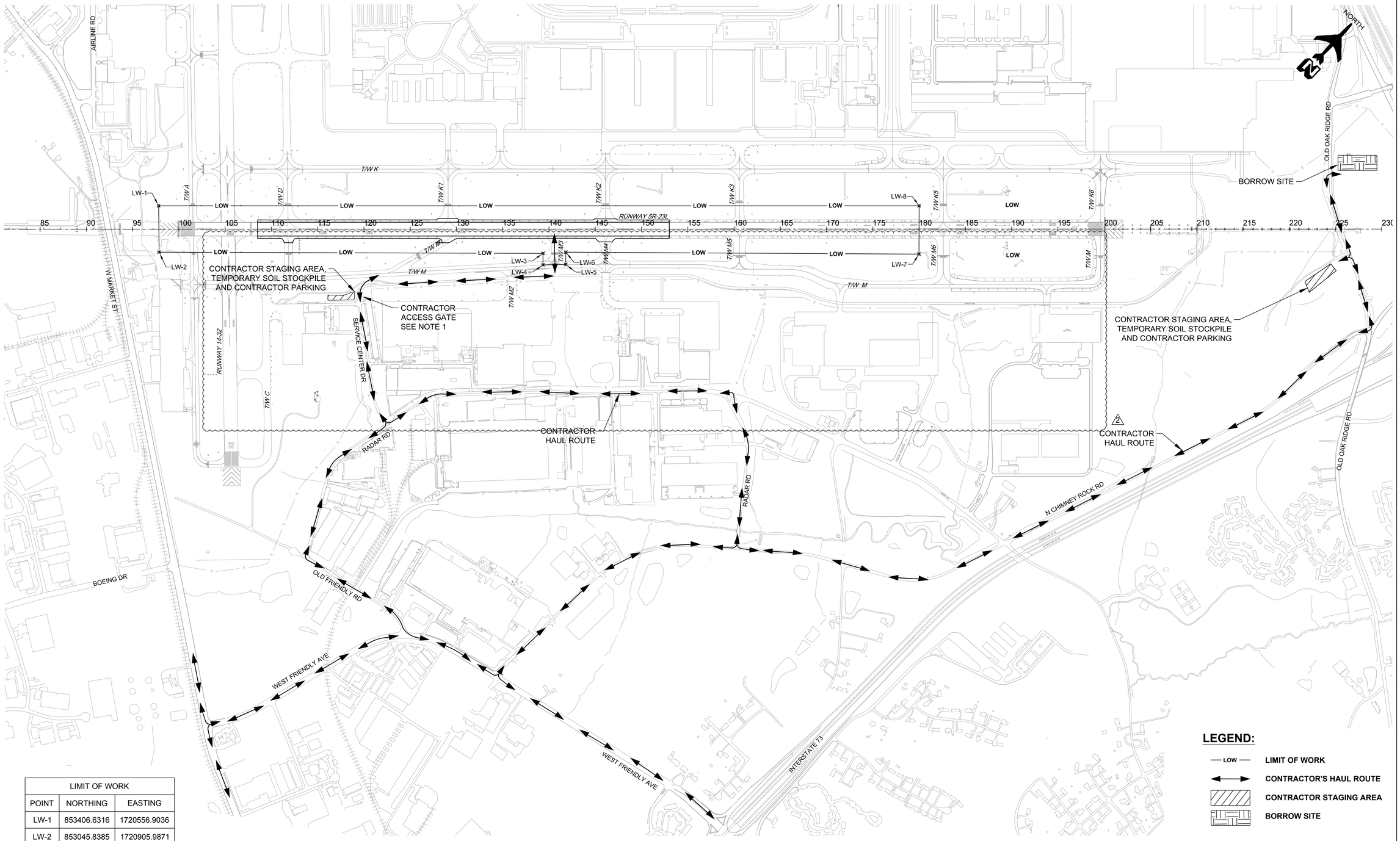
APPENDIX 2
PROJECT LAYOUT PLAN



LIMIT OF WORK		
POINT	NORTHING	EASTING
LW-1	853406.6316	1720556.9036
LW-2	853045.8385	1720905.9871
LW-3	855890.4431	1723926.6014
LW-4	855799.9083	1724012.3956
LW-5	855972.7060	1724188.3348
LW-6	856069.4032	1724096.7008
LW-7	858679.9643	1726881.4084
LW-8	859060.3829	1726523.1052

NOTES:

1. THE CONTRACTOR'S ACCESS TO THE AOA SHALL BE VIA THE DESIGNATED GATES SHOWN ON PLANS. GATE GUARDS MUST BE PROVIDED WHILE THE CONTRACTOR IS WORKING. ALL GATES MUST BE CLOSED AND LOCKED WHEN NO GUARD IS PRESENT.
2. HAUL ROUTES AND STAGING AREAS SHALL BE MAINTAINED BY THE CONTRACTOR AND RESTORED TO THE SITE'S ORIGINAL CONDITION UPON COMPLETION OF USE.
3. THE CONTRACTOR'S USE OF THE HAUL ROUTE AND ACCESS ROAD SHALL IN NO WAY HINDER THE SAFE AND UNOBSTRUCTED FLOW OF AIRPORT TRAFFIC. AIRCRAFT WILL HAVE THE RIGHT OF WAY AT ALL TIMES.
4. CONTRACTOR SHALL PLACE 4" OF WASHED ROCK UNDER STAGING AREA PRIOR TO USE. CONTRACTOR SHALL RESTORE STAGING AREA TO ORIGINAL CONDITION AT PROJECT COMPLETION.

LEGEND:

- LOW — LIMIT OF WORK
- CONTRACTOR'S HAUL ROUTE
- CONTRACTOR STAGING AREA
- BORROW SITE

500 250 0 500
SCALE IN FEET

REVISIONS			
NO.	DATE	BY	DESCRIPTION
2	11/30/18	HVH	ADDENDUM NO. 2
3	12/7/18	HVH	ADDENDUM NO. 3

PIEDMONT TRIAD INTERNATIONAL AIRPORT
PIEDMONT TRIAD AIRPORT AUTHORITY
1000A Ted Johnson Parkway
Greensboro, NC 27409
OFC: (336) 665-5600
FAX: (336) 665-5694
www.flyfrompti.com

PIEDMONT TRIAD INTERNATIONAL AIRPORT
RUNWAY 5R - 23L REHABILITATION - CONSTRUCTION PHASE 3

PROJECT LAYOUT PLAN

NORTH CAROLINA PROFESSIONAL SEAL 047722 ENGINEER HAROLD VANROE HONEY

KWO	KWO
DESIGNED	DRAWN
CAR	HVH
CHECKED	APPROVED

Michael Baker INTERNATIONAL
www.mbakerintl.com
MICHAEL BAKER ENGINEERING, INC.
200 Centreport Dr.
Suite 350
Greensboro,NC 27409
OFC: (336) 931-1500
License: F-1084

DATE: NOVEMBER 12, 2018

SCALE: AS SHOWN

SHEET
G-005

IF THIS DRAWING IS LESS THAN 22" x 34", IT IS A REDUCED SIZE DRAWING

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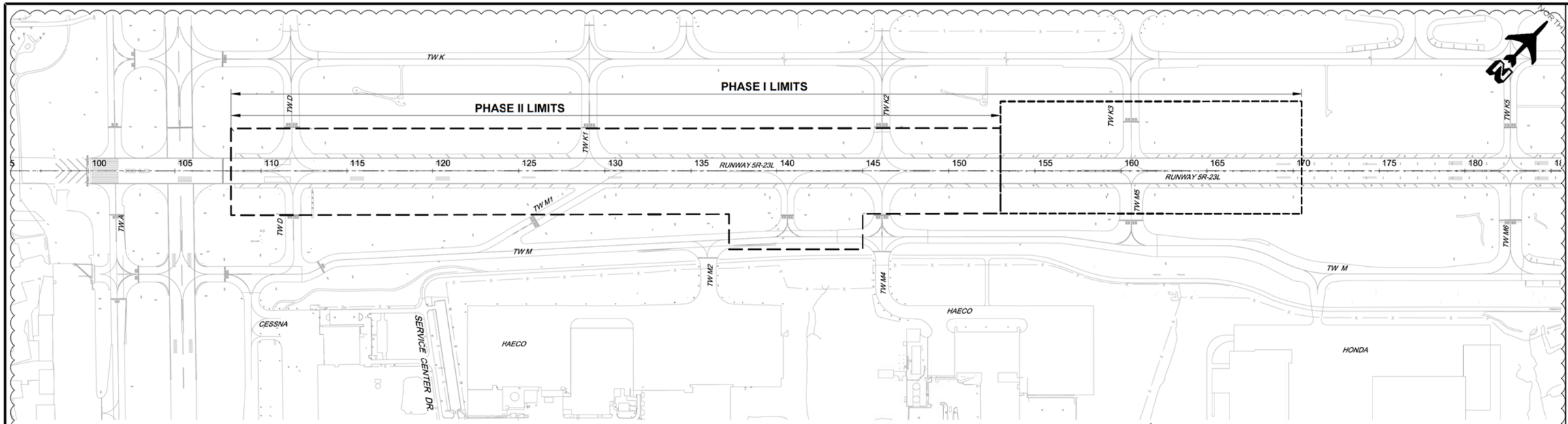
APPENDIX 3
PHASING PLANS



GENERAL PHASING NOTES

TOTAL PROJECT DURATION: 212 CALENDAR DAYS FOR THE BASE BID; IF ADD ALTERNATE 1 IS AWARDED, 22 ADDITIONAL DAYS WILL BE ADDED

THIS PROJECT IS TO BE COMPLETED IN 2 PHASES AS SHOWN ON SHEETS G-101 AND G-102.

THE AIRFIELD LIGHTING AND NAVAIDS ASSOCIATED WITH THE CLOSED AIRFIELD PAVEMENT SHALL BE DE-ENERGIZED WHEN THE PAVEMENT IS CLOSED. THE LIGHTING AND NAVAIDS SHALL BE RE-ENERGIZED WHEN THE CLOSED PAVEMENT IS OPENED TO AIRCRAFT TRAFFIC.

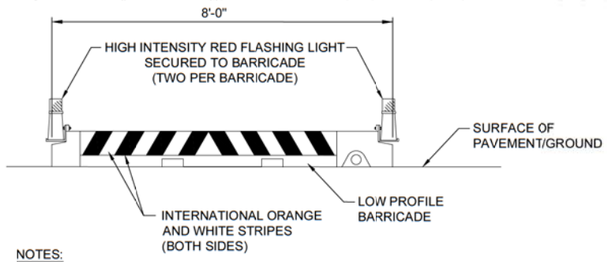
CONTRACTOR MAY SUBMIT A SCHEDULE WITH A DIFFERENT PHASING PLAN, BUT IT MUST BE APPROVED BY THE ENGINEER IN WRITING.

PRE-CONSTRUCTION PHASE (95 CALENDAR DAYS)

NO PHYSICAL WORK ON THE AIRFIELD IS TO BE PERFORMED DURING THE PRE-CONSTRUCTION PHASE. THE PRE-CONSTRUCTION PHASE HAS BEEN ALLOTTED TO ALLOW THE CONTRACTOR TIME TO PREPARE, SUBMIT AND OBTAIN APPROVAL OF MIX DESIGNS AND MATERIALS TO BE INCORPORATED INTO THE INITIAL WORK ON THE PROJECT AND TO PROCURE ANY MATERIALS REQUIRING LONG LEAD TIMES. THIS PHASE INCLUDES BUT IS NOT LIMITED TO:

- SCHEDULE
- MATERIALS SUBMITTALS AND TESTING
- PROCUREMENT

AND ANY OTHER ACTIVITIES REQUIRED BY THE CONTRACT DOCUMENTS.



NOTES:

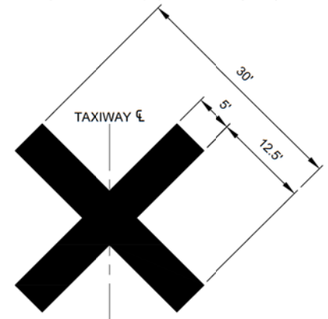
1. RED BARRICADE LIGHTS SHALL BE SOLAR 360° OMNIDIRECTIONAL.
2. BARRICADES SHALL BE INTERLOCKED AND CONTINUCUS, UNLESS OTHERWISE INDICATED; OR DIRECTED BY THE ENGINEER.
3. CONTRACTOR SHALL MAINTAIN BARRICADE LIGHTS AT ALL TIMES DURING CONSTRUCTION. EACH BARRICADE MUST HAVE BOTH LIGHTS OPERATING AT ALL TIMES.
4. BARRICADES SHALL BE HELD IN PLACE BY ENOUGH SANDBAGS TO PREVENT MOVEMENT FROM JET BLAST. SANDBAGS SHALL BE EITHER ORANGE OR WHITE.

1 G-101 G-102 **LOW PROFILE BARRICADE DETAIL**
NTS

NOTES:

1. THE CONTRACTOR SHALL FURNISH TWO (2) LIGHTED RUNWAY CLOSURE MARKINGS FOR USE ON THE PROJECT. THE CONTRACTOR SHALL MAINTAIN, POSITION, OPERATE, FUEL AND STORE THE MARKERS THROUGHOUT THE DURATION OF THE PROJECT.
2. CONTRACTOR TO USE ONE (1) MARKER FOR EACH END OF THE RUNWAY.
3. ONE (1) MARKER SHALL BE PLACED ON THE PRIMARY RUNWAY CLOSURE MARKER LOCATION 250' NORTH OF RUNWAY 14-32 CENTERLINE. IF CONSTRUCTION ACTIVITIES DO NOT PERMIT PLACEMENT OF LIGHTED "X" IN PRIMARY LOCATION, PLACE AT ALTERNATE LOCATION ON THE RUNWAY 5R BLAST PAD. ONE (1) MARKER SHALL BE PLACED ON THE 23L RUNWAY DESIGNATION.

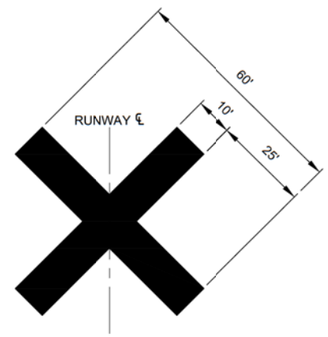
2 G-101 G-102 **CLOSED RUNWAY MARKER**
NTS



NOTES:

1. MATERIAL FOR THE TAXIWAY CLOSURE "X" SHALL BE YELLOW FABRIC.
2. CLOSURE "X" SHALL BE WEIGHTED DOWN TO PREVENT DISLODGEMENT.
3. IF CONTRACTOR USES SANDBAGS, COLOR MUST MATCH THE "X".

3 G-102 **TAXIWAY CLOSURE "X"**
NTS



NOTES:

1. MATERIAL FOR THE RUNWAY CLOSURE "X" SHALL BE YELLOW FABRIC.
2. CLOSURE "X" SHALL BE WEIGHTED DOWN TO PREVENT DISLODGEMENT.
3. IF CONTRACTOR USES SANDBAGS, COLOR MUST MATCH THE "X".

4 G-101 **RUNWAY CLOSURE "X"**
NTS

300 150 0 300
SCALE IN FEET

2

REVISIONS			
NO.	DATE	BY	DESCRIPTION
2	11/30/18	HVH	ADDENDUM NO. 2
3	12/7/18	HVH	ADDENDUM NO. 3

PIEDMONT TRIAD INTERNATIONAL AIRPORT
PIEDMONT TRIAD AIRPORT AUTHORITY
1000A Ted Johnson Parkway
Greensboro NC 27409
OFC: (336) 665-5600
FAX: (336) 665-5694
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PIEDMONT TRIAD INTERNATIONAL AIRPORT
RUNWAY 5R - 23L REHABILITATION - CONSTRUCTION PHASE 3

PHASING PLAN AND DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 047722 ENGINEER HAROLD VANROE HONEY

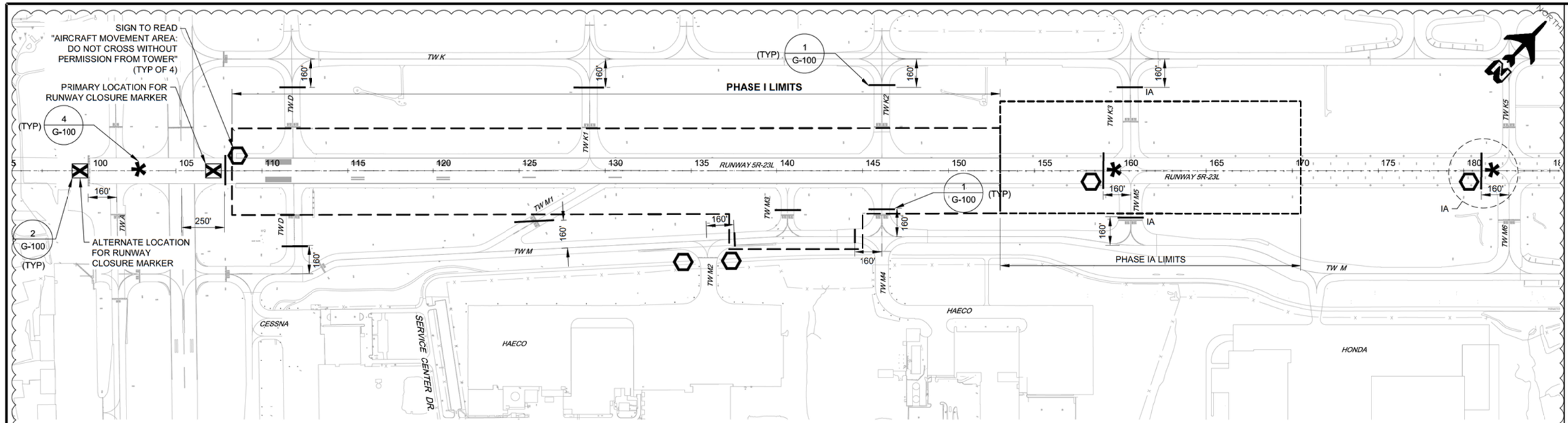
KWO	KWO
DESIGNED	DRAWN
CAR	HVH
CHECKED	APPROVED

Michael Baker INTERNATIONAL
www.mbakerintl.com
MICHAEL BAKER ENGINEERING, INC.
200 Centreport Dr.
Suite 350
Greensboro,NC 27409
OFC: (336) 931-1500
License: F-1084

DATE: NOVEMBER 12, 2018

SCALE: AS SHOWN

SHEET
G-100



PHASE I

PHASE I DURATION: 95 CALENDAR DAYS FOR THE BASE BID; IF ADD ALTERNATE 1 IS AWARDED, 15 ADDITIONAL DAYS WILL BE ADDED

GENERAL PHASE ITEMS:

- RUNWAY 5R-23L WILL BE CLOSED DURING THIS PHASE
- AREA AVAILABLE TO CONTRACTOR 24 HOURS PER DAY
- TAXIWAYS D, K1, K2, M1, M3, M4 WEST OF TAXIWAY M, AND A PORTION OF TAXIWAY M BETWEEN M2 AND M4 WILL BE CLOSED FOR THE DURATION OF THIS PHASE
- TAXIWAYS K3 AND M5 WILL BE CLOSED FOR THE DURATION OF SUB-PHASE IA
- SPECIALTY EQUIPMENT THAT IS SIGNIFICANTLY COMPLEX TO SET UP OR BREAK DOWN MAY BE LEFT ON THE RUNWAY AT THE END OF EACH SHIFT. AT THE END OF EACH SHIFT, THE EQUIPMENT MUST BE PARKED IN AN AREA WITHIN THE PROJECT LIMITS AS DIRECTED BY THE ENGINEER AND MUST BE LIT IN SUCH A WAY THAT SHOWS THE VEHICLE. 3

PHASE I

THIS PHASE WILL INCLUDE THE FOLLOWING WORK ITEMS:

- INSTALL THE UNDERDRAIN SYSTEM AND CLEANOUTS
- REMOVE AND REPLACE EDGE LIGHT SYSTEM
- REMOVE CENTERLINE LIGHT FIXTURES AND TRENCH OUT CONDUIT, INSTALL THE BOTTOM SECTION OF THE LIGHT BASES AND CONDUIT
- ADJUSTMENT OF THE 5R PAPI
- MILL AND PAVE THE RUNWAY
- MILL AND PAVE THE SHOULDERS
- ABANDON VARIOUS DRAINAGE STRUCTURES
- TEMPORARY RUNWAY PAVEMENT MARKING
- TEMPORARY PAVEMENT MARKING ON TAXIWAY K1
- REMOVE TAXIWAY M3 PAVEMENT, EDGE LIGHTS, AND SIGNS
- REMOVE TAXIWAY M3 PAVEMENT MARKING ON TAXIWAY M
- GRADING, TOPSOILING, SEEDING, AND MULCHING

THE CONTRACTOR WORK AREA ACCESS POINT FOR THE DURATION OF THE PROJECT IS ACROSS M3, ONCE THE PAVEMENT IS REMOVED THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE AREA AS A HAUL ROAD FOR THE DURATION OF THE PROJECT. AT THE CONCLUSION OF PHASE II, THE AREA WILL BE GRADED, SEEDED AND MULCHED.

TAXIWAYS D, K2, M1, AND M4 WEST OF TAXIWAY M ARE GOING TO BE CLOSED FOR THE DURATION OF THE PROJECT AND THERE SHALL BE NO TEMPORARY TAXIWAY MARKINGS ON THOSE TAXIWAYS IN THIS PHASE.

SUB-PHASE IA

THE CONTRACTOR MUST COORDINATE THE TIMING OF THIS SUB-PHASE WITH THE ENGINEER AND WITH OTHER CONSTRUCTION ACTIVITIES WITHIN THE SAME LIMITS. TAXIWAYS K3 AND M5 WILL BE CLOSED FOR THE DURATION OF THIS SUB-PHASE.

THIS PHASE WILL INCLUDE THE FOLLOWING WORK ITEMS:

- REMOVE EXISTING JUNCTION BOXES OUTSIDE EXTENTS OF PAVING
- PARTIAL RECONFIGURATION OF RUNWAY 23L TDZ HOMERUN CONNECTORS

LEGEND

- INDICATES SUB-PHASE — IA
- LOW PROFILE BARRICADE (FULL PROJECT DURATION)
- RUNWAY CLOSURE MARKER
- TAXIWAY CLOSURE "X"
- RUNWAY CLOSURE "X"
- TEMPORARY CONSTRUCTION SIGNS TO BE PLACED AT AIRCRAFT MOVEMENT AREA ACCESS POINTS - SEE ITEM 01530 OF THE GENERAL REQUIREMENTS

300 150 0 300
SCALE IN FEET

2

REVISIONS			
NO.	DATE	BY	DESCRIPTION
2	11/30/18	HVH	ADDENDUM NO. 2
3	12/7/18	HVH	ADDENDUM NO. 3

PIEDMONT TRIAD INTERNATIONAL AIRPORT
PIEDMONT TRIAD AIRPORT AUTHORITY
1000A Ted Johnson Parkway
Greensboro NC 27409
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FAX: (336) 665-5694
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PIEDMONT TRIAD INTERNATIONAL AIRPORT
RUNWAY 5R - 23L REHABILITATION - CONSTRUCTION PHASE 3
PHASING PLAN AND DETAILS (PHASE 1)

NORTH CAROLINA PROFESSIONAL SEAL 047722 ENGINEER HAROLD VANROE HONEY

KWO	KWO
DESIGNED	DRAWN
CAR	HVH
CHECKED	APPROVED

Michael Baker INTERNATIONAL
www.mbakerintl.com
MICHAEL BAKER ENGINEERING, INC.
200 Centreport Dr.
Suite 350
Greensboro,NC 27409
OFC: (336) 931-1500
License: F-1084

DATE: NOVEMBER 12, 2018

SCALE: AS SHOWN

SHEET
G-101

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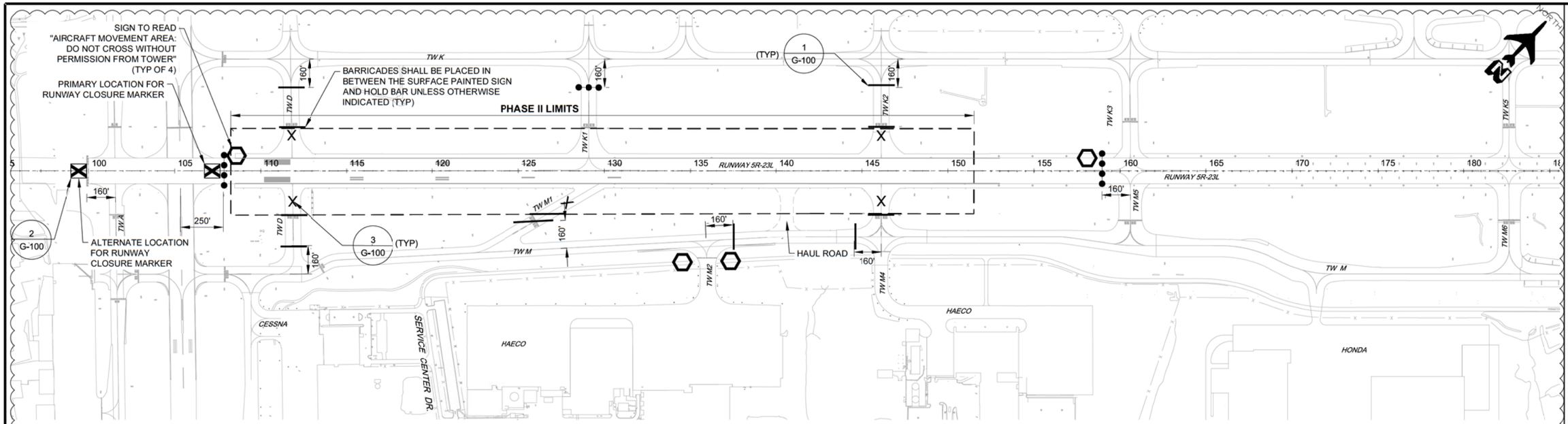

PHASE II

PHASE II CANNOT BEGIN UNTIL PHASE I IS COMPLETE.

PHASE II DURATION: 20 CALENDAR DAYS FOR THE BASE BID; IF ADD ALTERNATE 1 IS AWARDED, 5 ADDITIONAL DAYS WILL BE ADDED

GENERAL PHASE ITEMS:

- RUNWAY 5R-23L AND TAXIWAY K1 WILL BE CLOSED EACH DAY WORK IS BEING PERFORMED AND OPENED AT THE END OF EACH SHIFT. THE AREA WILL BE AVAILABLE TO THE CONTRACTOR BETWEEN THE HOURS OF 7:00 AM AND 9:00 PM DAILY.
- RUNWAY EDGE LIGHTS, TAXIWAY K1 EDGE LIGHTS, AND THE HOLD SIGN ON TAXIWAY K1 ARE TO BE DE-ENERGIZED OR OTHERWISE OBSCURED DAILY WHEN THE PAVEMENT IS CLOSED TO AIRCRAFT TRAFFIC. THESE LIGHTS AND SIGNS SHALL BE OPERATIONAL AT THE END OF EACH WORK SHIFT.
- TAXIWAYS THAT WILL BE CLOSED WITH THE LIGHTS AND SIGNS DE-ENERGIZED OR OTHERWISE OBSCURED FOR THE DURATION OF THIS PHASE ARE AS FOLLOWS:
  - TAXIWAY D
  - TAXIWAY K2
  - TAXIWAY M1
  - TAXIWAY M4 WEST OF TAXIWAY M
  - TAXIWAY M BETWEEN M2 AND M4

  3
- THE AREA SHALL BE RESTORED TO RUNWAY SAFETY AREA STANDARDS BY 9:00PM EACH DAY WORK IS BEING PERFORMED. FOR THE RUNWAY TO BE OPEN THERE SHALL NOT BE ANY OPEN HOLES OR OPEN EXCAVATIONS WITHIN 250' OF THE RUNWAY CENTERLINE. THE AREA SHALL BE CLEANED OF ANY FOD AND INSPECTED AND ACCEPTED BY AIRPORT PERSONNEL AND THE ENGINEER PRIOR TO REOPENING TO AIRCRAFT TRAFFIC.
- ALL BARRICADES USED FOR DAILY OPERATIONS, EQUIPMENT, TEMPORARY AIRFIELD SIGNS, LIGHTED X'S, AND PERSONNEL SHALL BE IN THE CONTRACTOR'S STAGING AREA PRIOR TO THE RUNWAY OPENING, EXCEPT AS APPROVED BY THE ENGINEER. IN ADDITION, ALL AIRPORT PAVEMENT INSPECTIONS SHALL BE COMPLETED AND ACCEPTED BY THE AIRPORT PRIOR TO OPENING TO AIRCRAFT TRAFFIC. AIRFIELD INSPECTIONS ARE TO BE CONDUCTED BY AIRPORT PERSONNEL AND THE ENGINEER.

PHASE II

THIS PHASE WILL INCLUDE THE FOLLOWING WORK ITEMS:

- CORE AND INSTALL THE TOP SECTION OF THE CENTERLINE LIGHT BASES, PULL CABLE, AND RE-INSTALL TRANSFORMERS AND FIXTURES
- RUNWAY GROOVING
- PERMANENT PAVEMENT MARKING ON RUNWAY AND TAXIWAY CONNECTORS
- GRADING, SEEDING, AND MULCHING TAXIWAY M3/ CONTRACTOR HAUL ROAD

LEGEND

- LOW PROFILE BARRICADE (FULL PROJECT DURATION)
- LOW PROFILE BARRICADE (DAILY OPERATIONS)
- RUNWAY CLOSURE MARKER
- TAXIWAY CLOSURE "X"
- RUNWAY CLOSURE "X"
- TEMPORARY CONSTRUCTION SIGNS TO BE PLACED AT AIRCRAFT MOVEMENT AREA ACCESS POINTS - SEE ITEM 01530 OF THE GENERAL REQUIREMENTS

300 150 0 300
SCALE IN FEET

2

REVISIONS			
NO.	DATE	BY	DESCRIPTION
2	11/30/18	HVH	ADDENDUM NO. 2
3	12/7/18	HVH	ADDENDUM NO. 3

PIEDMONT TRIAD INTERNATIONAL AIRPORT
PIEDMONT TRIAD AIRPORT AUTHORITY
1000A Ted Johnson Parkway
Greensboro NC 27409
OFC: (336) 665-5600
FAX: (336) 665-5694
www.flyfrompti.com

PIEDMONT TRIAD INTERNATIONAL AIRPORT
RUNWAY 5R - 23L REHABILITATION - CONSTRUCTION PHASE 3
PHASING PLAN AND DETAILS (PHASE 2)

NORTH CAROLINA PROFESSIONAL SEAL 047722 ENGINEER HAROLD VANROE HONEY

KWO	KWO
DESIGNED	DRAWN
CAR	HVH
CHECKED	APPROVED

Michael Baker INTERNATIONAL
www.mbakerintl.com
MICHAEL BAKER ENGINEERING, INC.
200 Centreport Dr.
Suite 350
Greensboro,NC 27409
OFC: (336) 931-1500
License: F-1084

DATE: NOVEMBER 12, 2018

SCALE: AS SHOWN

SHEET
G-102

C:\pwv8i-local\baker_projects\lindsey.everhart\d0578198\G-101-PHASING PLAN-PH3.dwg

APPENDIX 4
SAFETY PLAN COMPLIANCE DOCUMENT

SAFETY PLAN COMPLIANCE DOCUMENT
for
PIEDMONT TRIAD INTERNATIONAL AIRPORT
RUNWAY 5R-23L REHABILITATION PROJECT,
CONSTRUCTION PHASE 3

"I, _____, authorized representative of _____
(Name) (Contractor)

have read the "Construction Safety and Phasing Plan For Piedmont International Airport, Runway 5R-23L Rehabilitation Project" dated December 2018, and will abide by it as written and with the following additions as noted:

205. Coordination
- **(a) Contractor Progress Meetings**
- **(b) Scope or Schedule Changes**
- **(c) FAA ATO Coordination**

206. Phasing
- **(a) Phase Elements**
- **(b) Construction Safety Drawings**

207. Areas and Operations Affected by Construction Activity
- **(a) Identification of Affected Areas**
- **(b) Mitigation of Effects**

208. Navigational Aid (NAVAID) Protection

209. Contractor Access
- **(a) Location of Stockpiled Construction Materials**
- **(b) Vehicle and Pedestrian Operations**

210. Wildlife Management
- **(a) Trash**
- **(b) Standing Water**
- **(c) Tall Grass and Seeds**
- **(d) Poorly Maintained Fencing and Gates**
- **(e) Disruption of Existing Wildlife Habitat**

211. Foreign Object Debris (FOD) Management

212. Hazardous Materials (HAZMAT) Management
- **(a) Cleanup-General**
- **(b) Minor Spills**
- **(c) Semi-Significant Spills**
- **(d) Significant/Hazardous Spills**
- **(e) Reporting**

213. Notification of Construction Activities
- **(a) List of Responsible Representatives**
- **(b) Notices to Airmen (NOTAM)**
- **(c) Emergency Notification Procedures**
- **(d) Coordination with ARFF**
- **(e) Notification to the FAA**

214. Inspection Requirements
- **(a) Daily Inspections**
- **(b) Final Inspections**

215. Underground Utilities

216. Penalties

217. Special Conditions

218. Runway and Taxiway Visual Aids
- **(a) General**
- **(b) Markings**
- **(c) Signs**
- **(d) Lighting**

219. Marking and Signs for Access Routes

220. Hazard Marking, Lighting, and Signing
- **(a) Purpose**
- **(b) Equipment**
- **(c) Personnel Safety**

221. Protection of Runway and Taxiway Safety Areas
- **(a) Runway Safety Area (RSA)**
- **(b) Runway Object Free Area (ROFA)**
- **(c) Taxiway Safety Area (TSA)**
- **(d) Taxiway Object Free Area (TOFA)**
- **(e) Runway Obstacle Free Zone (OFZ)**
- **(f) Runway Approach / Departure Areas and Clearways**

222. Other Limitations on Construction
- **(a) Prohibitions**
- **(b) Restrictions**

Included Appendices – Project Layout and Phasing Plans

Responsible Representatives/Points of Contact

The following is a tentative list of Responsible Representatives/Points of Contact for this project. It shall be updated by the Contractor prior to issuance of Notice to Proceed from PTAA.

Piedmont Triad International Airport

Airport Operations (24 hours)	Office:	336-665-5642
GSO Fire and Emergency Medical Number		911
GSO Police Emergencies	Office:	336-665-5642
GSO Non-Emergency Line	Office:	336-665-5642

PTAA

Mike Kuhn, Deputy Director of Facilities	Office:	336-665-5633
Mike Wood, Deputy Director of Public Safety and Security	Office:	336-665-5629
Chris Bishop, Deputy Director of Airfield Operations	Office:	336-665-5625
Annie White, Airport ID Badging Supervisor	Office:	336-665-5689
Mike Maul, Airport Security Manager	Office:	336-665-5638

PTAA Airfield Maintenance

Chris Bishop	Cell:	336-707-8045

Airport Electricians

Chris Bishop	Cell:	336-707-8045

Contractor – TBD (Contractor to provide after Bid Award)

_____ (Main Contact)	Cell:	To be Supplied
_____ (Project Manager)	Cell:	To be Supplied
_____ (Foreman)	Cell:	To be Supplied

(Above information must be confirmed and updated, and Contractor information to be provided prior to start of work)

APPENDIX 5
SECTION 01530 – HAZARD MARKING, LIGHTING, AND SIGNAGE

SECTION 01530

HAZARD MARKING, LIGHTING, AND SIGNAGE

PART 1 GENERAL

1.01 DESCRIPTION

a. Provide temporary barricades as required for safety of aircraft and contractor's work forces, and to maintain use of the various portions of the air operations area during construction.

b. Runway closure markers, as shown on the plans, will be provided, erected, maintained, and removed from the site by the Contractor, when appropriate.

c. Taxiway closure markers, as required for safety of aircraft and shown on the plans, will be provided, maintained, and removed from the site by the Contractor, when appropriate

d. Temporary airfield signage, as required for safety of aircraft and shown on the plans, will be provided, maintained, and removed from the site by the Contractor, when appropriate.

e. Comply with referenced FAA Advisory Circulars and the safety and staging plan.

f. Related work specified elsewhere:

1. Construction safety: General Provisions and General Requirements.

2. Staging and safety plan: Contract Drawings and General Requirements.

PART 2 PRODUCTS

2.01 BARRICADES.

a. **Aviation Barricades:** 8-foot collapsible, low profile, with alternating diagonal white and orange stripes, two (2) 20 inch x 20 inch white and orange flags, and two (2) battery-powered flashing red lights. Flags shall be framed and installed so that they are always in the extended position and oriented along the long axis of the barricade. Overall barricade height shall not exceed 24 inches. Barricades shall be suitable for use in movement areas as outlined by AC 150/5370-2, current edition.

2.02 LIGHTED PORTABLE RUNWAY CLOSURE MARKERS.

a. Two (2) Lighted portable runway closure markers shall be supplied by the Contractor. The Contractor shall maintain position, operate, and store the markers throughout the duration of the project and shall be responsible for all consumables (fuel, oil, bulbs, etc.) that each unit requires during the project. Runway closure markers shall be in accordance with FAA AC 150/5345-55, current edition, L-893. Two (2) closure markers shall be provided by the Contractor and be on site at all times for the closure of Runway 5R-23L.

2.03 TAXIWAY AND RUNWAY CLOSURE MARKERS.

a. The taxiway closure markers are to be constructed of fabric. Closure markers must be secured to prevent movement by prop wash, jet blast, or other wind currents. Items used to secure such markings must be of a color similar to the marking. Dimensions and locations are as shown on the plans. Closure markers shall be in accordance with AC 150/5370-2, current edition and AC 150/5340-1, current edition.

2.04 TEMPORARY AIRFIELD SIGNAGE

a. The temporary airfield signage shall be installed in accordance with AC 150/5370-2, current edition and Engineering Brief #93: "Guidance for the Assembly and Installation of Temporary Orange Construction Signs" found at this website: https://www.faa.gov/airports/engineering/engineering_briefs/media/eb-93-temp-orange-signs.pdf. The signs shall be moveable and be of a size that can be easily read by ground traffic. The signs shall be located at Aircraft Movement Area access points within the work area, as shown on the plans.

PART 3 EXECUTION

3.01 GENERAL.

a. Install barricades, closure markers, and/or temporary signage at locations shown on the drawings and where directed by the Engineer. Barricades shall be continuously linked, interlocking barricades. Anchor barricades with sandbags or other methods approved by the Engineer.

b. Maintain barricades, closure markers, and/or temporary signage until removal is directed by the Engineer. The barricade flasher batteries shall be checked daily to ensure that flashers are operational. Replace batteries as required.

c. Remove barricades, closure markers, and/or temporary signage as directed by the Engineer. Repair any damage to pavement or surrounding area caused by markers or barricades.

3.02 MEASUREMENT AND PAYMENT.

Barricades, closure markers, and/or temporary signage will not be measured on an individual basis for separate payment. All work, maintenance and material required for these items will be paid for under the lump sum price for Mobilization, Section 01000.

END OF SECTION 01530

DRAINAGE INVESTIGATION MAP

GSO PHASE 3

DRAINAGE STRUCTURE INVESTIGATION LOCATIONS

Legend

Timco Aerosystems Inc

Structure and pipe to the north

5 buried structures - 4 under runway/shoulder pavement & 1 in turf.

(2712-MH) - Wheeled 205' to 2717-MH

15" RCP
Total collapse of pipe - 164' from 2717-MH.
Video terminated.
No structures within this run.

#1 (2717-MH)

Exist MH under pavement - total blockage. 17' from 2717-MH / 272' from 2146-MH
15"RCP from this point back to 2717-MH
24" RCP this point to 2146-MH

2146-MH

Structure and pipe to the south

3 other buried manholes under pavement and/or grass @ 90', 118', and 252' from 2146-MH.
24" RCP

#3 (3025-IN)
12" RCP
Invert 4'-8" from top of grate

#2B

#2 (2131-IN)

#4 (3021-IN)

#2A

#4A

#2C

#2B and #2C (unable to open during investigation)

#9

#9A

#5 No pipes visible

#5 (3006-IN)

#7

#8

#7 & #8: 24" RCP NW/SE.
6" CMP NE/SW for #7
4" PVC NE/SW for #8

One 6" perforated CMP running east.
Invert approx. 4'-2" below top of grate.
Video terminated after 600' - no cleanout or structures encountered

#10

#6 (1889-IN)

#6: 6" CMP E/W and 15" RCP S.

North-12" Clay pipe, invert 6'-2" below top of grate
South-12" Clay pipe, invert 6'-10" below top of grate
West-8' Clay Pipe, video terminated after 500'-no cleanout or structure encountered
East-12" Clay pipe, not videoed

Service Center Dr

Radar Rd

Google earth

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900 ft