CITY OF ATLANTA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

INVITATION TO BID

PROJECT NUMBER FC-8746

TAXIWAY PAVEMENT REPLACEMENT 2016

MIGUEL SOUTHWELL
AVIATION GENERAL MANAGER
DEPARTMENT OF AVIATION

ADAM L. SMITH, ESQ., CPPO, CPPB, CPPM CPP, CIPC, CISCC, CIGPM
CHIEF PROCUREMENT OFFICER
DEPARTMENT OF PROCUREMENT

CITY OF ATLANTA

Kasim Reed
Mayor

SUITE 1900
55 TRINITY AVENUE, SW
ATLANTA, GA 30303
(404) 330-6204 Fax: (404) 658-7705
Internet Home Page: www.atlantaga.gov

DEPARTMENT OF PROCUREMENT
Adam L. Smith, Esq., CPPO, CPPB, CPPM, CPP, CIPC, CISCC, CIGPM, CPPC
Chief Procurement Officer
asmith@atlantaga.gov

February 17, 2016

ATTENTION INTERESTED BIDDER:

Your firm is hereby invited to submit to the City of Atlanta (the "**City**"), Department of Procurement (the "**DOP**"), a Bid for **Project Number: FC-8746, Taxiway Pavement Replacement 2016**. This project is concerned primarily with taxiway pavement replacement; including concrete pavement, centerline lights, and subgrade repairs.

A **Pre-Bid Conference** will be held on **Tuesday, March 01, 2016, at 3:00 P.M, at the Hartsfield-Jackson Technical Support Campus, 1255 South Loop Road, College Park, Georgia 30337.** The purpose of the Pre-Bid Conference is to provide Bidders with detailed information regarding the Procurement process and to address questions and concerns. There will be representatives from the Department of Aviation, Risk Management and the Office of Contract Compliance available at the conference to discuss this project and to answer any questions. Attendance to the Pre-Bid Conference is strongly encouraged.

The last date to submit questions will be **Friday, March 04, 2016, no later than 5:00 P.M.** Questions may be sent to **Philippe Jefferson, Contracting Officer,** via email at pejefferson@atlantaga.gov, or facsimile at 404-589-5494. Questions will be responded to in the form of an addendum.

Your response to this Invitation to Bid (**"Bid"**) must be received by designated staff of the Department of Procurement at 55 Trinity Avenue, S.W., City Hall, Suite 1900, Atlanta, GA 30303, **no later than 2:00 P.M., on Wednesday, March 23, 2016.** Any Bid received after this time will not be considered and will be rejected and returned.

All Bids will be publicly opened and read at 2:00 P.M. on the respective due date in Suite 1900, 1st Floor, 55 Trinity Avenue, S.W., City Hall, Atlanta, GA 30303.

If you have any questions regarding this project, please contact **Philippe Jefferson, Contracting Officer,** at 404-865-8565, or by email at pejefferson@atlantaga.gov.

The Bid document may also be obtained either online at the Procurement website which is procurement.atlantaga.gov or from the Department of Procurement, Plan Room, City Hall South, Suite 1900, 55 Trinity Avenue, SW, Atlanta, Georgia 30303, at a cost of $150.00 per package between 8:30 AM to 5 PM, Monday through Friday. Also, to be added to the plan holders list for updates of this project, please enter your information on the Procurement website or submit your name and company information to the Contracting Officer.

The City reserves the right to cancel any and all solicitations and to accept or reject, in whole or in part, any and all Bids when it is for good cause and in the best interest of the City.

Thank you for your interest in doing business with the City.

Sincerely,

Adam L. Smith

ALS:pej

Directions to Technical Support Campus

1255 South Loop Road, College Park, Georgia 30337
404-530-5500 (main)

From Downtown Atlanta:

- Take I-75/I-85 South
- Continue on I-75 at the I-75/I-85 Split
- Exit 238B – I-285 West
- Stay in right lane and follow signs for Loop Road
- Bypassing exit for I-285 West, continue on Loop Road through traffic light
- The Tech Campus is the second building on the left (grey stone w/ blue awning)

From East Atlanta:

- Take I-285 South
- Get off I-285 at the I-75 exit.
- Follow signs to I-285 West/Clark Howell Hwy/ Loop Rd.
- Exit at Loop Rd.
- The Tech Campus is the second building on the left (grey stone w/ blue awning)

From South of Atlanta: (I-75)

- Take I-75 North
- Exit 238B - I-285 West
- Keep to the right and exit at Clark Howell Hwy / Loop Rd
- Follow signs for Loop Road, go through traffic light
- The Tech Campus is the second building on the left (grey stone w/ blue awning)

From Southwest of Atlanta: (I-85)

- I-85 North
- Exit 68 - I-285 Bypass, follow to I-285 East
- Exit 59 – Loop Road / Clark Howell Hwy /Airport Cargo
- Follow signs for Loop Road
- Bypass exit for I-285 West, staying in two right lanes to Loop Road
- Continue through traffic light
- The Tech Campus is the second building on the left (grey stone w/ blue awning)

From West of Atlanta:

- From I-20, take I-285 South
- Exit 59 – Loop Road / Clark Howell Hwy /Airport Cargo
- Follow signs for Loop Road
- Bypass exit for I-285 West, staying in two right lanes to Loop Road
- Continue through traffic light
- The Tech Campus is the second building on the left (grey stone w/ blue awning)

From the Airport:

- Take Airport Blvd toward I-85 North, stay in the right lane
- Exit Right onto North Inner Loop Rd.
- Continue on N Inner Loop Rd, crossing over Aviation Blvd, and road then becomes South Inner Loop Road.
- Stay on S Inner Loop Rd until you see the “Road Closed” signs.
- The Tech Campus is the second building on the left (grey stone w/ blue awning)

CITY OF ATLANTA
DEPARTMENT OF AVIATION
HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

INVITATION TO BID

PROJECT NUMBER FC-8746

TAXIWAY PAVEMENT REPLACEMENT 2016

TABLE OF CONTENTS

PART I

SECTION	TITLE
1. Information and Instructions to Bidders	
- Form 1:	Illegal Immigration Reform and Enforcement Act
- Form 2:	Contractor Disclosure Form
- Form 3:	Bid Bond
- Form 4:	(*NOT APPLICABLE FOR THIS ITB*)
- Form 5:	Acknowledgement of Insurance and Bonding Requirements
- Form 6.1:	Certification of Insurance Ability
- Form 6.2:	Certification of Bonding Ability
- Form 7:	Acknowledgement of Addenda
- Form 8:	Bidder Contact Directory
- Form 9:	Reference List
- Form 10:	Georgia Utility Contractor's License

PART II

2. Agreement
3. Exhibit A – Construction General Conditions
4. Exhibit B – Construction Special Conditions
5. Exhibit C - Quantities, Pricing and Data Forms
6. Exhibit D – Insurance and Bonding Requirements / Construction Safety and Health Plan
7. Exhibit D.1 – Form of Performance and Payment Bond
8. Exhibit E – Scope of Work and Technical Specifications
9. Exhibit F – Index of Drawings
10. Exhibit G – Airport Security Program
11. Exhibit H – Schedule Requirements
12. Exhibit I – Quality Control Program
13. Appendix A – Office of Contract Compliance

Part 1; Information and Instructions to Bidders

1. **Services Being Procured:** This Invitation to Bid ("**ITB**") from qualified bidders ("**Bidder" or "Bidders**") by the City of Atlanta ("**City**"), on behalf of its Department of Aviation ("**DOA**"), seeks to procure the following services ("**Services**"): Taxiway Pavement Replacement 2016 ("**Project**"). A more detailed Scope of Services sought in this procurement is set forth in Exhibit E, Scope of Work and Technical Specifications, attached to the Services Agreement ("**Services Agreement**"); **Contract No. FC-8746; Taxiway Pavement Replacement 2016**, included at Part2 of this ITB. 1

2. **Method of Source Selection:** This procurement is being conducted in accordance with all applicable provisions of the City of Atlanta's Code of Ordinances, including its Procurement and Real Estate Code, and the particular method of source selection for the Services sought in this ITB is Code Section 2-1188; Competitive sealed bidding. By submitting a Bid concerning this procurement, a Bidder acknowledges that it is familiar with all laws applicable to this procurement, including, but not limited to, City's Code of Ordinances and Charter, which laws are incorporated into this ITB by reference.

3. **Minimum Qualifications:**

   1. A Joint Venture is required

      1.1 Either each and every member of the Joint Venture or the Joint Venture as an entity must be qualified and licensed to operate in the business of General Contracting and submit a valid Georgia General Contractor's License with its Bid.

   2. Each Bidder must demonstrate and document experience working on active airfields at a major airport similar to Hartsfield-Jackson Atlanta International Airport.

   3. The Prime Contractor will use Form "I", Experience Statement to document work experience. All Sub-Contractor work experience is to be documented using Form "B", Essential Subcontractor Qualification Statement.

   4. Each Bidder is required to utilize one (1) of the pre-qualified Portland Cement Concrete Paving Contractors (PCCP) to accomplish the paving work associated with this Project. This Procurement is being conducted in accordance with FC-8258. Failure to utilize a pre-qualified PCCP Contractor will deem the Bid non-responsive. The approved pre-qualified Portland Cement Concrete Paving Repair Contractors are listed below:

1 All capitalized terms contained in the Services Agreement are incorporated into this ITB.

Company Name	Point of Contact	Phone	Fax
Archer Western Construction, LLC	David B. Casey	404.495.8700	404.495.8701
GSC Atlanta, Inc.	Chuck Hucks, Jr.	770.487.2300	770.487.0005
McCarthy Improvement Company	Lawrence Bush	404.684.9064	404.761.4764
RC Construction Co., Inc.	John Powers	662.453.2424	662.453.6783

5. It is highly recommended that the pavement marking and striping subcontractor have active airfield experience specifically pavement marking and striping of runways and taxiways. The technical specifications identify specific qualification requirements for individuals performing markings and striping. Resumes shall be submitted and approved prior to commencement of work.

6. It is highly recommended that the joint sealing subcontractor have active airfield experience specifically joint sealing of runways and taxiways. The technical specifications identify specific qualification requirements for individuals performing joint sealant work. Resumes shall be submitted and approved prior to commencement of work.

7. Bidder participating in this procurement must have and submit a valid Georgia Electrical License. The electrical subcontractor should have demonstrated active airfield experience. The technical specifications identify specific qualification requirements for individuals performing electrical work on the airfield. Resumes shall be submitted and approved prior to commencement of work.

4. **No Offer by City; Firm Offer by Bidder:** This procurement does not constitute an offer by City to enter into a Services Agreement and cannot be accepted by any Bidder to form a Services Agreement. This procurement is only an invitation for offers from interested Bidders and no offer shall bind City. A Bidder's offer is a firm offer and may not be withdrawn except under the rules specified in City's Code of Ordinances and other applicable law.

5. **Bid Deadline:** To be considered Responsive and Responsible, a Bidder must complete and submit all required Bid submittals in accordance with the instructions contained in this ITB or on the individual form. Accordingly, responses to this ITB must be received by City's Department of Procurement, 55 Trinity Avenue, S.W., City Hall South, Suite 1900, Atlanta, Georgia 30303-0307, on **Wednesday, March 23, 2016**, no later than **2:00 p.m.** EST (as verified by the Bureau of National Standards) each Bidder must submit **one (1) Original**, marked "**Original**", and **five (5) copies** of its Bid in **three-ring binders**. The following submittals are required to be included in each bid:

5.1 The following forms from Part 1:

5.1.1 Form 1: Illegal Immigration Reform and Enforcement Act: This ITB is subject to the Illegal Immigration Reform and Enforcement Act ("**Act**"). Pursuant to Act, the Bidder must provide with its bid proof of its registration with and continuing and future participation in the E-Verify Program established by the United States Department of Homeland Security. A completed Affidavit, set forth in **Part 1; Form 1**; Illegal Immigration Reform and Enforcement Act Forms, must be submitted at the time of submission. Under state law, the City cannot consider any bid which does not include completed forms. Because this ITB includes Services under the joint jurisdictions of the Georgia Department of Labor and Georgia Department of Transportation. It is not the intent of this notice to provide detailed information or legal advice concerning the Act. All Bidders intending to do business with the City are responsible for independently apprising themselves of and complying with the requirements of the Act and assessing its effect on City procurements and their participation in those procurements. For additional information on the E-Verify program or to enroll in the program, go to: https://e-verify.uscis.gov/enroll.

5.1.1 Form 2; Contractor Disclosure Form;

5.1.2 Form 3: Bid Bond;

5.1.3 Form 4: N/A for this Bid

5.1.4 Form 5: Acknowledgement of Insurance and Bonding Requirements;

5.1.5 Form 6.1: Certification of Insurance Ability;

5.1.6 Form 6.2: Certification of Bonding Ability;

5.1.7 Form 7: Acknowledgement of Addenda

5.1.8 Form 8: Bidder Contact Directory;

5.1.9 Form 9: List of References;

5.1.10 Form 10: Contractor's Georgia Utility License Certification;

5.1.11 Georgia Contractor's License;

5.1.12 Georgia Electrical License

5.2 The following forms from Exhibit "C", Quantities, Pricing and Data:

5.2.1 Form A. Schedule of Quantities and Prices;

5.2.2 Form A-1. Schedule of Unit and Lump Sum Prices;

5.2.3 Form B. Essential Subcontractor Qualification Statement;

5.2.4 Form C. Preliminary Contract Schedule;

5.2.5 From D. Project Organization and Work Plan;

5.2.6 Form E. Safety Program;

5.2.7 Form F. Resumes of Key Personnel;

5.2.8 Form G. Summary of QC Program;

5.2.9 Form H. Work in Progress; and

5.2.10 Form I. Experience Statement

5.3 The following forms from Part 2 of this ITB:

5.3.1 Services Agreement (attached at Part 2 of ITB, signed and sealed) and if applicable copy of the Joint Venture Agreement; and

5.3.2 Exhibit "D"; OCIP Program Insurance Information Form (Pages 1 and 2)

5.3.3 Appendix A; EBO Forms 1 through 5 (attached to Services Agreement; Part 2 of ITB).

6 Pre-Bid Conference: It is strongly recommended that each Bidder attend Pre- Bid Conference which is scheduled for **Tuesday, March 01, 2016** at **3:00 P.M.**, at the H-JDP Technical Support Campus, 1255 South Loop Road, College Park, Georgia. Each Bidder is responsible to be fully informed regarding all existing and expected conditions and matters which might affect the cost or the performance of the Services. Any failure to fully investigate the requirements of this ITB shall not relieve any Bidder from the responsibility for estimating properly the difficulty or cost of successfully performing the Services being sought under this ITB.

7 Bid Guarantee:

7.1 Each Bidder must furnish a Bid Guarantee in the amount of five percent (5%) of its Bid amount. At the option of the Bidder, the Bid Guaranty may also be a certified check payable to the City of Atlanta or a Bid Bond attached to this ITB as Form 3. A surety executing a Bid Bond must meet the requirements set forth in Exhibit D; Insurance and Bonding Requirements attached to the Services Agreement included at Part 2 of this ITB.

7.2 Each Bidder agrees that, if it is awarded a Services Agreement (the form of which is attached to this ITB at Part 2 and must be fully executed and provided as a submittal in a

Bonding Requirements attached to the Services Agreement included at Part 2 of this ITB.

7.2 Each Bidder agrees that, if it is awarded a Services Agreement (the form of which is attached to this ITB at Part 2 and must be fully executed and provided as a submittal in a Bidder's Bid), it will, in addition to the executed Services Agreement, be required to submit additional documentation (e.g. insurance/bonds, etc.) after such award pursuant to notice provided by City. If, within ten (10) days of receiving such notice, the successful Bidder fails to comply with that notice and submit additional requested documentation, City may retain the Bid Guarantee as liquidated damages and not as a penalty.

8 **Procurement Questions; Prohibited Contacts:** Any questions regarding this ITB should be submitted in writing to City's contact person, **Mr. Philippe Jefferson**, Contracting Officer, Department of Procurement, 55 Trinity Avenue, SW, Suite 1900, Atlanta, Georgia 30303-0307, by fax (404) 589-5494 or e-mail **PEJefferson@AtlantaGa.Gov,** on or before **Friday, March 04, 2016.** Questions received after the designated period will not be considered. Any response made by City will be provided in writing to all Bidders by addendum. It is the responsibility of each Bidder to obtain a copy of any Addendum issued for this procurement by monitoring the City' website at www.atlantaga.gov and its Department of Procurement's Plan Room which is open during posted business hours, Suite 1900, 55 Trinity Avenue, S.W., City Hall South, Atlanta, Georgia 30303. No Bidder may rely on any verbal response to any question submitted concerning this ITB. All Bidders and representatives of any Bidder are strictly prohibited from contacting any other City employees or any third-party representatives of City on any matter having to do with this ITB. All communications by any Bidder concerning this ITB must be made to the City's contact person, or any other City representatives designated by the Chief Procurement Officer in writing.

9 **Ownership of Bids:** Each Bid submitted to City will become the property of City, without compensation to a Bidder, for City's use, in its discretion.

10 **Insurance and/or Bonding Requirements:** The Insurance and/or bonding requirements for any Services Agreement that may be awarded pursuant to this ITB are set forth in Exhibit "D"; Insurance and Bonding Requirements attached to the Services Agreement included at Part 2 of this ITB.

11 **Applicable City OCC Programs:** City's OCC Programs applicable to this procurement are set forth in **Appendix "A"; Office of Contract Compliance** Submittals, attached to the Services Agreement included at Part 2 of this ITB.

12 **Evaluation of Financial Information:** This ITB requires the provision of a Payment Bond and/or Performance Bond if a Services Agreement is awarded. In connection with that requirement, City will review the information included in **Form 6.1 & 6.2; Certification of Insurance and/or Certification of Bonding Ability**. A Bidder must include with that form (a) notarized letter(s) from its proposed insurer(s) and surety(ies) indicating that the financial capacity of the Bidder is

such that the insurer(s)/surety(ies) is/are willing to issue insurance and Payment and Performance Bonds for the Bidder if a Services Agreement is awarded to it.

13 Special Rules Applicable to Evaluation of Bids:

13.1 All extensions of the unit prices shown and the subsequent addition of extended amounts included in a Bid may be verified by City. In the event of a discrepancy between the unit price bid and the extension, the unit price will be deemed intended by the Bidder and the extension shall be adjusted. In the event of a discrepancy between the sum of the extended amounts and the Bid total, the sum of the extended amounts shall govern.

13.2 City reserves the right to reject any Bid in which the pricing, upon comparison with City's cost estimate(s), appears to be irregular. Where only a single responsible and responsive Bid is received, City may, in its sole discretion, elect to conduct a price or cost analysis of the Bid. Such Bidder shall cooperate with City and provide any supplemental information that may be required. The determination whether to enter into a Services Agreement with such sole Bidder is entirely within City's discretion.

13.3 Each Bidder's Bid must affirmatively state within it that the prices contained in it, as well as its total Bid amount(s), are valid for a period of ninety (90) days from the date of the Bid deadline.

14 Examination of Bid Documents:

14.1 Each Bidder is responsible for examining with appropriate care this ITB and associated Bid Documents and all Addenda, and for informing itself with respect to all conditions which might in any way affect the cost or the performance of any Services. Failure to do so will be at the sole risk of the Bidder, who is deemed to have included all costs for performance of the Services in its Bid.

14.2 Each Bidder shall promptly notify City in writing should it find discrepancies, errors, ambiguities or omissions in the ITB and associated Bid Documents, or should their intent or meaning appear unclear or ambiguous, or should any other question arise relative to the ITB and associated Bid Documents.

14.3 City may, by addendum, modify any provision or part of this ITB or associated Bid Documents at any time prior to the Bid due date and time. The Bidder may not rely on oral clarifications/representations/instructions to the ITB or associated Bid Documents unless they are confirmed in writing by City in an issued addendum.

14.4 Each Bidder must confirm addenda have been received and acknowledge receipt by executing **Form 7; Acknowledgment of Addenda** attached to this ITB.

15 Cancellation of Solicitation: This solicitation may be cancelled in accordance to the City of Atlanta Code of Ordinances.

16 Escrow Bid Documents:

16.1 Within ten (10) calendar days after the CITY issues its Notice of Intent to Award a Contract, the winning Bidder shall submit one true copy of all documents used in preparation of its Bid (including subcontractors' documents, if applicable) to the CITY to be held in the CITY's secured vault located within the Department of Procurement ("escrow") for the duration of the Contract. This collection of documents shall be referred to as the "Escrow Bid Documents."

16.2 If a Bid is based on subcontracting any part of the Work, the winning Bidder shall also submit Escrow Bid Documents for each subcontractor whose total subcontract price exceeds five percent (5%) or Five Hundred Thousand ($500,000) Dollars, whichever is less, of the total Contract price proposed by the winning Bidder. Such documents must be filed in the same manner and at the same time as the winning Bidder's Escrow Bid Documents.

16.3 The winning Bidder may submit Escrow Bid Documents in its usual cost-estimating format. The requirement to submit Escrow Bid Documents is not intended to cause the Bidder extra work during the preparation of its Bid. The Escrow Bid Documents shall be in English.

16.4 An Escrow Bid Documents Certificate ("Certificate") must accompany the Escrow Bid Documents at the time they are placed in escrow. The Certificate must be signed by an individual authorized by the Bidder to execute the bid proposal who must represent and warrant (1) that the material in the Escrow Bid Documents constitutes all the documents used in preparation of the Bid, (2) that he or she has personally examined the contents of the Escrow Bid Documents container, (3) that the documents in the container are accurate and complete, and (4) that no other Bid preparation information shall be considered in resolving disputes.

16.5 The CITY acknowledges that the Escrow Bid Documents may contain information that the winning Bidder, or its subcontractor(s), considers "trade secret," as that term is defined in O.C.G.A. § 10-1-761. Information provided to the City is subject to disclosure under the Georgia Open Records Act. Pursuant to O.C.G.A. § 50-18-72(a)(34), "[a]n entity submitting records containing trade secrets that wishes to keep such records confidential under this paragraph shall submit and attach to the records an affidavit affirmatively declaring that specific information in the records constitute trade secrets pursuant to Article 27 of Chapter 1 of Title 10 [O.C.G.A. § 10-1-760 et seq.]."

16.6 Additional information regarding the Escrow Bid Documents (e.g. use, examination, ownership) may be found in the General Conditions attached to and incorporated into the form of Construction Contract included herewith.

17 Submission of Bids:

17.1 Bids must be submitted according to the requirements of this ITB. All blank spaces must be typed or hand written in black ink. All dollar amounts must be BOTH in writing and figures. Written prices prevail over typed prices in the event of a discrepancy. All corrections to any entry must be lined out and initialed by the Bidder. Do not use correction tapes or fluids.

17.2 Bids shall be signed by hand by a principal of the Bidder with the authority to enter into a Contract with the City. Joint Ventures or partnerships must designate one joint venture/partner to represent the joint venture/partnership in submitting and executing a Bid. Each Bidder is responsible for the preparation of its Bid and for the costs of preparing and submitting them.

17.3 Bids will be opened on **Wednesday, March 23, 2016** at **2:00 P.M.** in the Department of Procurement's Bid Conference Room, Suite 1900, 55 Trinity Avenue, S. W., City Hall, Atlanta, Georgia.

17.4 Bids must be <u>sealed</u> and clearly marked identifying the following information on the front of the package:

17.4.1 Bidder's Name/Company Name and Address.

17.4.2 Bidder's Georgia Utility License Number.

17.4.3 Bidder's Georgia Contractor's License Number.

17.4.4 Bidder's Federal Work Authorization User Identification Number

17.4.5 Addressed to:

Adam L. Smith, Esq., CPPO, CPPB, CPPM, CPP,
CPIC, CISCC, CIGPM
Chief Procurement Officer
Department of Procurement
City of Atlanta
55 Trinity Avenue, Suite 1900
City Hall
Atlanta, Georgia 30303
RE: **PROJECT NUMBER FC-8746**

17.5 The following submittals must be completed and submitted on Wednesday, March 23, 2016.

Item #	Required Bid Submittal Check Sheet	Check (√)
1.	Form 1; Illegal Immigration Reform and Enforcement Act Forms	
2.	Form 2; Contractor Disclosure Form	
3.	Form 3; Bid Bond Form	
4.	Form 4; (NOT APPLICABLE FOR THIS ITB)	
5.	Form 5; Acknowledgement of Insurance & Bonding Requirements	
6.	Form 6.1; Certification of Insurance Ability	
7.	Form 6.2; Certification of Bonding Ability	
8.	Form 7; Acknowledgement of Addenda	
9.	Form 8: Bidder Contact Directory	
10.	Form 9; List of References	
11.	Form 10; Georgia Utility Contractor's License	
12.	Georgia Contractor's License	
13.	Georgia Electrical Contractor's License	
14.	Services Agreement (Signed and Sealed) and if applicable copy of Joint Venture Agreement	
15.	Exhibit "C", Form A: Schedule of Quantities and Prices	
16.	Exhibit "C", Form A-1: Schedule of Unit and Lump Sum Prices	
17.	Exhibit "C", Form B: Essential Subcontractor Qualification Statement	
18.	Exhibit "C", Form C: Preliminary Contract Schedule	
19.	Exhibit "C", Form D: Project Organization and Work Plan	
20.	Exhibit "C", Form E: Safety Program	
21.	Exhibit "C", Form F: Resumes of Key Personnel	

Item #	Required Bid Submittal Check Sheet	Check (√)
22.	Exhibit "C", Form G: Summary of QC Program	
23.	Exhibit "C", Form H: Work in Progress	
24.	Exhibit "C", Form I: Experience Statement	
25.	Exhibit "D", OCIP Program Insurance Information Forms (Page 1 and 2)	
26.	Appendix "A": EBO Forms 1 through 5	

REQUIRED SUBMITTAL FORMS

All Respondents, including, but not limited to, corporate entities, limited liability companies, joint ventures, or partnerships, that submit a Proposal or Bid in response to this solicitation <u>must fill out all forms</u> in their entirety, and all forms must be <u>signed</u>, <u>notarized</u> or <u>sealed with the corporate seal</u> (if applicable), as required per each form's instructions.

If Respondent intends to be named as a Prime Contractor(s) with the City, then Respondent <u>must fill out all the forms</u> listed in this solicitation document; otherwise, Respondent may be deemed non-responsive.

FORM 1

Illegal Immigration Reform and Enforcement Act Forms

INSTRUCTIONS TO PROPONENTS:

All Bidders must comply with the Illegal Immigration Reform and Enforcement Act of 2011, O.G.G.A § 13-10-90, et seq. ("IIREA"). Bidders must familiarize themselves with IIREA and are solely responsible for ensuring their compliance therewith. Bidders may not rely on these instructions for that purpose. These instructions are offered only as a convenience to assist Bidders in complying with the requirements of the City's procurement process and the terms of this ITB.

1. The attached Contractor Affidavit must be filled out COMPLETELY and submitted with the bid prior to the bid due date.

2. The Contractor Affidavit must contain an active Federal Work Authorization Program (E-Verify) User ID Number and Date of Registration.

3. Where the business structure of a Bidder is such that Bidder is required to obtain an Employer Identification Number (EIN) from the Internal Revenue Service, Bidder must complete the Contractor Affidavit on behalf of, and provide a Federal Work Authorization User ID Number issued to, the Bidder itself (see Example 1 below). Where the business structure of a Bidder does not require it to obtain an EIN, each entity comprising Bidder must submit a separate Contractor Affidavit (see Example 2 below).

Example 1, ABC, Inc. and XYZ, Inc. form and submit a bid as AirportFood, LLC. AirportFood, LLC must enroll in the E-verify program and submit a single Contractor Affidavit in the name of AirportFood, LLC which includes the Federal Work Authorization User ID Number issued to AirportFood, LLC.

Example 2, ABC, Inc. and XYZ, Inc. execute a joint venture agreement and submit a Bid under the name AirportFood, JV. If, based on the nature of the JV agreement, Airport Food, JV is not required to obtain an Employer Identification Number from the IRS. The Bid submitted by AirportFood, JV must include both a Contractor Affidavit for ABC, Inc. and a Contractor Affidavit for XYZ, Inc.

4. All Contractor Affidavits must be executed by an authorized representative of the entity named in the Affidavit.

5. All Contractor Affidavits must be notarized.

6. All Contractor Affidavits must be submitted with the Bidder's Response to the ITB.

Contractor Affidavit under O.C.G.A. § 13-10-91(b)(1)

By executing this Contractor Affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of the City of Atlanta has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91(b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____ _____

Federal Work Authorization User Identification Number Date of Authorization

Name of Contractor: _____

Name of Project: _____

Name of Public Employer: City of Atlanta

I hereby declare under penalty of perjury that the forgoing is true and correct.

Executed on _____, ____, 20__ in _____ (city), _____ (state)

_____

Signature of Authorized Officer or Agent

_____

Printed name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE
ME ON THIS THE ___, DAY OF _____, 201_____

_____

NOTARY PUBLIC
My Commission Expires: _____

Subcontractor Affidavit under O.C.G.A. § 13-10-91(b)(3)

By executing this Subcontractor Affidavit, the undersigned subcontractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract with _____ (name of contractor) on behalf of the City of Atlanta has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the subcontractor with the information required by O.C.G.A. § 13-10-91(b). Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub-subcontractor to the contractor within five business days of receipt. If the undersigned subcontractor receives notice of receipt of an affidavit from any sub-subcontractor that has contracted with a sub-subcontractor to forward, within five business days of receipt, a copy of such notice to the contractor. Subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____ _____

Federal Work Authorization User Identification Number Date of Authorization

Name of Subcontractor: _____

Name of Project: _____

Name of Public Employer: City of Atlanta

I hereby declare under penalty of perjury that the forgoing is true and correct.

Executed on _____, ____, 20__ in _____ (city), _____ (state)

_____

Signature of Authorized Officer or Agent

_____

Printed name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE
ME ON THIS THE ___, DAY OF _____, 201_____

_____

NOTARY PUBLIC

My Commission Expires: _____

Sub-subcontractor Affidavit under O.C.G.A. § 13-10-91(b)(4)

By executing this affidavit, the undersigned sub-subcontractor verifies its compliance with O.C.G.A. §13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services under a contract for _____ (name of subcontractor or sub-subcontractor with whom such sub-subcontractor has privity of contract) and _____ (name of contractor) on behalf of the City of Atlanta has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A.§13-10-91. Furthermore, the undersigned sub-subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned sub-subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the sub-subcontractor with the information required by O.C.G.A. §13-10-91(b). The undersigned sub-subcontractor shall submit, at the time of such contract, this affidavit to _____ (name of subcontractor or sub-subcontractor with whom such sub-subcontractor has privity of contract). Additionally, the undersigned sub-subcontractor will forward notice of the receipt of any affidavit from a sub-subcontractor to _____ (name of subcontractor or sub-subcontractor with whom such sub-subcontractor has privity of contract). Sub-subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____ _____

Federal Work Authorization User Identification Number Date of Authorization

Name of Sub-Subcontractor: _____

Name of Project: _____

Name of Public Employer: City of Atlanta

I hereby declare under penalty of perjury that the forgoing is true and correct.

Executed on _____, ____, 20__ in _____ (city), _____ (state)

_____

Signature of Authorized Officer or Agent

_____

Printed name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE
ME ON THIS THE ___, DAY OF _____, 201_____

_____

NOTARY PUBLIC
My Commission Expires: _____

FORM 2
Contractor Disclosure Form

DEFINITIONS FOR THE PURPOSES OF THIS DISCLOSURE

"Affiliate"	Any legal entity that, directly or indirectly through one of more intermediate legal entities, controls, is controlled by or is under common control with the Respondent or a member of Respondent.
"Contractor"	Any person or entity having a contract with the city.
"Control"	The controlling entity: (i) possesses, directly or indirectly, the power to direct or cause the direction of the management and policies of the controlled entity, whether through the ownership of voting securities or by contract or otherwise; or (ii) has direct or indirect ownership in the aggregate of fifty one (51%) or more of any class of voting or equity interests in the controlled entity.
"Respondent"	Any individual or entity that submits a response to a solicitation. If the Respondent is an individual, then that individual must complete and sign this Contractor Disclosure Form where indicated. If the Respondent is an entity, then an authorized representative of that entity must complete and sign this Contractor Disclosure where indicated. **If the Respondent is a newly formed entity (formed within the last three years), then an authorized representative of that entity must complete and sign this Contractor Disclosure Form where indicated, and each of the members or owners of the entity must also complete and sign separate Contractor Disclosure Form where indicated.**

Instructions: Provide the following information for the entity or individual completing this Statement (the "Individual/Entity").

A. Basic Information:
1. Name of Respondent: _____
2. Name of the authorized representative for the Respondent: _____

B. Individual/Entity Information:
Principal Office Address: _____
Telephone and Facsimile Numbers: _____
E-Mail Address: _____
Name and title of Contact Person for the Individual/Entity: _____
Is the individual/Entity authorized to transact business in the state of Georgia?

☐ Yes **(Attach Certificate of Authority to transact business in Georgia from Georgia Secretary of State.)**
☐ No

C. Questionnaire

If you answer "YES" to any of the questions below, please indicate the name(s) of the person(s), the nature, and the status and/or outcome of the information, indictment, conviction, termination, claim or litigation, the name of the court and the file or reference number of the case, as applicable. Any such information should be provided on a separate page, attached to this form and submitted with your Proposal.

1. Please describe the general development of the Respondent's business during the past ten (10) years, or such shorter period of time that the Respondent has been in business.

_____

_____

_____

_____

	YES	NO
2. Are there any lawsuits, administrative actions or litigation to which Respondent is currently a party or has been a party (either as a plaintiff or defendant) during the past ten (10) years based upon fraud, theft, breach of contract, misrepresentation, safety, wrongful death or other similar conduct?	☐	☐
3. If "yes" to question number 2, were any of the parties to the suit a bonding company, insurance company, an owner, or otherwise? If so, attach a sheet listing all parties and indicate the type of company involved.	☐	☐
4. Has the Respondent been charged with a criminal offense within the last ten (10) years?	☐	☐
5. Has the Respondent received any citations or notices of violation from any government agency in connection with any of Respondent's work during the past ten (10) years (including OSHA violations)? Describe any citation or notices of violation which Respondent received.	☐	☐

6. Please state whether any of the following events have occurred in the last ten (10) years with respect to the Respondent. If any answer is yes, explain fully the circumstances surrounding the subject matter of the affirmative answer:

	YES	NO
(a) Whether Respondent, or Affiliate currently or previously associated with Respondent, has ever filed a petition in bankruptcy, taken any actions with respect to insolvency, reorganization, receivership, moratorium or assignment for the benefit of creditors, or otherwise sought relief from creditors?	☐	☐
(b) Whether Respondent was subject of any order, judgment or decree not subsequently reversed, suspended or vacated by any court permanently enjoining Respondent from engaging in any type of business practice?	☐	☐

(c) Whether Respondent was the subject of any civil or criminal proceeding in which there was a final adjudication adverse to Respondent which directly arose from activities conducted by Respondent. **YES** ☐ **NO** ☐

7. Has any employee, agent or representative of Respondent who is or will be directly involved in the project, in the last ten (10) years:

(a) directly or indirectly, had a business relationship with the City? **YES** ☐ **NO** ☐

(b) directly or indirectly, received revenues from the City? **YES** ☐ **NO** ☐

(c) directly or indirectly, received revenues from conducting business on City property or pursuant to any contract with the City? **YES** ☐ **NO** ☐

8. Whether any employee, agent, or representative of Respondent who is or will be directly involved in the project has or had within the last ten (10) years a direct or indirect business relationship with any elected or appointed City official or with any City employee? **YES** ☐ **NO** ☐

9. Whether Respondent has provided employment or compensation to any third party intermediary, agent, or lobbyist to directly or indirectly communicate with any City official or employee, or municipal official or employee in connection with any transaction or investment involving your firm and the City? **YES** ☐ **NO** ☐

10. Whether Respondent, or any agent, officer, director, or employee of your organization has solicited or made a contribution to any City official or member, or to the political party or political action committee within the previous five (5) years? **YES** ☐ **NO** ☐

11. Has the Respondent or any agent, officer, director, or employee been terminated, suspended, or debarred (for cause or otherwise) from any work being performed for the City or any other Federal, State or Local Government? **YES** ☐ **NO** ☐

12. Has the Respondent, member of Respondent's team or officer of any of them (with respect to any matter involving the business practice or activities of his or her employer been notified within the five (5) years preceding the date of this offer that any of them are the target of a criminal investigation, grand jury investigation, or civil enforcement proceeding? **YES** ☐ **NO** ☐

13. Please identify any Personal or Financial Relationships that may give rise to a conflict of interest as defined below *[Please be advised that you may be ineligible for award of contract if you have a personal or financial relationship that constitutes a conflict of interest that cannot be avoided]*:

(a) Personal relationships: executives, board members and partners in firms submitting offers must disclose familial relationships with employees, officers and elected officials of the City of Atlanta. Familial relationships shall include spouse, domestic partner registered under section 94-133, mother, father, sister, brother, and **YES** ☐ **NO** ☐

natural or adopted children of an official or employee.

(b) Financial relationships: Respondent must disclose any interest held with a City employee or official or family members of a City employee or official, which may yield, directly or indirectly, a monetary or other material benefit to the Respondent or the Respondent's family members. Please describe:

YES ☐ **NO** ☐

_____
_____
_____

D. REPRESENTATIONS

Anti-Lobbying Provision. All respondents, including agents, employees, representatives, lobbyists, attorneys and proposed partner(s), subcontractor(s) or joint venturer(s), will refrain, under penalty of the respondent's disqualification, from direct or indirect contact for the purpose of influencing the selection or creating bias in the selection process with any person who may play a part in the selection process.

Certification of Independent Price Determination/Non-Collusion. Collusion and other anticompetitive practices among offerors are prohibited by city, state and federal laws. All Respondents shall identify a person having authority to sign for the Respondent who shall certify, in writing, as follows:

"I certify that this bid proposal is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a bid or offer for the same supplies, labor, services, construction, materials or equipment to be furnished or professional or consultant services, and is in all respects fair and without collusion or fraud. I understand collusive bidding is a violation of city, state and federal law and can result in fines, prison sentences, and civil damages awards. By signing this document, I agree to abide by all conditions of this solicitation and offer and certify that I am authorized to sign for this Respondent/Offeror."

Certify Satisfaction of all Underlying Obligations. (If Applicable) If a Contract is awarded through this solicitation, then such Contractor should know that before final payment is made to a Contractor by the City, the Contractor shall certify to the City in writing, in a form satisfactory to the City, that all subcontractors, materialmen suppliers and similar firms or persons involved in the City contract have been paid in full at the time of final payment to the Contractor by the City or will be paid in full utilizing the monies constituting final payment to the Contractor.

Confidentiality. Details of the proposals will not be discussed with other respondents during the selection process. Respondent should be aware, however, that all proposals and information submitted therein may become subject to public inspection following award of the contract. Each respondent should consider this possibility and, where trade secrets or other proprietary information may be involved, may choose to provide in lieu of such proprietary information, an explanation as to why such information is not provided in its proposal. However, the respondent may be required to submit such required information before further consideration.

Equal Employment Opportunity (EEO) Provision. All bidders or offerors will be required to comply with sections 2-1200 and 2-1414 of the City of Atlanta Code of Ordinances, as follows: During the performance of the agreement, the Contractor agrees as follows:

a. The Contractor shall not discriminate against any employee, or applicant for employment, because of race, color, creed, religion, sex, domestic relationship status, parental status, familial status, sexual orientation, national origin, gender identity, age, disability, or political affiliation. As used here, the words "shall not discriminate" shall mean and include without limitation the following:

Recruited, whether by advertising or other means; compensated, whether in the form of rates of pay, or other forms of compensation; selected for training, including apprenticeship; promoted; upgraded; demoted; downgraded; transferred; laid off; and terminated.

The Contractor agrees to and shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officers setting forth the provisions of the EEO clause.

b. The Contractor shall, in all solicitations or advertisements for employees, placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, creed, religion, sex, domestic relationship status, parental status, familial status, sexual orientation, national origin, gender identity, age, disability, or political affiliation.

c. The Contractor shall send to each labor union or representative of workers with which the Contractor may have a collective bargaining agreement or other contract or understanding a notice advising the labor union or workers' representative of the Contractor's commitments under the equal employment opportunity program of the City of Atlanta and under the Code of Ordinances and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The Contractor shall register all workers in the skilled trades who are below the journeyman level with the U.S. Bureau of Apprenticeship and Training.

d. The Contractor shall furnish all information and reports required by the contract compliance officer pursuant to the Code of Ordinances, and shall permit access to the books, records, and accounts of the Contractor during normal business hours by the contract compliance officer for the purpose of investigation so as to ascertain compliance with the program.

e. The Contractor shall take such action with respect to any subcontractor as the city may direct as a means of enforcing the provisions of paragraphs (a) through (h) herein, including penalties and sanctions for noncompliance; provided, however, that in the event the Contractor becomes involved in or is threatened with litigation as a result of such direction by the city, the city will enter into such litigation as is necessary to protect the interest of the city and to effectuate the equal employment opportunity program of the city; and, in the case of contracts receiving federal assistance, the Contractor or the city may request the United States to enter into such litigation to protect the interests of the United States.

f. The Contractor and its subcontractors, if any, shall file compliance reports at reasonable times and intervals with the city in the form and to the extent prescribed by the contract compliance officer. Compliance reports filed at such times directed shall contain information as to employment practices, policies, programs and statistics of the Contractor and its subcontractors.

g. The Contractor shall include the provisions of paragraphs (a) through (h) of this equal employment opportunity clause in every subcontract or purchase order so that such provisions will be binding upon each subcontractor or vendor.

h. A finding, as hereinafter provided, that a refusal by the Contractor or subcontractor to comply with any portion of this program, as herein provided and described, may subject the offending party to any or all of the following penalties:

(1) Withholding from the Contractor in violation all future payments under the involved contract until it is determined that the Contractor or subcontractor is in compliance with the provisions of the contract;

(2) Refusal of all future bids for any contract with the City of Atlanta or any of its departments or divisions until such time as the Contractor or subcontractor demonstrates that there has been established and there shall be carried out all of the provisions of the program as provided in the Code of Ordinances;

(3) Cancellation of the public contract;

(4) In a case in which there is substantial or material violation of the compliance procedure herein set forth or as may be provided for by the contract, appropriate proceedings may be brought to enforce those provisions, including the enjoining, within applicable law, of Contractors, subcontractors or other organizations, individuals or groups who prevent or seek to prevent directly or indirectly compliance with the policy as herein provided.

Prohibition on Kickbacks or Gratuities/Non-Gratuity. The undersigned acknowledges the following prohibitions on kickbacks and gratuities:

a. It is unethical for any person to offer, give or agree to give any employee or former employee a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation or any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy or other particular matter pertaining to any program requirement or a contract or subcontract or to any solicitation or proposal therefor.

b. It is unethical for any employee or former employee to solicit, demand, accept or agree to accept from another person a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation or any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing or in any other advisory capacity in any proceeding or application, request

for ruling, determination, claim or controversy or other particular matter pertaining to any program requirement or a contract or subcontract or to any solicitation or proposal therefor.

c. It is also unethical for any payment, gratuity or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime Contractor or higher tier subcontractor or any person associated therewith as an inducement for the award of a subcontract or order.

Declaration

Under penalty of perjury, I declare that I have examined this Contractor Disclosure Form and all attachments to it, if applicable, and, to the best of my knowledge and belief all statements contained herein and in any attachments, if applicable, are true, correct and complete.

I certify that this offer is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting an offer for the same supplies, services, construction, or professional or consultant services, and is in all respects fair and without collusion or fraud. I understand collusive bidding is a violation of city, state and federal law and can result in fines, prison sentences, and civil damages awards. I agree to abide by all conditions of this solicitation and offer and certify that I am authorized to sign for this Respondent.

For entities that are newly formed (formed within the last three years):

☐ I certify that the Respondent is newly formed and does not have sufficient information to respond to Part C of this Form.

Sign here if you are an individual:

Printed Name: _____

Signature: _____

Date: _____

Subscribed and sworn to or affirmed by _____ (name) this ___ day of _____, 20__.

_____

Notary Public of _____(state)

My commission expires: _____

Sign here if you are an authorized representative of a responding entity or partnership:

Printed Name of Entity or Partnership: _____

Signature of authorized representative: _____

Title: _____

Date: _____, 20___

Subscribed and sworn to or affirmed by _____ (name), as the _____ (title) of _____ (entity or partnership name) this _____ day of _____, 20___.

_____

Notary Public of _____(state)

My commission expires: _____

Form 3: Bid Bond

KNOW ALL MEN BY THESE PRESENTS, THAT WE_____

_____

hereinafter called the PRINCIPAL, and _____

_____

hereinafter called the SURETY, a corporation chartered and existing under the laws of the State of _____, and duly authorized to transact Surety business in the State of Georgia, are held and firmly bound unto the City of Atlanta, Georgia, in the penal sum of either: [i] _____ Dollars and Cents ($_____); or [ii] 5% of PRINCIPAL'S Bid amount for **PROJECT NUMBER FC-8746; TAXIWAY PAVEMENT REPLACMENT 2016**, good and lawful money of the United States of America, to be paid upon demand of the City of Atlanta, Georgia, to which payment well and truly to be made we bind ourselves, our heirs, executors, administrators and assigns, jointly and severally and firmly by these presents.

WHEREAS the PRINCIPAL has submitted to the City of Atlanta, Georgia, for **PROJECT NUMBER FC-8746; TAXIWAY PAVEMENT REPLACMENT 2016**; a Bid;

WHEREAS the PRINCIPAL desires to file this Bond in accordance with law, in lieu of a certified Bidder's check otherwise required to accompany this bid;

NOW THEREFORE: The conditions of this obligation are such that if the Bid be accepted, the PRINCIPAL shall within ten (10) calendar days after receipt of written notification from the CITY of the award of the Contract execute a Contract in accordance with the Bid and upon the terms, conditions and prices set forth therein, in the form and manner required by the City of Atlanta, Georgia, and execute sufficient and satisfactory Performance and Payment Bonds payable to the City of Atlanta, Georgia, each in the amount of one hundred percent (100%) of the total Contract price in form and with security satisfactory to said City of Atlanta, Georgia, then this obligation to be void; otherwise, to be and remain in full force and virtue in law; and the SURETY shall upon failure of the PRINCIPAL to comply with any or all of the foregoing requirements within the time specified above immediately pay to the City of Atlanta, Georgia, upon demand the amount hereof in good and lawful money of the United States of America, not as a penalty but as liquidated damages.
In the event suit is brought upon this Bond by the CITY and judgment is recovered, the SURETY shall pay all costs incurred by the CITY in such suit, including attorney's fees to be fixed by the Court.

Enclosed is a Bid Bond in the approved form, in the amount of either:
[i] _____ Dollars and Cents ($_____), being in the amount of 5% of the CONTRACT Sum; or [ii] 5% of PRINCIPAL'S Bid amount for **PROJECT NUMBER FC-8746; TAXIWAY PAVEMENT REPLACMENT 2016**. The money payable on this bond shall be paid to the City of Atlanta, Georgia, for the failure of the Bidder to execute a CONTRACT within ten (10) days after receipt of the Contract form and at the same time furnish a Payment Bond and Performance Bond.

IN TESTIMONY THEREOF, the PRINCIPAL and SURETY have caused these presents to be duly signed and sealed this _____ day of 201__.

Corporate Bidder:
[Insert Corporate Name]

_____

By:_____
Name:_____
Title:_____

_____

Corporate Secretary/Assistant Secretary (Seal)

Non-Corporate Bidder:
[Insert Bidder Name]

_____

By:_____
Name:_____
Title:_____

_____

Notary Public (Seal)

My Commission Expires:_____

Surety:
Name:_____
By:_____
Name:_____
Title:_____

FORM 4

Non-Applicable for this ITB

FORM 5

Acknowledgement of Insurance and Bonding Requirements

I, _____, on behalf of _____, Proponent, acknowledge that if selected as the successful Proponent for **FC-8746: Taxiway Pavement Replacement 2016** at H-JAIA. Proponent shall comply completely and promptly with all insurance requirements contained in the Agreement attached to this Solicitation and appendices thereto, pertaining to insurance.

Proponent understands that it is expected to share these requirements with potential sureties and insurance brokers, agents, underwriters, etc. prior to any award of an Agreement and to take all necessary steps to ensure compliance with the applicable requirements without delay. Proponent understands, acknowledges and agrees that any failure to fully comply with these requirements within ten (10) days of the date Proponent receives a final Agreement document from the City may result in the forfeiture of the Proposal guarantee submitted with this Proposal and/or the disqualification of Proponent from further consideration for the Agreement.

By executing this Acknowledgement of Insurance Requirements, I represent that the Proponent understands and agrees to comply unconditionally with all requirements related to insurance contained in the Agreement attached to this Solicitation. Further, by signing below, I represent that I am authorized to make the representations contained herein on behalf of Proponent.

Dated this _____ day of _____, 201_.

Corporate Proponent: [Insert Corporate Name]	Non-Corporate Proponent: [Insert Proponent Name]
_____	_____
By:_____	By:_____
Print Name:_____	Print Name:_____
Title:_____	Title:_____
_____ Corporate Secretary/Assistant Secretary (Seal)	_____ Notary Public (Seal) My Commission Expires:_____

FORM 6.1

Certification of Insurance

Instructions: Offerors must submit a completed copy of this form executed by their insurance company. Failure to submit a completed form will result in the Offeror being deemed non-responsive.

I, _____ [*insert an individual's name*], on behalf of _____ [*insert insurance company name*], a _____ [*insert type of entity LLC, LLP, corporation, etc.*](“**Insurer**”), hereby represent and certify each of the following to the City of Atlanta, a municipal corporation of the State of Georgia (“**City**”) on this _____ day of _____, 20____ [*insert date*]:

(a) Insurer is licensed by the Insurance and Safety Fire Commissioner of the State of Georgia to transact insurance business in the State of Georgia;

(b) Insurer has reviewed the Agreement attached to the solicitation for Project Number **FC-8746, Taxiway Pavement Replacement 2016** (“**Project**”) and its **Exhibit D**; and

(c) Insurer certifies that if, as of the date written above, _____ (“**Offeror**”) was selected as the successful Offeror for the Project, Insurer would provide insurance to Offeror for this Project in accordance with the terms set forth in **Exhibit D** attached to the Service Agreement.

PLEASE NOTE: If this form is executed by an Attorney-in-Fact, then Insurer must attach a copy of a duly executed Power-of-Attorney evidencing such authority in addition to correctly completing this form. If Offeror is unable to provide City with insurance that comply with the terms of Exhibit D attached to the Service Agreement within ten (10) days of receiving notice of intent to award the Project from the City, the City may, in its sole discretion, retain Offeror's security submitted with its offer and/or disqualify Offeror from further consideration for the award of the Agreement.

By executing this certification, Insurer represents that all of the information provided by Insurer herein is true and correct as of the date set forth above.

Insurer: [*insert company name on line provided below*]

_____

By:_____

Print Name:_____

Title:_____

_____
Corporate Secretary/Assistant Secretary
(Seal)

FORM 6.2

Certification of Bonding Ability

Instructions: Offeror must submit a completed copy of this form executed by their surety. Failure to submit a completed form will result in the Offeror being deemed non-responsive.

I, _____ [*insert an individual's name*], on behalf of _____ [*insert surety full company name*], a _____ [*insert type of entity LLC, LLP, corporation, etc.*] ("**Surety**"), hereby represent and certify each of the following to the City of Atlanta, a municipal corporation of the State of Georgia ("**City**") on this _____ day of _____, 20____ [*insert date*]:

(a) Surety is licensed by the Insurance and Safety Fire Commissioner of the State of Georgia to transact surety business in the State of Georgia;

(b) Surety has reviewed the Agreement attached to the solicitation for Project Number **FC-8746, Taxiway Pavement Replacement 2016** ("**Project**") and its **Exhibit D**;

(c) Surety certifies that if, as of the date written above, _____ ("**Offeror**") was selected as the successful Offeror for the Project, Surety would provide bonding to Offeror for this Project in accordance with the terms set forth in **Exhibit D** attached to the Service Agreement; and

(d) The Surety states that Offeror's uncommitted bonding capacity (not taking into account this Project) is approximately $ _____ (U.S.). Surety's statement set forth in this Section does not represent a limitation of the bonding capacity of Offeror or that Offeror will have the bonding capacity noted above at the time of contract execution for this Project.

PLEASE NOTE: If this form is executed by an Attorney-in-Fact, then Surety must attach a copy of a duly executed Power-of-Attorney evidencing such authority in addition to correctly completing this form. If Offeror is unable to provide City with bonds that comply with the terms of Exhibit D attached to the Service Agreement within ten (10) days of receiving notice of intent to award the Project from the City, the City may, in its sole discretion, retain Offeror's security submitted with its offer and/or disqualify Offeror from further consideration for the award of the Agreement.

By executing this certification, Surety represents that all of the information provided by Surety herein is true and correct as of the date set forth above.

Surety: [*insert company name on line provided below*]

_____

By:_____

Print Name:_____

Title:_____

_____
Corporate Secretary/Assistant Secretary
(Seal)

FORM 7

Acknowledgment of Addenda

Each Respondent must complete and submit and acknowledgement with its solicitation that it has received all Addenda issued for this solicitation. This form has been included and may be used to satisfy this requirement.

This is to acknowledge receipt of the following **Addenda** for **FC-8746, Taxiway Pavement Replacement 2016:**

☐ None (Check if None)

1. _____;
2. _____;
3. _____; and
4. _____.

Dated the _____ day of _____, 20___.

Corporate Proponent:
[Insert Corporate Name]

_____

By:_____

Name:_____

Title:_____

_____
Corporate Secretary/Assistant Secretary (Seal)

Non-Corporate Proponent:
[Insert Proponent Name]

_____

By:_____

Name:_____

Title:_____

_____
Notary Public (Seal)
My Commission Expires:

FORM 8
Bidder Contact Directory2

NAME	POSITION/TITLE	MAILING ADDRESS	PHONE NUMBER	FAX NUMBER	EMAIL ADDRESS

2 The purpose of the Bidder Contact Directory is to provide the City with a centralized, easily identified source of important contacts and other information regarding each of the business entities constituting a Bidder. This Bidder Contact Directory should include the names, positions/titles, firms, mailing addresses, phone and fax numbers and e-mail addresses for each of the following as it pertains to each of the firms in a Bidder's team:

1. At least two individuals, one primary the other(s) secondary, authorized to represent the firm for purposes of this ITB; and
2. Bidder Service Provider Key Personnel (as appropriate) listed in the Services Agreement included in this ITB at Part 5.

FORM 9: List of References

Each Proponent must provide a list of at least four (4) references using the below-referenced format. The City is interested in reviewing references that are able to attest to a Proponent's performance ability and credibility in a particular industry or trade.

Reference: Name
Address
City, State, Zip
Phone
Fax

Project Title:

Contact Person: _____
Direct Telephone: _____
Email Address: _____

Date(s) of Project: _____

Description of Services:

Total Amount of Contract Including Change Orders:

Proponent's Role and Responsibilities:

Current Completion Status:

_____

(Use the Same Format to Provide the Additional References)

FORM 10

Contractor's Georgia Utility License Certification
PROJECT NUMBER FC-8746
TAXIWAY PAVEMENT REPLACEMENT 2016

NOTE: The Utility Contractor's License Number is also required on the Bid Envelope.

Contractor's Name: _____

Bidder's Georgia Utility Contractor's License Number: _____

Expiration Date of License: _____

I certify that the above information is true and correct and that the classification noted is applicable to the Bid for this Project.

Signed: _____

Printed: _____

Date: _____

CITY OF ATLANTA
HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROJECT NUMBER FC-8746
TAXIWAY PAVEMENT REPLACEMENT 2016
AGREEMENT

Contractor:_____ Contract No._____

Address:_____Telephone:_____

Contact:_____Facsimile: _____

This Contract is effective as of the _____ day of_____, 2016, between CITY and the above named CONTRACTOR who hereby agree that all Work specified below shall be performed by the CONTRACTOR in accordance with all the provisions of this Contract, consisting of the following Contract Documents:

Exhibit "A" General Conditions
Exhibit "B" Special Conditions
Exhibit "C" Quantities, Pricing and Data Forms
Exhibit "D" OCIP Insurance Requirements
Exhibit "D.1" Form of Performance and Payment Bond
Exhibit "D.2" Construction Safety and Health Plan
Exhibit "E" Scope of Work and Technical Specifications
Exhibit "F" Index of Drawings
Exhibit "G" Airport Security Program
Exhibit "H" Schedule Requirements
Exhibit "I" Quality Control Program
Appendix A; Office of Contract Compliance

1. WORK TO BE PERFORMED: Except as specified elsewhere in the Contract, CONTRACTOR shall furnish all plant; labor; materials; tools; supplies; equipment; transportation; supervision; technical, professional and other services; and shall perform all operations necessary and required to satisfactorily:

GENERAL SCOPE:

The Pavement Evaluation 2010 and 2016 identified Taxiways L6 and F3 as well as portions of Taxiway E for partial pavement replacement based on many factors including the age, PCI Index, and the number and frequency of repairs. Portions of Taxiway E identified for replacement include the section from Ramp 2 to Taxiway E5 and from Taxiway D to Delta TOC entrance. A total of 38,000 square yards of pavement is to be replaced. Work includes concrete pavement, centerline lights, and subgrade repair.

2. SCHEDULE: The Work shall be performed in accordance with the dates set forth in the Exhibit "B" Special Conditions, SC-2 clause titled “COMMENCEMENT, PROGRESS AND COMPLETION OF THE WORK."

3. COMPENSATION: As full consideration for the satisfactory performance by CONTRACTOR of this Contract, CITY shall pay to CONTRACTOR compensation in the amount of $_____, in accordance with the prices set forth in Exhibit "C" and the payment provisions of this Contract.

4. LEGISLATIVE RESOLUTION: This Contract is authorized by resolution attached, adopted by the Council of the City of Atlanta on _____, 2016 and approved by the Mayor of the CITY on _____, 2016.

This Contract embodies the entire agreement between CITY and CONTRACTOR and supersedes all other writings. The parties shall not be bound by or be liable for any statement, representation, promise, inducement or understanding not set forth herein.

OWNER:

CITY OF ATLANTA

_____

MAYOR

ATTEST:

_____

MUNICIPAL CLERK

APPROVED:

_____

AVIATION GENERAL MANAGER

_____

ASSISTANT AVIATION GENERAL MANAGER

_____

PROJECT MANAGER

_____

CHIEF PROCUREMENT OFFICER
DEPARTMENT OF PROCUREMENT

APPROVED AS TO FORM:

_____

CITY ATTORNEY

CONTRACTOR NAME:

_____

SIGNATURE:_____

PRINT:_____

TITLE:_____

ATTEST:

_____

SECRETARY/ASST. SECRETARY

[Affix Corporate Seal]

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT
EXHIBIT "A" GENERAL CONDITIONS
FC-8746; TAXIWAY PAVEMENT REPLACEMENT 2016

Table of Contents

GC-01 DEFINITIONS 40
GC-02 CONTRACTORS OBLIGATIONS 43
GC-03 DESIGNATED REPRESENTATIVES 44
GC-04 NOTICES 45
GC-05 CONTRACT INTERPRETATION 45
GC-06 ORDER OF PRECEDENCE 45
GC-07 STANDARDS AND CODES 46
GC-08 LAWS AND REGULATIONS 46
GC-09 PERMITS 53
GC-10 TAXES 53
GC-11 TITLE AND RISK OF LOSS 53
GC-12 PERFORMANCE AND PAYMENT BONDS 54
GC-13 LABOR, PERSONNEL, AND WORK RULES 55
GC-14 ASSIGNMENTS AND SUBCONTRACTS 56
GC-15 COMMERCIAL ACTIVITIES 56
GC-16 PUBLICITY AND ADVERTISING 56
GC-17 ENVIRONMENTAL REQUIREMENTS 57
GC-18 HAZARDOUS SUBSTANCE AWARENESS 58
GC-19 HAZARDOUS SUBSTANCE REGULATIONS 58
GC-20 DECONTAMINATION OF EQUIPMENT AND MATERIALS 58
GC-21 ON-SITE HANDLING AND DISPOSAL OF HAZARDOUS MATERIAL 58
GC-22 OFF-SITE TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIAL 59
GC-23 SITE CONDITIONS AND NATURAL RESOURCES 59
GC-24 DIFFERING SITE CONDITIONS 59
GC-25 TITLE TO MATERIALS FOUND 60
GC-26 SURVEY CONTROL POINTS AND LAYOUTS 60
GC-27 COOPERATION WITH OTHERS 61
GC-28 ILLUMINATION 61
GC-29 USE OF COMPLETED PORTIONS OF WORK 61

GC-30 USE OF CITY OR ITS DESIGNATED REPRESENTATIVES CONSTRUCTION EQUIPMENT OR FACILITIES 62
GC-31 INSPECTION AND QUALITY ASSURANCE 62
GC-32 MONITORING 64
GC-33 BACKCHARGES 64
GC-34 SUSPENSION OF WORK 65
GC-35 TERMINATION FOR DEFAULT 65
GC-36 TERMINATION FOR CONVENIENCE 67
GC-37 CHANGE DOCUMENTS 68
GC-38 PRICING OF ADJUSTMENTS 71
GC-39 EXCUSABLE DELAYS 73
GC-40 COMPLETION AND ACCEPTANCE 75
GC-41 WARRANTY AND COMPONENT WARRANTIES 76
GC-42 DISPUTES (currently GC-33, legal reviewing) 78
GC-43 MUTUAL WAIVER OF CONSEQUENTIAL DAMAGES 81
GC-44 RECORDS AND AUDITS 81
GC-45 INDEMNITY 83
GC-46 PATENT AND INTELLECTUAL PROPERTY INDEMNITY 84
GC-47 NON-WAIVER 85
GC-48 ARCHAEOLOGICAL AND HISTORICAL FINDINGS 85
GC-49 EXPLOSIVES 85
GC-50 DRUGS, ALCOHOL, AND WEAPONS 85
GC-51 ESCROW DOCUMENTS 86
GC-52 MISCELLANEOUS 88

GC-01 DEFINITIONS

Airport means Hartsfield-Jackson Atlanta International Airport.

Award means when legislation authorizing the award of the contract has been adopted by the council and approved by the mayor, provided, however, that the contract will not become binding upon the city and the city will incur no liability under it until it has been duly executed by the contractor, returned to the city with all required submittals, including insurance and bonding, if applicable, executed by the mayor, attested to by the municipal clerk, approved by the city attorney as to form and delivered to the contractor.

Beneficial Occupancy means the stage of construction before Substantial Completion or Final Acceptance, at which the CITY does occupy the building, structure or facility, or a portion thereof, for the purpose it was constructed.

Bid Guaranty means the security furnished with a Bid to guarantee that the Bidder will enter into a contract if his/her bid is accepted by the CITY.

Bidder means any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a Bid for the work contemplated.

Bi-Lateral Change Order means a written alteration in specification, delivery point, time and rate of delivery, period of performance, price, quantity or other provisions of the Contract accomplished by mutual action of the parties to the Contract and executed by both the CITY and CONTRACTOR."

Calendar Day means every day shown on the calendar.

Change Order (*unilateral*) means a written order signed and unilaterally issued by the chief procurement officer or other authorized individual, directing the contractor to make changes that the Changes Clause of the contract authorizes without the consent of the contractor.

CITY/OWNER/SPONSOR means the CITY of Atlanta and its designated representatives, employees and successors in interest.

Construction Manager (CM) means the team retained by the CITY to assist in the management of construction projects. The CM will represent the ENGINEER.

Contract Documents means the Form of Contact, Exhibits A through I and all Attachments, Appendices and other documents referenced therein is signed by both CITY and Contractor.

CONTRACTOR means any person having a contract with the city.

Contractor's Representative means the Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the ENGINEER, and who shall supervise and direct the construction.

DOA means the CITY of Atlanta's Department of Aviation.

ENGINEER means the Aviation Assistant General Manager – Planning and Development, an employee of the CITY of Atlanta Department of Aviation, and any of his designated representatives acting in their professional capacity.
Equipment means all machinery, together with the necessary supplies for upkeep and maintenance, and also all tools and apparatus necessary for the proper construction and acceptable completion of the work.

FAA means Federal Aviation Administration of the U.S. Department of Transportation. When used to designate a person, FAA shall mean the Administrator of his/her duly authorized representative.

Federal Specifications means Federal Specifications and Standards, and supplements, amendments and indices thereto which are prepared and issued by the General Services Administration of the Federal Government.

Final Acceptance means the CONTRACTOR has completed all Work included in the contract and a Final Acceptance letter has been issued by the ENGINEER indicating all requirements on the Final Acceptance Checklist are satisfied and all punchlist items are complete.

Firm means any individual, partnership, corporation, association, joint venture or other legal entity permitted by law to practice or offer professional or consultant services.

FIS means Federal Inspection Services.

H-JAIA means Hartsfield-Jackson Atlanta International Airport.

Inspector means an authorized representative of the ENGINEER assigned to make all necessary inspections and/or tests of the work performed or being performed, or of the materials furnished or being furnished by the CONTRACTOR.

Installer means the CONTRACTOR or another entity engaged by the CONTRACTOR, either as an employee, subcontractor or specialty contractor, to perform a particular construction activity, including installation, erection, application and similar operations. Installers are required to be experienced in the construction operations they are engaged to perform.

Invitation for Bids means all documents, whether attached or incorporated by reference, utilized for soliciting sealed Bids. No confidential or proprietary data shall be solicited in any invitation for Bids.

ISO means International Standards Organization.

Jobsite means the Hartsfield-Jackson Atlanta International Airport, Clayton County, Georgia, at which location construction activity shall be performed under this Contract.

Laboratory means official testing laboratories of the Owner or such other laboratories as may be designated by the ENGINEER.

Lump Sum Price means the full payment for performance of the work and covers all costs of whatever nature incurred by CONTRACTOR in accomplishing the Work in accordance with the provisions of the Contract.

Materials means any substance specified for use in the construction of the Contract work.

Notice to Proceed means a written notice from the CITY to the CONTRACTOR to begin the actual contract work.

OSHA means Occupational Safety and Health Administration. OSHA's mission is to prevent work-related injuries, illnesses, and deaths.

Payment Bond means a bond with good and sufficient surety or sureties payable to the governmental entity for which the work is to be done and intended for the use and protection of all Subcontractors and all persons supplying labor, materials, machinery, and equipment in the prosecution of the Work provided for in the Public Works Construction Contract.

Performance Bond means a bond with good and sufficient surety or sureties for the faithful performance of the Contract and to indemnify the governmental entity for any damages occasioned by a failure to perform the same within the prescribed time. Such bond shall be payable to, in favor of, and for the protection of the governmental entity for which the Work is to be done.

Plans means the official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the Work to be done and which are to be considered as a part of the contract, supplementary to the specifications.

Project Manager (PM) means the designated representative in charge to coordinate, schedule, and monitor the progress of construction activities.

Project means the Hartsfield-Jackson Atlanta International Airport Project Number FC-6450, located at the jobsite for which the Work under this Contract is being performed.

Service means the furnishing of labor, time, or effort by a contractor, not involving the delivery of a specific end product other than reports which are merely incidental to the required performance.

Specifications mean a part of the Contract containing the written directions and requirements for completing the Contract Work. Standards for specifying materials or testing which are cited in the Contract specifications by reference shall have the same force and effect as if incorporated into the Contract.

Substantial Completion means the Project, or a specified portion thereof, shall be deemed Substantially Completed or having achieved Substantial Completion when (a) the Work is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Project, or a specified portion thereof, for its intended use, and (b) the Contractor has obtained on behalf of the Owner for the Project or specified portion thereof, all necessary permits and regulatory approvals necessary for the Owner to occupy and begin use or operation and (c) the Owner accepts the Project, or specified portion thereof, as being at Substantial Completion and issues a Notice of Substantial Completion.

Total Contract Price means the Contract value which is the sum of the product of all Contract Line Items extended as shown in Exhibit "C" titled "QUANTITIES, PRICING, AND DATA."

Utility System means any system at least five (5) feet underground, when installed or accessed by

trenching, open cut, cut and cover, or other similar construction methods which install or access the system from the ground surface, including, but not limited to, gas distribution systems, electrical distribution systems, communication systems, water supply systems, sanitary sewerage and drainage systems, reservoirs and filtration plants, water and waste-water treatment plants, and pump stations, when the system distributes or collects a service, product, or commodity for which a fee or price is paid for said service, product, or commodity.

Work means the furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the CONTRACTOR's performance of all duties and obligations imposed by the contract, plans, and specifications.

GC-02 CONTRACTORS' OBLIGATIONS

CONTRACTOR represents that it is fully experienced, properly qualified, registered, licensed, equipped, organized, and financed to perform the Work under this Contract.

2.1 Subject to the provisions of this Agreement, CONTRACTOR hereby undertakes to cause and obtain the:

2.1.1 Permitting, construction, and commissioning of the Work in accordance with the Construction Documents,

2.1.2 To cause Substantial Completion of the same to occur on or before the Scheduled Completion Date, as the same may be extended pursuant to the provisions of this Contract, and

2.1.3 To equip the Project in accordance with the Contract Documents. Provided that CITY shall be in compliance with its payment obligations hereunder, all costs, expenses and expenditures in connection with the permitting, construction, and commissioning of the Work, including, without limitation, the amounts owing to the, Subcontractors and Suppliers for supervision, transportation, labor, materials or Permits or other matters in connection with the Work, shall be paid by CONTRACTOR.

2.2 CONTRACTOR shall manage, direct and cause the permitting, construction, commissioning and equipping of the Work, and shall coordinate the activities of all Subcontractors and Suppliers involved therein. CONTRACTOR shall meet with Persons providing construction Work on a regular and frequent basis and as specifically provided herein in order to assure the performance of the Work in accordance with the terms of this Agreement. To the extent CONTRACTOR has, obtains, or retains rights under any Subcontract pertaining to the Work, CONTRACTOR will exercise such rights in accordance with all approval and consent provisions provided to CITY in this Contract. CONTRACTOR shall ensure that all warranties provided by the Subcontractors are consistent with the terms of this Contract.

2.3 CONTRACTOR shall provide all labor, materials, equipment and all services required to implement the scope defined by the Contract Documents, as approved by CITY.

2.4 CONTRACTOR shall be responsible for the professional quality, technical accuracy, and other non-construction services furnished by the CONTRACTOR under this Contract. The

CONTRACTOR shall, without additional compensation, correct or revise any errors in construction and other non-construction services and perform any necessary rework or modifications including any damage to real personal property for Work performed by the CONTRACTOR, its Subcontractors and its Suppliers, under this Contract.

2.5 Independent CONTRACTOR. CONTRACTOR shall act as an independent CONTRACTOR and not as the agent of CITY in performing this Contract, maintaining complete control over its employees and all of its Subcontractors. Nothing contained in this Contract or any Subcontract awarded by CONTRACTOR shall create any contractual relationship between any Subcontractor and CITY. CONTRACTOR shall perform the Work hereunder in accordance with its own methods subject to compliance with this Contract.

GC-03 DESIGNATED REPRESENTATIVES

3.1 Designation of ENGINEER. CITY hereby designates the Assistant Aviation General Manager, Planning and Development, a full-time employee of the Department of Aviation, as ENGINEER for this Contract. The ENGINEER shall carry out the CITY's duties specified in this Contract, or necessarily to be implied from this Contract.

3.2 ENGINEER's Representative. ENGINEER may appoint a representative who shall carry out such duties and exercise such authority as may be delegated to him. Any communication given by ENGINEER's representative shall have the same effect as though it had been given by CITY; provided that any failure of ENGINEER to disapprove or reject any work shall not prejudice the authority of ENGINEER to disapprove such work or to give instructions for the recertification of defects.

3.3 ENGINEER's Discretion. Whenever, under this Contract, ENGINEER is required to exercise his discretion by giving a decision, opinion, or consent; by expressing his satisfaction or approval; or by determining values, he shall exercise such discretion reasonably, fairly, and impartially within the terms of this Contract.

3.4 CONTRACTOR's representative. Before starting work, CONTRACTOR shall designate, in writing, an authorized representative acceptable to ENGINEER to represent and act for CONTRACTOR and shall specify any and all limitations of such representative's authority. Such representative shall be present or be represented at the Jobsite at all times when Work is in progress; shall, together with other appropriate CONTRACTOR personnel, be available for meetings as required by ENGINEER; shall be empowered to receive communications in accordance with this Contract on behalf of CONTRACTOR. During periods when the Work is suspended, arrangements shall be made for an authorized representative acceptable to ENGINEER to be available for any emergency work that may be required. All communications given to the authorized representative by ENGINEER or by a designated representative, in accordance with this Contract shall be binding upon CONTRACTOR.

3.5 Notification of Changes in Representatives. Notification of changes of authorized representatives for either CITY or CONTRACTOR shall be provided in advance, in writing, to the other party.

GC-04 NOTICES

4.1 Delivery. All notices, demands, consents, approvals and requests given by either party to the other under this Contract shall be in writing and may be delivered by (i) regular mail, postage prepaid; (ii) certified or registered mail; (iii) facsimile; or (iv) hand-delivery, to the parties at the addresses and facsimile numbers set forth in the Clause titled "ADDRESSES."

4.2 Receipt. Notices sent by mail shall be deemed to be received upon deposit in the mail, properly addressed. Notices sent by certified or registered mail shall be deemed to be received upon acknowledgement. Notices sent by facsimile shall be deemed to be received upon successful transmission to the proper facsimile number. Notices delivered by hand-delivery shall be deemed to be received upon acceptance by the respective party or its agent.

4.3 Change of Address or Facsimile Number. Either party may, at any time, change its respective address or facsimile number by sending written notice to the other party of the change by registered or certified mail, postage prepaid, to the respective addresses set forth in this clause.

GC-05 CONTRACT INTERPRETATION

All questions concerning interpretation or clarification of this Contract or applicable standards and codes, including the discovery of conflicts, discrepancies, errors or omissions, or the acceptable performance thereof by CONTRACTOR, shall be immediately submitted in writing to ENGINEER for resolution. Subject to the provisions of the Clause titled "CHANGE DOCUMENTS", all determinations, instructions, and clarifications of ENGINEER shall be final and conclusive unless determined to have been fraudulent or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence. At all times CONTRACTOR shall proceed with the Work in accordance with the determinations, instructions, and clarifications of ENGINEER. CONTRACTOR shall be solely responsible for requesting instructions or interpretations and shall be solely liable for any costs and expenses arising from its failure to do so.

GC-06 ORDER OF PRECEDENCE

6.1 Precedence of Contract Documents. All Contract Documents, and subsequently formally executed Addendums, Amendments or Modifications to the Contract Documents, are essential parts of this Contract and a requirement or provision contained in one is binding as though contained in all. In resolving conflicts, discrepancies, errors or omissions, including, but not limited to, interpretations pursuant to the Clause titled "CONTRACT INTERPRETATION", the following order of precedence will be used:

6.1.1 Change Order(s);

6.1.2 Legislation;

6.1.3 Agreement;

6.1.4 Exhibit A, Construction Contract General Conditions;

6.1.5 Exhibit B, Construction Contract Special Conditions;

6.1.6 Exhibit D, Insurance and Bonding/Construction Safety and Health Plan;

6.1.7 Exhibit G, Airport Security Program;

6.1.8 Exhibit H, Schedule Requirements;

6.1.9 Exhibit I, Quality Control Program;

6.1.10 Exhibit E, Technical Specifications;

6.1.11 Exhibit F, Contract Drawings;

6.1.12 CONTRACTOR Submittals.

6.2 Interpretation Not Affected. The organization of this Contract into articles, sections, paragraphs, and subparagraphs, the Table of Contents and the insertion of headings and subheadings are for convenience and reference only and shall not modify or affect the meaning, interpretation, construction, or effect of this Contract nor the rights, obligations, and liabilities of the parties.

GC-07 STANDARDS AND CODES

Wherever references are made in this Contract to standards or codes in accordance with which the Work under this Contract is to be performed, the edition or revision of the standards or codes current on the effective date of this Contract shall apply unless otherwise expressly stated. In case of conflict between any referenced standards and codes and any Contract Documents, the law and the code shall prevail over Contract Documents.

GC-08 LAWS AND REGULATIONS

8.1 Compliance with Applicable Law. CONTRACTOR must comply with all applicable federal, state, or local statues, laws, ordinances, codes, rules, regulations, standards, executive orders, consent orders, orders and guidance from regulatory agencies, judicial decrees, permits, licenses or other governmental requirements of any kind, then in effect or which come into effect during the Work being performed, and any present or future amendments to those Governmental Requirements, which specifically relate to (i) the business of the CITY; (ii) the business of the CONTRACTOR or the CONTRACTOR's Subcontractors; (iii) the Contract and the Contract Documents; (iv) the performance of the Work under this Contract by the CONTRACTOR and its Subcontractors; (v) the Airport; (vi) the Transportation Security Administration (TSA) and Federal Aviation administration (FAA) security requirements; or (vii) any other matters relating to this Contract.

8.2 Applicable Law. This Contract shall be governed by and interpreted under the laws of the State of Georgia. The parties fix venue and jurisdiction for any actions brought in

connection with this Contract in Fulton County, Georgia.

8.3 Jurisdiction and Venue. The parties submit and consent to the exclusive jurisdiction of the state courts of Fulton County, Georgia or the United States District Court for the Northern District of Georgia and irrevocably agree that all actions or proceedings relating to this Agreement will be litigated in such courts and each of the Parties waives any objection which it may have based on improper venue or forum non conveniens to the conduct of any such action or proceeding in such courts.

8.4 Equitable Remedies. The Parties agree that, notwithstanding the provisions of "Dispute Resolution", due to the unique nature of either Party's Confidential Information, there may not be an adequate remedy at law for a breach of the Section titled "Confidential Information", which breach may result in irreparable harm to the non-disclosing Party. Accordingly, in such instance, the non-breaching Party will be entitled to appropriate equitable relief in addition to whatever remedies it might have at law.

8.5 Notice of Inconsistencies. If CONTRACTOR discovers any discrepancy or inconsistency between this Contract and any law, ordinance, statute, rule, regulation, order or decree, CONTRACTOR shall report the same immediately, in writing, to ENGINEER.

8.6 Utility Contractor Licensing Requirements. CONTRACTOR shall comply with the requirements of O.C.G.A. § 43-14-8.2 (b) which states:

8.7 Sec.2-1295 – Copyrights and Rights in Data. Under this article, if a contract is being funded by the city, the contract shall include a provision giving the CONTRACTOR notice that the city shall have the right to any plans, drawings, specifications, computer programs, technical reports, operating manuals and similar work products developed and paid for under the contract.

8.8 Confidential Information.

8.8.1 General. Each Party agrees to preserve as strictly confidential all Confidential Information of the other Party for two (2) years following the expiration or termination of this Agreement; provided, however, that each Party's obligations for the other Party's Confidential Information that constitutes trade secrets pursuant to Applicable Law will continue for so long as such Confidential Information continues to constitute a trade secret under Applicable Law. Any Confidential Information that may be deemed Sensitive Security Information by the Department of Homeland Security or any other similar Confidential Information related to security will be considered trade secrets. Upon request by City, CONTRACTOR will return any trade secrets to City. Each Party agrees to hold the Confidential Information of the other in trust and confidence and will not disclose it to any Person, or use it (directly or indirectly) for its own benefit or the benefit of any other Person other than in the performance of its obligations under this Agreement.

8.8.2 Disclosure of Confidential Information or Information Other Party Deems to be Confidential Information. Each Party will be entitled to disclose any Confidential Information if compelled to do so pursuant to: (i) a subpoena; (ii) judicial or administrative order; or (iii) any other requirement imposed upon it by Applicable Law. Prior to making such a disclosure, to the extent allowed pursuant to Applicable Law, each Party must provide the other with thirty six (36) hours prior notice by facsimile of its intent to disclose, describing the content of the information to be disclosed and providing a copy of the pleading, instrument, document, communication or

other written item compelling disclosure or, if not in writing, a detailed description of the nature of the communication compelling disclosure with the name, address, phone number and facsimile number of the Person requesting disclosure. Should the non-disclosing Party contest the disclosure, it must: a) seek a protective order preventing such disclosure; or b) intervene in such action compelling disclosure, as appropriate. This Section will be applicable to information that one Party deems to be Confidential Information but the other Party does not.

8.9 Work Product.

8.9.1 Except as otherwise expressly provided in this Agreement, all reports, information, data, specifications, computer programs, technical reports, operating manuals and similar Work or other documents, all deliverables and other Work Product prepared or authored by CONTRACTOR or any of its Subcontractors exclusively for City under this Contract and all intellectual property rights associated with the foregoing items (collectively, the "Work Product") will be and remain the sole and exclusive property of City. Any of CONTRACTOR's or its Subcontractors' works of authorship comprised within the Work Product (whether created alone or in concert with City or Third Party) will be deemed to be "works made for hire" and made in the course of Work rendered and, whether pursuant to the provisions of Section 101 of the U.S. Copyright Act or other Applicable Law, such Work Product will belong exclusively to City. CONTRACTOR and its Subcontractors grant City a non-exclusive, perpetual, worldwide, fully paid up, royalty free license to all Work Product not exclusively developed for City under this Agreement.

8.9.2 If any of the Work Product is determined not to be a work made for hire, CONTRACTOR assigns to City, worldwide and in perpetuity, all rights, including proprietary rights, copyrights and related rights and all extensions and renewals of those rights, in the Work Product. If CONTRACTOR has any rights to the Work Product that cannot be assigned to City, CONTRACTOR unconditionally and irrevocably waives the enforcement of such rights and irrevocably grants to City during the term of such rights an exclusive, irrevocable, perpetual, transferable, worldwide, fully paid and royalty-free license, with rights to sublicense through multiple levels of sublicensees, to reproduce, make, have made, create derivate works of, distribute, publicly perform and publicly display by all means, now known or later developed, such rights.

8.9.3 City will have the sole and exclusive right to apply for, obtain, register, hold and renew, in its own name or for its own benefit, all patents, copyrights, applications and registrations, renewals and continuations and all other appropriate protection.

8.9.4 To the extent exclusive title or complete and exclusive ownership rights in any Work Product created by CONTRACTOR or its Subcontractor(s) may not originally vest in City by operation of Applicable Law, CONTRACTOR and its Subcontractors must, immediately upon request, unconditionally and irrevocably assign, transfer and convey to City all rights, title and interest in the Work Product.

8.9.5 Without any additional cost to City, CONTRACTOR and its Subcontractors must promptly give City all reasonable assistance and execute all documents City may reasonably request to enable City to perfect, preserve, enforce, register and record its rights in all Work Product. CONTRACTOR and its Subcontractors irrevocably designate City as agent and attorney-in-fact to execute, deliver and file, if necessary, any documents necessary to give effect to the provisions of this Section and to take all actions necessary, in CONTRACTOR's or its

Subcontractor's name, with the same force and effect as if performed by CONTRACTOR or its Subcontractor.

8.10 Sec.2-1213. Prohibition against contracting with predatory or high cost lenders.

8.10.1 The CITY, and those authorized to act on its behalf, shall not enter into any contract with any person or business entity that is a predatory or a high cost lender, or an affiliate thereof, as defined in Code Section 58-102.

8.10.2 Every CITY contract and purchase order shall contain a provision requiring that the person or business entity with which the CITY is contracting certify, under penalty of perjury, that neither the person, or business entity, nor any of its affiliates is a high cost lender or a predatory lender, as provided by Code Section 58-102. All contractors shall identify a person having authority to sign for the CONTRACTOR who shall certify, in writing, as follows:

> I certify, under penalty of perjury, that this offer is made by a person or business entity that is neither a high cost lender nor a predatory lender, nor is the CONTRACTOR an affiliate of a high cost lender or a predatory lender, as defined by City of Atlanta Code Section 58-102. I further certify that I am an agent duly authorized to sign this certification on behalf of the contracting party.

8.10.3 Any person or business entity that provides a false affidavit shall be subject to any or all of the following penalties:

8.10.3.1 Withholding of ten percent (10%) of all future payments under the involved contract until it is determined that the person, or business entity, is in compliance with this section.

8.10.3.2 Withholding of all future payments under the involved contract until it is determined that the person, or business entity, is in compliance with this section.

8.10.3.3 Cancellation of the involved contract.

8.10.4 Nothing in this section shall affect the validity of any contract entered into in connection with any debt obligations issued by or on behalf of the CITY, regardless of whether the contract was awarded in compliance with this Clause.

8.11 Sec.2-1200. Equal employment opportunity Clause

8.11.1 During the performance of this agreement, said CONTRACTOR agrees as follows:
8.11.1.1 The CONTRACTOR shall not discriminate against any employee, or applicant for employment, because of race, color, creed, religion, sex, domestic relationship status, parental status, familial status, sexual orientation, national origin, gender identity, age, disability, or political affiliation. As used here, the words "shall not discriminate" shall mean and include without limitation the following:

8.11.1.1.1 Recruited, whether by advertising or other means; compensated, whether in the form of rates of pay, or other forms of compensation; selected for training, including apprenticeship; promoted; upgraded; demoted; downgraded; transferred; laid off; and terminated.

8.11.1.1.2 The CONTRACTOR agrees to and shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officers setting forth the provisions of the EEO clause.

8.11.2 The CONTRACTOR shall, in all solicitations or advertisements for employees, placed by or on behalf of the CONTRACTOR, state that all qualified applicants will receive consideration for employment without regard to race, color, creed, religion, sex, domestic relationship status, parental status, familial status, sexual orientation, national origin, gender identity, age, disability, or political affiliation.

8.11.3 The CONTRACTOR shall send to each labor union or representative of workers with which the CONTRACTOR may have a collective bargaining agreement or other contract or understanding a notice advising the labor union or workers' representative of the CONTRACTOR's commitments under the equal employment opportunity program of the City of Atlanta and under the Code of Ordinances and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The CONTRACTOR shall register all workers in the skilled trades who are below the journeyman level with the U.S. Bureau of Apprenticeship and Training.

8.11.4 The CONTRACTOR shall furnish all information and reports required by the contract compliance officer pursuant to the Code of Ordinances, and shall permit access to the books, records, and accounts of the CONTRACTOR during normal business hours by the contract compliance officer for the purpose of investigation so as to ascertain compliance with the program.

8.11.5 The CONTRACTOR shall take such action with respect to any Subcontractor as the city may direct as a means of enforcing the provisions of paragraphs (a) through (h) herein, including penalties and sanctions for noncompliance; provided, however, that in the event the CONTRACTOR becomes involved in or is threatened with litigation as a result of such direction by the city, the city will enter into such litigation as is necessary to protect the interest of the city and to effectuate the equal employment opportunity program of the city; and, in the case of contracts receiving federal assistance, the CONTRACTOR or the city may request the United States to enter into such litigation to protect the interests of the United States.

8.11.6 The CONTRACTOR and its Subcontractors, if any, shall file compliance reports at reasonable times and intervals with the city in the form and to the extent prescribed by the contract compliance officer. Compliance reports filed at such times directed shall contain information as to employment practices, policies, programs and statistics of the CONTRACTOR and its Subcontractors.

8.11.7 The CONTRACTOR shall include the provisions of paragraphs (a) through (h) of

this equal employment opportunity clause in every subcontract or purchase order so that such provisions will be binding upon each Subcontractor or vendor.

8.11.8 A finding, as hereinafter provided, that a refusal by the CONTRACTOR or Subcontractor to comply with any portion of this program, as herein provided and described, may subject the offending party to any or all of the following penalties:

8.11.8.1 Withholding from the CONTRACTOR in violation all future payments under the involved contract until it is determined that the CONTRACTOR or Subcontractor is in compliance with the provisions of the contract;

8.11.8.2 Refusal of all future bids for any contract with the City of Atlanta or any of its departments or divisions until such time as the CONTRACTOR or Subcontractor demonstrates that there has been established and there shall be carried out all of the provisions of the program as provided in the Code of Ordinances;

8.11.8.3 Cancellation of the public contract;

8.11.8.4 In a case in which there is substantial or material violation of the compliance procedure herein set forth or as may be provided for by the contract, appropriate proceedings may be brought to enforce those provisions, including the enjoining, within applicable law, of CONTRACTORs, Subcontractors or other organizations, individuals or groups who prevent or seek to prevent directly or indirectly compliance with the policy as herein provided.

8.12 Ethics: Gratuities and Kickbacks.

8.12.1 Gratuities and Kickbacks. In accordance with the City of Atlanta's Code of Ordinances, Section 2-1484, as may be amended, it shall be unethical for any person to offer, give or agree to give any employee or former employee or for any employee or former employee to solicit, demand, accept or agree to accept from another person a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation or any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy or other particular matter pertaining to any program requirement or a contract or subcontract or to any solicitation or proposal therefore. Additionally, it shall be unethical for any payment, gratuity or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith as an inducement for the award of a subcontract or order.

8.12.2 Rights and Remedies. The rights and remedies of CITY provided in this Clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Contract.

8.12.3 Contingent Fees. The CONTRACTOR warrants that it has not employed nor

retained any company or person, other than a bona fide employee working for the vendor or CONTRACTOR or firm, to solicit or secure the Contract; and that the vendor or CONTRACTOR or firm has not paid or agreed to pay any person, company, association, corporation, individual, or firm, other than a bona fide employee working for the vendor or CONTRACTOR or firms, any fee, commission, percentage, gift or any other consideration contingent upon or resulting from the award or making of the Contract. For the breach or violation of the above warranty, and upon a finding after notice and hearing, CITY shall have the right to terminate the Contract, and, at its discretion, to deduct from the Contract price, or otherwise recover the full amount of such fee, commission, percentage, gift or consideration.

8.12.4 Fraud and misrepresentation. Any written or oral information provided by [insert as appropriate "Contractor" or Service Provider"], directly or indirectly related to the performance of the services required by this Agreement, constitutes material representations upon which the City relies for the requirements of the Agreement and compliance with local, state and federal laws, rules and regulations. [Contractor] agrees to notify the City immediately of any information provided to the City that it knows and/or believes to be false and/or erroneous and immediately provide correct information to the City and take corrective action. [Contractor] further agrees to notify the City immediately of any actions or information that it believes would constitute fraud or misrepresentation to the City in performance of this Agreement, whether or not such information actually constitutes fraud and/or misrepresentations, by contacting the Integrity Line 1-800-884-0911. [Contractor] agrees to place signage provided by the City regarding the Integrity Line at the location to which [Contractor's] employees report to perform the services required by this Agreement. [Contractor] acknowledges and agrees that a finding of fraud or other impropriety on the part of the [Contractor] or any of its [subcontractors] may result in suspension or debarment of the [Contractor]; and the City may pursue any other actions or remedies that the City may deem appropriate. [Contractor] agrees to include this clause in its [subcontracts] and take appropriate measures to ensure compliance with this provision.

8.13 Sec. 2-1109 Compliance with Federal Requirements. When the procurement or real estate transaction involves the expenditure of federal assistance or contract funds, the procurement or real estate transaction shall be conducted in accordance with any applicable mandatory federal law and authorized regulations which are not reflected in this article. Notwithstanding, where federal assistance or contract funds are used in a procurement or real estate transaction, requirements that are more restrictive than federal requirements shall be followed.

8.14 Sec. 2-1273 Wage Requirements for Construction Contracts. Unless otherwise required or if federally assisted, when a construction project exceeds the sum of $10,000.00, the prevailing wages paid shall correspond as nearly as practicable to the prevailing wages required in the federal Davis Bacon Act. Such scale of wages to be paid shall be posted by the CONTRACTOR in a prominent and easily accessible place at the site of work.

8.15 Sec. 2-1291 Responsibilities and Rights of Parties to Contract. CONTRACTOR acknowledges that this contract and any changes to it by amendment, modification, change order or other similar document may have required or may require the legislative

authorization of the City's Council and approval of the Mayor. Under Georgia law, CONTRACTOR is deemed to possess knowledge concerning the City's ability to assume contractual obligations and the consequences of CONTRACTOR's provision of goods or services to the City under an unauthorized contract, amendment, modification, change order or other similar document, including the possibility that the CONTRACTOR may be precluded from recovering payment for such unauthorized goods or services. Accordingly, CONTRACTOR agrees that if it provides goods or services to the City under a contract that has not received proper legislative authorization or if the CONTRACTOR provides goods or services to the City in excess of the any contractually authorized goods or services, as required by the City's Charter and Code, the City may withhold payment for any unauthorized goods or services provided by CONTRACTOR. CONTRACTOR assumes all risk of non-payment for the provision of any unauthorized goods or services to the City, and it waives all claims to payment or to other remedies for the provision of any unauthorized goods or services to the City, however characterized, including, without limitation, all remedies at law or equity.

GC-9 PERMITS

Responsibility of Permits. Except as otherwise specified, CONTRACTOR shall procure and pay for all permits, licenses, certifications, and other applicable governing authority requirements and inspections, other than inspections performed by the CITY, and shall furnish any documentations, bonds, security or deposits required to permit performance of the Work.

GC-10 TAXES

CONTRACTOR shall pay all taxes, levies, duties, and assessments of every nature due in connection with the Work under this Contract and shall make any and all payroll deductions and withholdings required by law, and hereby indemnifies and holds harmless the CITY, from any liability on account of any and all such taxes, levies, duties, assessments, and deductions.

GC-11 TITLE AND RISK OF LOSS

11.1 Title to Goods. Where Contractor fabricates or purchases equipment, materials or other tangible items (Goods) for incorporation into the Work or any of its separate parts, the title of such Goods shall be vested in CITY when the first of the following events occurs:

11.1.1 The Goods or part thereof is first identifiable as being appropriated to this Contract,

11.1.2 When CITY pays for the Goods or part thereof in accordance with this Contract, or

11.1.3 When the Goods or part thereof are dispatched to or from Contractor's fabrication yard or to the Jobsite.

11.2 CITY's Right to Reject Goods/Materials. However such transfer of title in the Goods will be without prejudice to CITY's right to reject the Goods/Materials in case of non-conformity with the requirements of this Contract. Irrespective of transfer of title in the Goods/Materials,

CONTRACTOR shall remain responsible for risk of loss or damage to work in progress and all Goods until Final Acceptance. CONTRACTOR shall ensure that the above provisions are imposed upon its suppliers and Subcontractors and shall execute all documents and take all steps necessary to vest title in accordance with this Clause.

11.3 Title to Bulk Goods. Title to standard Goods of the type usually bought in bulk such as reinforcement bars, piping materials, non-tagged instruments and instrument installation material, cable and similar items which are not incorporated into the Work shall revert to CONTRACTOR upon agreement by the CITY that such Goods are not required for the Work.

GC-12 PERFORMANCE AND PAYMENT BONDS

12.1 Bonding Requirements. CONTRACTOR, at its sole expense, shall maintain in effect at all times during the performance of the Work Performance and Payment Bonds each in an amount with limits not less than those set forth in this article. All Bonds shall be issued in a form and by a Surety acceptable to the CITY and contain the Surety's waiver of notice of all contract changes, including, but not limited to, increase or decrease in scope, value, and schedule acceleration or deceleration. Upon satisfactory completion of all Contract obligations, CITY shall return such securities to Contractor.

12.1.1 CONTRACTOR shall, at the time of execution of this Contract, furnish CITY a Performance Bond and a Payment Bond for the Work under this Contract, each in an amount equal to one hundred percent (100%) of the Contract value. The person executing the Bonds on behalf of the Surety shall file with the Bonds a general power of attorney as to amount and type of the Bonds covered by such power of attorney, and certified by an official of said Surety.

12.2 Corporate Surety. Bonds shall be executed by a corporate Surety (insurance company), which is satisfactory to CITY and meets the following minimum financial security requirements:

12.2.1 Have a current Best's rating of not less than A-, and current, and;

12.2.2 Have a Best's financial size category of not less than Class IX, and;

12.2.3 Be authorized by the Georgia Insurance Commissioner pursuant to a valid and current Certificate of Authority to conduct and transact Surety business in the State of Georgia, and;

12.2.4 Be a U.S. Treasury Circular 570 listed company.

The Bonds shall be submitted and will be dated by the CITY upon execution of the Contract. The Surety shall appoint an agent for service in Atlanta, Georgia upon whom all notices shall be served. The person executing the Bonds on behalf of the Surety shall file with the Bonds a general power of attorney unlimited as to amount and type of Bonds covered by such power of attorney, and certified to by an official of said Surety. The Bonds shall be on forms provided by CITY, and subject to increase for any alterations, extension of the time allows for performance, extra or additional work and any other changes authorized under this Contract.

12.3 Amendment to Bonds. In the event the Contract Price is increased, CONTRACTOR shall deliver to CITY an amendment or Rider to the Payment and Performance Bonds increasing the final amounts of the Bonds to the new Contract Price, or new Bonds shall be furnished in the final amount of the new Contract Price. These Bonds shall remain in effect through the period of performance, including the period of warranty, and as required under Georgia law for Bonds on Public construction contracts.

12.4 Related Obligations.

12.4.1 No limitations. The requirements contained herein as to forms and limits, as well as CITY's approval of Bond coverage to be maintained by CONTRACTOR, are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by CONTRACTOR under this Contract.

12.4.2 Use of Facilities. CONTRACTOR agrees that it will not use the facilities for any purpose which might void any Bond covering the Work or render any loss under any Bond uncollectible.

GC-13 LABOR, PERSONNEL, AND WORK RULES

13.1 Qualifications and Procedures. CONTRACTOR shall employ only competent and skilled personnel to perform the Work and shall remove from the Jobsite any CONTRACTOR personnel determined to be unfit or to be acting in violation of any provision of this Contract. CONTRACTOR is responsible for maintaining labor relations in such manner that there is harmony among workers and shall comply with and enforce Project and Jobsite procedures, regulations, work rules and work hours established by ENGINEER.

13.2 Professional Standards.
The Work will be performed in a professional and workmanlike manner in accordance with the standards imposed by Applicable Law and the practices and professional standards used in well managed operations performing work similar to the Work.

13.3 Discretion to Deny Access. ENGINEER may at his sole discretion deny access to the Jobsite to any individual by written notice to CONTRACTOR. In the event an employee is excluded from the Jobsite, CONTRACTOR shall promptly replace such individual with another who is fully competent and skilled to perform the Work.

13.4 Demands for Collective Bargaining. CONTRACTOR shall give ENGINEER prompt notice in writing of every demand for collective bargaining made upon CONTRACTOR or any of its subcontractors by any labor organization and of any labor dispute, which may reasonably be expected to affect performance of the Work under this Contract.

13.5 Jurisdictional Disputes. Unless other methods are established by ENGINEER, the rules, regulations, and procedures of the Plan for Settlement of Jurisdictional Disputes in the Construction Industry, or any successor agreement thereto, shall be used to determine work assignments and to resolve jurisdictional disputes on work covered by this Contract.

13.6 Wage Requirements for Construction Contracts. Unless otherwise required or if

federally assisted, when a construction project exceeds the sum of Ten Thousand Dollars ($10,000.00), the prevailing wages paid shall correspond as nearly as practicable to the prevailing wages required in the federal Davis Bacon Act. Such scale of wages to be paid shall be posted by the Contractor in a prominent and easily accessible place at the site of work.

GC-14 ASSIGNMENTS AND SUBCONTRACTS

14.1 Consent of CITY Required. Any assignment of this Contract or rights hereunder, in whole or part, without the prior written consent of CITY shall be void, except that upon ten (10) calendar days written notice to CITY. CONTRACTOR may assign monies due, or to become due, under this Contract. Any assignment of monies shall be subject to proper set-offs in favor of CITY and to any deductions provided for in this Contract.

14.2 Pass Down of Contract Requirements. Purchase orders and subcontractors must include provisions to secure all rights and remedies of CITY provided under this Contract, and must impose upon the Subcontractor all of the duties and obligations required to fulfill this Contract with respect to their activities.

14.3 Subcontractors. If Consultant subcontracts any of the Services, Consultant shall: (i) be responsible for the performance of Services by the Subcontractors; (ii) remain City's sole point of contact for the Services; and (iii) be responsible for the payment of any Subcontractors.

14.4 Required Provisions. Purchase orders and Subcontractors must include provisions to secure all rights and remedies of CITY provided under this Contract, and must impose upon the Subcontractor all of the duties and obligations required to fulfill this Contract with respect to their activities.

14.5 Copies of Purchase Orders and Subcontracts. Copies of all purchase orders and Subcontracts are to be provided to ENGINEER upon request.

14.6 No Relief of Responsibilities. No assignment or subcontract will be approved which would relieve CONTRACTOR or its sureties, if any, of their responsibilities under this Contract. CITY may require revised or modified bonds or insurance and the execution of assumption agreements as conditions for approval.

14.7 Further Acts. CITY and CONTRACTOR each agrees to perform any additional acts, execute, and deliver any additional documents as may reasonably be necessary in order to carry out the provisions and effectuate the intent of this Contract.

GC-15 COMMERCIAL ACTIVITIES

Neither CONTRACTOR nor its employees shall establish any commercial activity or issue concessions or permits of any kind to third parties for establishing commercial activities on the Jobsite or any other lands owned or controlled by CITY.

GC-16 PUBLICITY AND ADVERTISING

CONTRACTOR shall not make any announcement, release any photographs, or release any information concerning this Contract, or the Project, or any part thereof to any member of the

public, press, business entity, or any official body unless prior written consent is obtained from ENGINEER. CONTRACTOR may not erect any signs without the written approval of the ENGINEER, other than those required by this Contract.

GC-17 ENVIRONMENTAL REQUIREMENTS

17.1 Environmental Plan and Controls. Throughout performance of the Work, CONTRACTOR shall conduct all operations in such a way as to minimize impact upon the natural environment and prevent any spread of contaminated or hazardous materials. CONTRACTOR shall:

17.1.1 Provide dust control of its operations within work and all other areas under its control and shall coordinate and cooperate with others for dust control in common areas;

17.1.2 Provide working machinery and equipment with efficient noise suppression devices and all other noise and vibration abatement measures necessary for the protection of workers and the public;

17.1.3 Provide suitable waste, sewage, sanitary, and garbage disposal methods and procedures approved by ENGINEER and consistent with State and Federal regulations.

17.1.4 Provide suitable equipment, facilities, and precautions to prevent the discharge of contaminants into the atmosphere, adjoining workspaces, any body of water, or land areas;

17.1.5 Provide all documentation required by all levels of governing authority or this Contract concerning environmental requirements; and

17.1.6 Be responsible for developing and maintaining a written Environmental Compliance Plan in accordance with CONTRACTOR's established practices, including, but not limited to, compliance with all applicable laws and all applicable requirements in the Project Environmental Control Plan. CONTRACTOR shall have sole responsibility for developing, implementing, and enforcing its Environmental Compliance Plan and CONTRACTOR's obligations under the Clause titled "INDEMNITY' apply to any liability arising in connection with or incidental to CONTRACTOR's performance or failure to perform as provided in this clause.

17.1.7 Submit NPDES Permit for staging / batch plant as required.

17.2 Storm Water Discharge. All discharged storm water, associated with construction activities, to the waters of the State of Georgia shall be in accordance with the limitations, monitoring requirements and other conditions set forth in the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416 as amended). The Federal Clean Water Act (33 U.S.C. 1251 et seq., as amended) and the Rules and Regulations promulgated to these acts.

17.3 Notice of Toxic/Hazardous Materials. In the event CONTRACTOR encounters on the Jobsite material reasonably believed to be toxic or hazardous material or waste, which has not been addressed in this Contract, CONTRACTOR shall immediately stop work in the affected area

and notify the ENGINEER or its designated representative in writing of the condition. Pending receipt of written instructions from ENGINEER, CONTRACTOR shall not resume work in the affected area.

GC-18 HAZARDOUS SUBSTANCE AWARENESS

18.1 Hazardous Nature of the Work. The nature of the Work to be performed under this Contract may involve inherent risks. CONTRACTOR agrees that it will inform its officers, employees, agents, suppliers and Subcontractors, and any other parties which may come into contact with any hazardous substance as a result of CONTRACTOR's activities hereunder of the nature of such materials and any health or environmental risks associated with such materials.

18.2 Training Prior to Assignment. CONTRACTOR warrants that CONTRACTOR's personnel and personnel of its suppliers and Subcontractors, assigned to or regularly entering the Jobsite, have or will receive training as specified in OSHA 29 CFR 1910.120(e) in relation to this Contract prior to their assignment to field duty. Supervisory personnel will also receive, as a minimum, eight (8) hours additional specialized training in the management of hazardous waste operations. Such training shall be at CONTRACTOR's expense. CONTRACTOR personnel assigned to the Jobsite may also be required to attend specialized training classes specific to the Jobsite as presented by CITY or its designated representatives.

GC-19 HAZARDOUS SUBSTANCE REGULATIONS

CONTRACTOR shall ensure that all hazardous substances with which it deals receive safe and proper handling. CONTRACTOR confirms that it is aware of and will comply with the requirements of the All Environmental Regulations, including but limited to, Comprehensive Environmental Response, Compensation, Liability Act, 42 U.S.C. 9601-9675 (CERCLA) as amended; the Resource Conservation and Recovery Act, 42 U.S.C. 6901-6992- (RCRA) as amended; the Toxic Substances Control Act (TSCA), 15 U.S.C. 2601-2671; the Clean Water Act (CWA), 33 U.S. C. 1251-1387; Title 40 of the Code of Federal Regulations; the Department of Transportation (DOT) regulations applicable to hazardous substances, and any other federal, state, and local laws applicable to work with or near hazardous substances.

GC-20 DECONTAMINATION OF EQUIPMENT AND MATERIALS

All CONTRACTOR equipment, debris and used or surplus materials must be fully decontaminated prior to removal from designated work areas. CONTRACTOR shall submit decontamination and contaminated material control procedures for ENGINEER review and acceptance. CONTRACTOR shall obtain ENGINEER's authorization to remove any such equipment, debris or surplus materials from the Jobsite.

GC-21 ON-SITE HANDLING AND DISPOSAL OF HAZARDOUS MATERIAL

If the Work under this Contract includes any intrusive site or structural drilling, boring, coring, or sampling, debris may be produced as a result of these efforts. This debris could include solids or liquids drawn from site wells for sampling purposes. All such debris shall be treated by the CONTRACTOR as if it were hazardous waste regulated under the Federal Resource and

Conservation Recovery Act of 1976, 42 U.S.C. 6901-6992 (RCRA) as amended, or any more stringent applicable regulations, unless and until the CONTRACTOR has been able to confirm, to the satisfaction of ENGINEER and/or the appropriate regulatory agencies that the wastes are not regulated as hazardous.

GC-22 OFF-SITE TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIAL

CONTRACTOR shall have no authority or responsibility for the off-site transportation, storage, treatment or disposal of contaminated or potentially waste materials of any kinds, which are directly or indirectly generated at the Jobsite. Such removal shall be made by the CITY. However, CONTRACTOR shall handle all materials at the Jobsite with due care, in accordance with work or Jobsite plans and the requirements of this Contract.

GC-23 SITE CONDITIONS AND NATURAL RESOURCES

23.1 Nature and Location of Work. CONTRACTOR shall have the sole responsibility for satisfying itself concerning the nature and location of the Work and the general and local conditions, including but not limited to the following:

23.1.1 Transportation, access, disposal, handling and storage of materials;

23.1.2 Availability and quality of labor, water, electric power, and road conditions;

23.1.3 Climatic conditions, tides, and seasons;

23.1.4 Physical conditions at the Jobsite and the project area as a whole;

23.1.5 Topography and ground surface conditions; and

23.1.6 Equipment and facilities needed preliminary to and during the performance of the Work.

23.2 Failure to Assess Conditions. The failure of CONTRACTOR to acquaint itself with any applicable conditions will not relieve CONTRACTOR of the responsibility for properly estimating either the difficulties, time, or cost of successfully performing CONTRACTOR's obligations under this Contract.

GC-24 DIFFERING SITE CONDITIONS

24.1 Information on Subsurface Conditions. Where CITY has made investigations of subsurface conditions in areas where work is to be performed under this Contract, such investigations are made by CITY for the purpose of study and design. If the records of such investigation are included in the Contract Documents, the interpretation of such records shall be the sole responsibility of CONTRACTOR. Neither CITY nor its agents, representatives and consultants assume any responsibility whatsoever in respect to the sufficiency or accuracy of such investigations, the records thereof, or of the interpretations set forth and there is no warranty or guarantee, either express or implied, that the conditions indicated by such investigations or records thereof are representative of those existing throughout such areas, or any part thereof, or that unforeseen developments may not occur, or that materials other than

or in proportions different from those indicated may not be encountered.

24.2 Notice for Differing Site Conditions. CONTRACTOR shall immediately notify ENGINEER in writing before proceeding with any work which CONTRACTOR believes constitutes a differing site condition with respect to:

24.2.1 Subsurface or latent physical conditions at the Jobsite differing materially from those indicated in this Contract; or

24.2.2 Previously unknown physical conditions at the Jobsite, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract.

24.3 Determination by ENGINEER. ENGINEER shall investigate such condition and make a written determination. If ENGINEER determines that such condition does constitute a differing site condition, CONTRACTOR may then, pursuant to the Clause titled "CHANGE DOCUMENTS", submit a written Change Notice Request setting forth the impact of such differing site condition and describing any additional or modified work resulting therefrom. Failure of CONTRACTOR to give the required notice shall be grounds for rejection of the claim to the extent CITY is prejudiced by such delay.

GC-25 TITLE TO MATERIALS FOUND

The title to water, soil, rock, gravel, sand, minerals, timber, and any other materials developed or obtained in the excavation or other operations of CONTRACTOR or any of its Subcontractors, and the right to use said materials, or dispose of same, is hereby expressly reserved by CITY. CONTRACTOR may, at the sole discretion of CITY, be permitted, without charge, to use in the Work any such materials, which meet the requirements of this Contract.

GC-26 SURVEY CONTROL POINTS AND LAYOUTS

26.1 Survey Control Points. Survey control points as shown on the drawings will be established by CITY. If CONTRACTOR or any of its Subcontractors or any of their representatives or employees move or destroy or render inaccurate any survey control point, such control point shall be replaced by ENGINEER at CONTRACTOR's expense.

26.2 Work to Confirm. CONTRACTOR shall complete the layout of all work and shall be responsible for execution of the Work in accordance with the locations, lines, and grades specified or shown on the drawings, subject to such modifications as ENGINEER may require as work progresses. Cross Sections, when required to establish quantities, shall be taken at a maximum of fifty (50) foot intervals.

26.3 Replacement Survey Control Points. If CONTRACTOR, or any of its Subcontractors or any of their representatives or employees, move or destroy or render inaccurate any survey control point, such control point shall be replaced by ENGINEER at CONTRACTOR's expense.

26.4 Certification of Survey Work. No separate payment will be made for survey work performed by CONTRACTOR, but all survey work shall be under the direction of registered Land

Surveyor, licensed in Georgia, who shall certify all survey results.

GC-27 COOPERATION WITH OTHERS

27.1 Cooperation between CONTRACTORS. The CITY reserves the right to Contract for and perform other, or additional, work on or near the Work covered by this Contract. When separate contracts are let within the limits of any one project, each CONTRACTOR shall conduct its work so as not to interfere with, or hinder the progress of, completion of the Work being performed by other contactors. Contractors working on the same project shall cooperate with each other as directed.

Each contractor involved shall assume all liability, financial or otherwise, in connection with its Contract and shall protect and same harmless the CITY from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced by CONTRACTOR because of the presence and operations of other contractors working within the limits of the same project.

The CONTRACTOR shall arrange its work and shall place and dispose of the materials being used so as not to interfere with the operations of the other CONTRACTORS within the limits of the same project. It shall join its work with that of the others in an acceptable manner and shall perform Work in proper sequence to that of the others.

GC-28 ILLUMINATION

When any work is performed at night, or where daylight is obscured, CONTRACTOR shall, at its expense, provide artificial light sufficient to permit work to be carried on efficiently, satisfactorily and safely, and to permit thorough inspection. During such time periods, the access to the place of work shall also be clearly illuminated. All wiring for electric light and power shall be installed and maintained in a safe manner and meet all applicable codes and standards.

GC-29 USE OF COMPLETED PORTIONS OF WORK

29.1 Beneficial Occupancy. Whenever, as determined by Engineer, any portion of the Work performed by CONTRACTOR is suitable for use, CITY may, upon written notice, occupy and use such portion. Use shall not constitute acceptance, relieve CONTRACTOR of its responsibilities, or act as a waiver by the CITY of any terms of this Contract (see “WARRANTY”).

29.2 Liability for Damage. CONTRACTOR shall not be liable for normal wear and tear or for repair of damage caused by any misuse during such occupancy or use by CITY. If such use increases the cost or time of performance of remaining portions of the Work, CONTRACTOR shall, pursuant to the Clause titled, ”CHANGE DOCUMENTS”, be entitled to an equitable adjustment in its compensation or schedule. Damage caused by CONTRACTOR’s acts or omissions during such use shall be remedied at CONTRACTOR’s expense.

29.3 Use of Unsatisfactory Work. If, as a result of CONTRACTOR’s failure to comply with the provisions of this Contract, such use of completed portions of the Work proves to be unsatisfactory to CITY, the CITY shall have the right to continue such use until such portion of the Work can be taken out of service at the CITY’s discretion for correction of defects, errors,

omissions, or replacement; provided that the period of operations or use pending remedial action shall not exceed twelve (12) months.

29.4 Use of Permanently Installed Equipment. CONTRACTOR shall not use any permanently installed equipment unless such use is approved in writing by ENGINEER. When such use is approved, CONTRACTOR shall at its own expense properly use and maintain and, upon completion of such use, recondition such equipment as required, normal wear and tear as expected.

GC-30 USE OF CITY OR ITS DESIGNATED REPRESENTATIVES CONSTRUCTION EQUIPMENT OR FACILITIES

30.1 Owner Furnished Materials. None

30.2 When CONTRACTOR requests and ENGINEER agrees to make available for rent any equipment or facilities belonging to CITY for the performance of work, the following shall apply:

30.2.1 ENGINEER will furnish a copy of the equipment maintenance and inspection record, and these records shall be maintained by CONTRACTOR during the rental period;

30.2.2 CONTRACTOR shall assure itself of the condition of such equipment and/or materials and assume all risks and responsibilities during its use;

30.2.3 ENGINEER and CONTRACTOR shall jointly prepare an Inspection Report and inspect such equipment and/or materials before its use and upon its return, to document properly any damages as a result of CONTRACTOR's use. The cost of all necessary Improvements or replacement other than normal wear shall be at CONTRACTOR's expense; and

30.2.4 If such equipment and/or materials is furnished with an operator, the services of such operator will be performed under the complete direction and control of CONTRACTOR and such operator shall be considered CONTRACTOR's employee for all purposes other than the payment of wages, Workers' Compensation Insurance or other benefits.

30.2.5 Equipment rental rates shall be those shown in Exhibit "C" (Quantities, Pricing and Data) or, if none are shown, rates shall be negotiated based upon then current Data Quest Blue Book data."

GC-31 INSPECTION AND QUALITY ASSURANCE

31.1 Inspection and Audit. All material and equipment furnished and work performed shall be properly inspected by CONTRACTOR at its expense, and shall at all times be subject to quality surveillance and quality audit by the CITY who, upon reasonable notice, shall be afforded full and free access to the shops, factories, or other places of business of CONTRACTOR and its subcontractors for such quality surveillance or audit.

31.2 Authority and Access for Inspectors. Such quality auditors or inspectors are not authorized to change, revoke, or waive any provision of this Contract, not to issue instructions contrary to Contract requirements, nor to direct the efforts of any of CONTRACTOR's employees in any way. CONTRACTOR shall provide safe and adequate

facilities, drawings, documents, and samples as requested, and shall provide assistance and cooperation including stoppage of work to perform such examination as may be necessary to determine compliance with the requirements of this Contract. Any work covered prior to any planned quality surveillance or test by the CITY shall be uncovered and replaced at the expense of CONTRACTOR if such covering interferes with or obstructs such inspection or test.

31.3 Uncovering of portions of the Work. At any time before Final Acceptance, ENGINEER may, for the purpose of inspection, direct CONTRACTOR to uncover portions of the Work which have been completed and covered up. If examination proves the completed work to be defective, corrections shall be made pursuant to the Clause titled "WARRANTY". If the Work is not defective, the impact of uncovering and restoration shall be treated as a change pursuant to the Clause titled "CHANGE DOCUMENTS".

31.4 Defective Work. If any work is determined by the CITY to be defective or not in conformance with this Contract, the provisions of the Clause titled "WARRANTY" shall apply.

31.5 Samples. CONTRACTOR shall furnish samples as requested and shall provide reasonable assistance and cooperation necessary to permit tests to be performed on materials or work in place including reasonable stoppage of work during testing. Any material or assembly that does not conform to the requirements of the Contract Documents shall be considered unacceptable and shall be rejected. The CONTRACTOR shall remove any rejected material or assembly from the site of the Work, unless otherwise instructed by the ENGINEER.

No rejected material or assembly, the defects of which have been corrected by the CONTRACTOR, shall be returned to the site of the Work until such time as the ENGINEER has approved its use in the Work.

31.6 Quality Assurance. The CONTRACTOR is advised that the cost of failing tests requiring additional tests to confirm compliance will be deducted from the monies due to CONTRACTOR through the Progress Payment Process.

GC-32 MONITORING

The equipment and materials furnished and work performed under this Contract shall be subject to monitoring by ENGINEER or his representatives who shall be afforded full and free access to the ships, factories, and other places of business of CONTRACTOR and its Subcontractors for monitoring purposes. As required by ENGINEER, CONTRACTOR shall provide detailed schedules and progress reports for use in monitoring and shall cooperate with ENGINEER in monitoring activities.

GC-33 BACKCHARGES

33.1 Corrective Actions by CITY or its Designated Representatives. If, under the provisions of this Contract, CONTRACTOR is notified by ENGINEER to correct defective or nonconforming work, and CONTRACTOR states, or by its actions indicates that it is unable or unwilling to proceed with corrective action in a reasonable time, ENGINEER may, upon written notice, proceed to accomplish the redesign, repair, rework or replacement of nonconforming work by the most expeditious means available and backcharge CONTRACTOR for the costs incurred. Furthermore, if ENGINEER agrees to or is required to perform work for CONTRACTOR, such as cleanup, off-loading or completion of incomplete work, ENGINEER may, upon written notice, perform such work by the most expeditious means available and backcharge CONTRACTOR for the costs incurred.

33.2 Backcharge Costs. The cost of backcharge work shall include:

33.2.1 Incurred labor costs including all payroll additives;

33.2.2 Incurred net delivered material costs;

33.2.3 Incurred Subcontractor costs directly related to performing the corrective action;

33.2.4 Equipment and tool rentals at prevailing rates in the Jobsite area; and

33.2.5 A factor of thirty-five percent (35%) applied to the total of Items 33.2.1 through 33.2.5 for overhead, supervision, and administrative costs.

33.3 CONTRACTOR's Concurrence. The backcharge notice will request CONTRACTOR's concurrence for ENGINEER to proceed with the required work. However, failure of CONTRACTOR to grant such concurrence shall not impair CITY's right to proceed with work under this or any other provision of this Contract.

33.4 Backcharge not a Release. ENGINEER shall separately invoice or deduct from payments otherwise due to CONTRACTOR the costs as provided herein. CITY's right to backcharge is in addition to any and all other rights and remedies provided in this Contract or by law. The performance of backcharge work by ENGINEER shall not relieve CONTRACTOR of any of its responsibilities under this Contract including, but not limited to, express or implied warranties, specified standards for quality, contractual liabilities and indemnifications, and meeting the Contract Milestones of the Clause titled "COMMENCEMENT, PROGRESS, AND COMPLETION OF

THE WORK".

GC-34 SUSPENSION

34.1 Suspension Notice. CITY may, by written notice to CONTRACTOR, suspend at any time the performance of all, or any portion of, work to be performed under this Contract. Upon receipt of such notice, CONTRACTOR shall, unless the notice requires otherwise;

34.1.1 Immediately discontinue work on the date and to the extent specified in the notice;

34.1.2 Place no further orders or subcontracts for material, services, or facilities with respect to suspended work other than to the extent required in the notice;

34.1.3 Promptly make every reasonable effort to obtain suspension upon terms satisfactory to CITY of all orders, subcontracts, and rental agreements to the extent they relate to performance of suspended work;

34.1.4 Continue to protect and maintain the Work including those portions on which work has been suspended; and

34.1.5 Take any other reasonable steps to minimize costs associated with such suspensions.

34.2 Notice to Resume. Upon receipt of notice to resume suspended work, CONTRACTOR shall immediately resume performance under this Contract to the extent required in the notice.

34.3 Equitable Adjustment. CONTRACTOR shall be entitled to an equitable adjustment for suspensions pursuant to the Clause titled "CHANGE DOCUMENTS", provided that within ten (10) days after receipt of notice to resume work, CONTRACTOR submits a Proposed Change Document, and provided that the suspension was not made necessary by the defective performance of work or any other Contract obligation of CONTRACTOR. No adjustment or relief of schedule milestones or completion dates shall be made for suspensions caused by CONTRACTOR.

GC-35 TERMINATION FOR DEFAULT

35.1 Reasons for Default. Notwithstanding any other provisions of this Contract, CONTRACTOR shall be considered in default of its contractual obligations under this Contract if it:

35.1.1 Performs work which fails to conform to the technical requirements of this Contract;

35.1.2 Fails to make progress so as to endanger performance of this Contract;

35.1.3 Abandons or refuses to proceed with any of the Work, including modifications directed pursuant to the Clause titled "CHANGE DOCUMENTS";

35.1.4 Fails to fulfill or comply with any of the terms of this Contract;

35.1.5 Engages in behavior that is dishonest, fraudulent or constitutes a conflict of interest with CONTRACTOR's obligations under this Contract; or,

35.1.6 Reasonable grounds for insecurity arise with respect to CONTRACTOR's performance.

35.2 Notice of Default. Upon the occurrence of any of the foregoing, ENGINEER shall notify CONTRACTOR in writing of the nature of the failure and of CITY's intention to terminate this Contract for default. If CONTRACTOR does not cure such failure within seven (7) calendar days from receipt of notification, or sooner, if safety to persons is involved, or fails to provide satisfactory evidence that such default will be corrected within a reasonable time, the CITY, by written notice to CONTRACTOR and without notice to CONTRACTOR's sureties, if any, shall terminate in whole or in part CONTRACTOR's right to proceed with the Work and CITY may prosecute the Work to completion in a timely manner by another contract or by any other reasonable method deemed expedient. CITY may take possession of and utilize any data, designs, licenses, equipment, materials, plant, tools, and property of any kind furnished by CONTRACTOR and necessary to complete the Work.

35.2A Immediate Termination. This Contract will immediately terminate, without the requirement of any action on CITY's part, and all termination for default remedies available and applicable termination actions required by CONTRACTOR when all work is terminated under this Contract shall apply, if CONTRACTOR:

35.2A.1 Voluntarily consents to an order for relief by filing a petition under the laws of the United States codified as Title 11 of the United States Code;

35.2A.2 Seeks consent to, or does not, contest the appointment of a receiver, custodian, or trustee for itself or for all or any part of its property;

35.2A.3 Files a petition seeking relief under the bankruptcy, arrangement, reorganization, or other debtor relief laws of any state or other competent jurisdiction;

35.2A.4 Admits in writing that it is generally not paying its debts as those debts become due;

35.2A.5 Gives notice to any governmental body of insolvency or pending insolvency or suspends operations;

35.2A.6 Becomes insolvent as that term is defined under applicable fraudulent transfer or conveyance laws; or

35.2A.7 Makes an assignment for the benefit of creditors or takes any other similar action for the protection or benefit of creditors.

35.3 Excess Reprocurement Costs. CONTRACTOR and its sureties, if any, shall be liable for all costs in excess of this Contract price for such terminated work reasonably and necessarily

incurred in the completion of the Work, including cost of administration of any Contract awarded to others for completion.

35.4 Termination Actions. Upon termination for default, CONTRACTOR shall:

35.4.1 Immediately discontinue work on the date and to the extent specified in the notice and place no further purchase orders or subcontracts to the extent that they relate to the performance of the terminated work;

35.4.2 Inventory, maintain and turn over to CITY all data, designs, licenses, equipment, materials, plant, tools, and property furnished by CONTRACTOR, or provided by CITY for performance of the terminated work;

35.4.3 Promptly obtain cancellation upon terms satisfactory to CITY of all purchase orders, subcontracts, rentals, or any other agreements existing for performance of the terminated work or assign those agreements as directed by CITY;

35.4.4 Cooperate with the CITY in the transfer of data, designs, licenses and information and disposition of work in progress so as to mitigate damages;

35.4.5 Comply with other reasonable requests from CITY regarding the terminated work and;

35.4.6 Continue to perform in accordance with all of the terms and conditions of this Contract such portion of the Work that is not terminated.

35.5 CONTRACTOR not in Default. If, after termination pursuant to this Clause, it is determined for any reason that CONTRACTOR was not in default, the rights and obligations of the parties shall be the same as if the Notice of Termination had been issued pursuant to the Clause titled "TERMINATION FOR CONVENIENCE."

GC-36 TERMINATION FOR CONVENIENCE

36.1 Termination Actions. CITY may terminate for convenience any of the Work under this Contract in whole or, from time to time, at any time by written notice to CONTRACTOR. Such notice shall specify the extent to which the performance of the Work is terminated and the effective date of such termination. Upon receipt of such notice, CONTRACTOR shall:

36.1.1 Immediately discontinue the Work on the date and to the extent specified in the notice and place no further purchase orders or subcontracts for materials, services, or facilities, other than as may be required for completion of such portion of the Work that is not terminated.

36.1.2 Promptly obtain assignment or cancellation upon terms satisfactory to CITY of all purchase orders, subcontracts, rentals, or any other agreements existing for the performance of the terminated work or assign those agreements as directed by CITY;

36.1.3 Assist ENGINEER in the maintenance, protection, and disposition of work in

progress, plant, tools, equipment, property, and materials acquired by CONTRACTOR or furnished by CITY under this Contract and;

36.1.4 Complete performance of such portion of the Work which is not terminated in accordance with the scheduled milestones and Contract completion dates.

36.2 Waiver and Compensation. In the event of termination, CONTRACTOR waives any claims for damages including loss of anticipated profits. As CONTRACTOR's sole right and remedy, CITY shall pay in accordance with the following:

36.2.1 The Contract price corresponding to the Work performed in accordance with this Contract prior to such notice of termination;

36.2.2 All reasonable costs for work thereafter performed as specified in such notice;

36.2.3 Reasonable administrative costs of settling and paying claims arising out of the termination of work under purchase orders or subcontracts;

36.2.4 Reasonable costs incurred in demobilization and the disposition of residual material, plant, and equipment and;

36.2.5 A reasonable overhead and profit on items 36.2.2 and 36.2.4 of this clause.

36.3 Proposal for Compensation. CONTRACTOR shall submit within thirty (30) calendar days after receipt of notice of termination, a written statement setting forth its proposal for an adjustment to the Contract price to include only the categories of incurred costs described in this clause. CITY shall review, analyze, and verify such proposal, negotiate an appropriate adjustment, and modify this Contract by Change Order accordingly.

GC-37 CHANGE DOCUMENTS

37.1 This section will govern changes to the Contract issued under the Contract, whether such changes involve an increase in the Total Contract Price or not. Changes in Contract or other aspects of this Contract shall be made by written document ("Change Document" or "Unilateral Change Document"). 3 All changes shall be implemented pursuant to this subsection and any Applicable Law.

37.2 Potential Change Documents that may be issued concerning this Contract include, but are not limited to:

37.2.1 Change Documents to the Contract involving an increase to the Total Contract Price executed between CITY and CONTRACTOR which may, or may not, require legislative approval under Code Section 2-1292; and

37.2.2 Change Documents that do not involve an increase in the Total Contract Price

3 Change Documents may assume numerous multiple forms and titles depending on the nature of the change involved (e.g. Change Order, Unilateral Change Order, Amendment, Contract Modification, Renewal, etc.)

will be executed pursuant to Code Section 2-1292(d) either bilaterally or unilaterally by the CITY; and

37.2.3 Unilateral Change Documents to the Contract issued by CITY pursuant to Code Section 2-1292(d) involving no increase to the Total Contract Price and changes in the value of the changes, or changes in the terms of amounts of compensation under the Total Contract Price; and

37.2.4 Change Documents to the Contract involving no increase to the Total Contract Price, changes in the value of the Charges or changes in the terms or amounts of compensation under the Total Contract Price executed between CITY and CONTRACTOR pursuant to Code Section 2-1292(d).

37.3 CITY may propose a change in the Contract or other aspects of this Contract by delivering written notice to CONTRACTOR describing the requested change ("Change Request"). Within ten (10) days of receipt of CITY's Change Request, CONTRACTOR shall evaluate it and submit a written response ("Proposed Change Document"). A Change Request which involves the reduction of Services shall be effective upon written notice to Contractor.

37.4 CONTRACTOR may, without receiving any Change Request, on its own submit a Proposed Change Document describing its own proposed requested change to the Contract.

37.5 Each Proposed Change Document shall include the applicable schedule for implementing the proposed change, any applicable changes to the Charges (either increased or decreased) and all other information applicable to the proposed change. Each Proposed Change Document shall constitute an offer by CONTRACTOR and shall be irrevocable for a period of sixty (60) days. CITY shall review and may provide CONTRACTOR with comments regarding a Proposed Change Document, and CONTRACTOR shall respond to such comments, if any. A Proposed Change Document from CONTRACTOR will become effective only when executed by an authorized representative of CITY.

37.6 CITY may propose any changes to the Contract, including, but not limited to, changes that it contends do not involve an increase to the Maximum Payment Amount, and CONTRACTOR shall, in good faith evaluate such proposed Change Request. If CITY and CONTRACTOR are able to reach agreement on such Change Request, each will execute a Change Document concerning such Change Request pursuant to Code Section 2-1292(d). Nothing in this Contract shall, in the event of disagreement between CITY and CNTRACTOR concerning a proposed Change Request, or otherwise, prohibit CITY from issuing a Unilateral Change Document to CONTRACTOR, pursuant to Code Section 2-1292(d), and CITY and CONTRACTOR agree to resolve their dispute pursuant to the Dispute Resolution Procedures set forth in the "DISPUTES" Clause. During the pendency of such Dispute, CONTRACTOR shall continue to perform the Services, as changed by such Unilateral Change Document.

37.7 Submittals Substantiating Adjustments.

37.7.1 CONTRACTOR shall supply certified pricing within thirty (30) days after providing written notice of intent to claim time or money. CONTRACTOR's pricing shall remain firm for a period of not less than sixty (60) days after delivery of the certified pricing.

Any delay in the submission of all necessary supporting documentation or the determination of pricing will not justify or constitute a basis for an increase in the Total Contract Price, Purchase Order Amount, or Contract Completion.

37.7.2 CONTRACTOR shall certify in writing that the amounts included in the Proposed Change Document cover will direct, supplemental, indirect, consequential, serial, and cumulative costs and requested time extension, as applicable, and that those costs and the additional time would be or were necessarily incurred, despite the CONTRACTOR's reasonable and diligent efforts to mitigate them.

37.7.3 No submittal for an adjustment in the Total Contract Price, Purchase Order Amount, or Contract Completion shall be valid unless submitted in accordance with this Clause.

37.7.4 For each submittal, CONTRACTOR shall execute a certificate of current costs or pricing data. The certificate shall contain the wording in Clause:

37.7.4.1 This certificate shall be supplied at the time CONTRACTOR submits pricing information for any and all Proposed Change Documents.

37.7.4.2 The certificate of current costs or pricing data shall contain the following statement: "This is to certify that, to the best of my knowledge and belief, the costs or pricing data submitted, either actually or by specific identification in writing, to ENGINEER or any of his authorized representatives, in support of [identify the request for price adjustment, giving the appropriate reference any date] are accurate, complete and current as of [insert the day, month, and year when submittal was provided to ENGINEER].

CONTRACTOR: [type name]
By: [type name]
Title:
Date of Execution: [insert the day, month, and year of signing, which should be the same date as when the pricing information is submitted],

37.7.4.3 If any price, including profit or fee, negotiated under this Clause, or any cost reimbursement under this Contract was increased by any amount because CONTRACTOR furnished costs or pricing data that were not complete, accurate, and current as certified in its certificate of current costs or pricing data, the price or costs shall be reduced accordingly, and this Contract shall be modified to reflect the deduction. CONTRACTOR is also placed on notice that, to the extent any submittal is determined to be a false claim based on any state or federal law, CONTRACTOR will be liable to the CITY for all remedies permitted by applicable statutes.

37.8 Failure to Agree. Failure by ENGINEER and CONTRACTOR to agree on any adjustment pursuant to this Clause shall be considered a Dispute, subject to the procession under the "DISPUTES" Clause of the Contract.

37.9 Emergency Cases. In addition to the CITY's ability to initiate changes through a Change Notice, in the event of an emergency that poses imminent threat to life or property, ENGINEER may use oral orders to CONTRACTOR for any work required by reason of such emergency. CONTRACTOR shall commence and complete such emergency work as directed by ENGINEER. Such orders will be confirmed by an appropriate Change Document. Any Change Document resulting from an emergency will be processed pursuant to this Clause.

37.10 Other Modifications. All other modifications to this Contract shall be by written amendment signed by both parties.

GC-38 PRICING OF ADJUSTMENTS

38.1 Pricing Methods. When costs are a factor in any determination of a Contract adjustment pursuant to the Clause titled "CHANGE DOCUMENTS", CONTRACTOR shall propose upward or downward price adjustments in one of the following methods as directed by ENGINEER:

38.1.1 Using Unit Prices from this Contract;

38.1.2 Estimating new Unit Prices where appropriate, subject to negotiation;

38.1.3 Estimating a lump sum price for the change, subject to negotiation; or

38.1.4 Establishing separate cost accounting records, subject to daily end-of-the-day written approval by ENGINEER of all allocable costs, on a Force Account basis. Reimbursement of reasonable and approved incurred costs, plus specified rates for overhead and profit, as defined below, shall be the basis for Force Account adjustment of the Contract price.

38.2 Cost Breakdown Information. When CONTRACTOR is directed to propose price adjustments pursuant to 38.1.2 or 38.1.3 above, it shall provide cost breakdown information for the purpose of, and in sufficient detail to permit, analysis and negotiation including but not limited to, labor categories, job hours and rates, equipment and material quantities, sources and calculations, overhead costs and allocations, profit computations Subcontractor quotes, and reference data upon which estimates are based.

38.3 Markup's.

38.3.1 If the pricing method is in accordance with 38.1.1 above, CONTRACTOR is not authorized any additional markup's as the Contract Unit Prices are considered fully burdened;

38.3.2 For work priced pursuant to 38.1.2 or 38.1.3 above, the additional markup shall be negotiated with the CONTRACTOR based on the complexity and type of work

required; however, markup's on "Direct Labor" costs shall not exceed fifteen percent (15%) if the pricing adjustment is valued at less than Twenty Five Thousand ($25,000.00) Dollars; or will pay no more than Ten Percent (10%) markup on "Direct Labor" if the price adjustment is valued at greater than Twenty Five Thousand One ($25,001.00) Dollars.

38.3.3 If, for any reason, ENGINEER and CONTRACTOR are unable to agree upon a new unit rate or lump sum Contract price adjustment provisions 38.4 through 38.8 establish and define allowable costs and rates for Force account work pursuant to 38.1.4 above.

38.4 Direct Labor. Incurred direct labor wages for technical, craft, and manual labor for all classifications through lead ENGINEER, foreman or equivalent are allowable for the period of performance of the change. General supervision and management above lead ENGINEER, foreman or equivalent and indirect labor, e.g. surveyors, office personnel, timekeepers and maintenance personnel, are not allowable as direct costs but are recovered in the overhead and profit rates established by this Clause. Payroll additives are allowable and include taxes, insurance premiums, paid absences, and social and retirement benefits required by law, labor agreements, published company policies applying uniformly to CONTRACTOR's work force or which are normal and customary. CITY shall have access to CONTRACTOR's certified payroll records for verification of labor costs.

38.5 Equipment. Approved incurred construction equipment, facilities and vehicle net rental costs plus five percent (5%) for CONTRACTOR overhead and profit are allowable, except tools and equipment having original purchase prices of less than Five Hundred Dollars ($500.00) each, which are deemed to be covered in the overhead and profit rates established by this clause. If operating costs are not included in rental rates, they are also allowable.

38.5.1 Equipment Charges. Reasonable equipment charges for approved CONTRACTOR- owned construction equipment having original purchase prices of more than Five Hundred Dollars ($500.00) each shall also be allowed provided such charges are:

38.5.1.1 Agreed upon Contract unit rates; or

38.5.1.2 Based upon calculated values allocating ownership costs over the useful life of the equipment plus operating costs such as fuel, oil, lubricants, and maintenance, and a profit of ten percent (10%) on such costs; or

38.5.1.3 Not greater than seventy percent (70%) of Data Quest Blue Book daily rental rates applicable for the period of performance of the change; and

38.5.1.4 Appropriately discounted to stand-by rates for idle time reasonably required.

38.5.2 Limited Equipment Charges. When the operated use of equipment is infrequent and, as determined by ENGINEER, such equipment need not remain at the

Work site continuously, charges shall be limited to actual hours of use. Equipment not operating but retained at the location of changes at ENGINEER's direction shall be charged at the standby rate.

38.5.3 Need for Equipment. For the cost of both rented and owned equipment to be allowable, ENGINEER must agree in writing, prior to their being used, that the individual pieces of equipment are needed, are appropriate for the Work, and that the mobilization and demobilization costs are allocable to the change and acceptable. This is in addition to the daily end-of-day approval of operating time for such equipment.

38.6 Materials. Approved incurred costs for material incorporated into the changed Work or required for temporary construction facilities made necessary by the change shall be allowable at net cost delivered to the Jobsite plus five percent (5%) overhead and profit for CONTRACTOR.

38.7 Subcontracts. Approved incurred costs for subcontracted tasks shall be allowable plus five percent (5%) overhead and profit for CONTRACTOR; provided that ENGINEER has approved the subcontract pursuant to the Clause on Titled "ASSIGNMENTS AND SUBCONTRACTS" before any work is performed.

38.8 Overhead, Project, and all other Costs. In addition to the overhead and profit provided in 38.4 through 38.7 above, CITY may also pay an additional markup on direct labor which will be deemed to be full consideration for all overhead, interest and profit, for all additional costs e.g. supervision and tools, and for all impacts of the change on all elements of the Work whether or not changed. The additional markup shall be equal to fifteen percent (15%) of total direct labor as described in 39.4 above for changes resulting in a Contract price adjustment, excluding this percentage markup, of less than Twenty Five Thousand ($25,000.00) Dollars; or will pay ten percent (10%) for changes resulting in adjustments of Twenty Five Thousand One ($25,001.00) Dollars or more.

GC-39 EXCUSABLE DELAYS

39.1 Force Majeure. Force Majeure shall mean:

39.1.1 Strikes, labor disputes, work stoppages, or picketing (legal or illegal);

39.1.2 Adverse weather conditions not reasonably foreseeable or unusually severe weather;

39.1.3 Acts of God, including, without limitation, floods, hurricanes, tornadoes, high winds, sinkholes, landslides, earthquakes, epidemics, quarantine and pestilence;

39.1.4 Fires or other casualties;

39.1.5 Freight embargoes;

39.1.6 Governmental actions, restrictions or moratoria;

39.1.7 Acts of a public enemy, civil commotion, riots, insurrections, acts of war,

blockades, terrorism, effects of nuclear radiation or national or international calamities;

39.1.8 Sabotage or vandalism;

39.1.9 Condemnation or other exercise of the power of eminent domain

39.1.10 The passage or enactment of, or the interpretation of, any governmental requirement, and the orders of any governmental authority having jurisdiction over CONTRACTOR or the Work;

39.1.11 Delays in any approval process of any governmental authority to the extent such delays are not due to any fault, negligence, or lack of diligence of CONTRACTOR or its agents, employees, contractors, subcontractors, or consultants;

39.1.12 Actions of CITY (and its agents, employees or other representatives) not permitted by the Contract or by law;

39.1.13 Inconvenience, delays, inefficiencies or loss experienced by CONTRACTOR caused by the presence and operations of other CITY CONTRACTORS working within the limits of the Project; and

39.1.14 Restraint or other act by court or public authority to the extent such delays are not due to any fault, negligence, or lack of diligence of CONTRACTOR or its agents, employees, contractors, subcontractors, or consultants.

39.2 Force Majeure shall in any event exclude:

39.2.1 Lack of sufficient funds or any other financial difficulty of CONTRACTOR, and

39.2.2 Adverse weather

39.2.2.1 Occurring during non-work periods or on any day which is not a business day, unless CONTRACTOR can demonstrate that said weather impeded the Work the following day; or

39.2.2.2 Which shall not result in a direct and actual delay in CONTRACTOR's performance of Work at the time of such inclement weather.

39.3 Extensions for Force Majeure. If CONTRACTOR is delayed at any time in the commencement or progress of the Work by reason of Force Majeure or by other causes which CITY in its discretion may determine justifies an extension of the time for substantial completion or final completion, then the time for substantial completion or final completion shall be extended by Change Order for such reasonable time as CITY may determine that the Project's completion, or the achievement of any Contract milestones, is delayed by the Force Majeure, but only:

39.3.1 If and to the extent such event or circumstance is beyond the reasonable control of CONTRACTOR;

39.3.2 If and to the extent CONTRACTOR shall have taken all reasonable precautions to prevent delays by reason of such event or circumstance if such event or circumstance was actually shown in advance to CONTRACTOR,

39.3.3 If and to the extent such event or circumstance is not caused by CONTRACTOR's or CONTRACTOR's agents', materialmens', Subcontractor's, or employees' fault or negligence,

39.3.4 If and to the extent CONTRACTOR shall have taken all reasonable precautions to mitigate the delays owing to such event or circumstance,

39.3.5 If and to the extent that such event caused a delay to activities on the critical path of the Contract schedule, and

39.3.6 If CONTRACTOR strictly complied with the requirements of GC-39.3

39.4 Notice of Force Majeure. If CONTRACTOR is prevented or delayed by reason of Force Majeure, CONTRACTOR shall, within twenty-four (24) hours after the commencement of the Force Majeure, provide to ENGINEER written notice of the Force Majeure and shall, within seven (7) days after the Force Majeure event has ended, provide to ENGINEER a written description of the impact caused on the performance of the Work by the Force Majeure. The description of the impact for weather related Force Majeure events shall include U.S. Weather Bureau Climatological Reports for the months involved plus a report indicating the average precipitation, temperature, or other relevant impacting weather event for the past ten years from the nearest reporting station. The ten-year average will determine the number of adverse weather days that CONTRACTOR should normally expect to encounter.

39.5 Sole Remedy for Force Majeure. For delays in the construction of the Project caused by reason of Force Majeure, an extension in the time for Contract completion shall be CONTRACTOR's sole and exclusive remedy for any such delay. In no event shall CONTRACTOR be entitled to any increase in the Total Contract Price or any other additional compensation for costs resulting by reason of Force Majeure.

GC-40 COMPLETION AND ACCEPTANCE

40.1 Notice of Completion. When CONTRACTOR considers the Work or any independent portion of the Work under this Contract, to be complete and ready for acceptance, or when ENGINEER notifies CONTRACTOR in writing that some portion of the work is ready for Beneficial Occupancy, CONTRACTOR shall notify ENGINEER in writing that such Work is materially complete and ready for inspection. ENGINEER or his designated representatives, with CONTRACTOR's cooperation, will conduct such reviews, inspections and tests as may be reasonably required to satisfy ENGINEER that the Work, or identified portion of the Work, conforms to all requirements of this Contract. If all, or any part, of the Work covered by CONTRACTOR's notice does not confirm to Contract requirements, ENGINEER shall notify CONTRACTOR of such nonconformance and CONTRACTOR shall take corrective action in accordance with the Clause titled "WARRANTY" and

shall have the nonconforming work re-inspected until all Contract requirements are satisfied."

40.2 Notice of Substantial Completion. The ENGINEER will issue a Certificate of Substantial Completion if the Work is deemed to be substantially complete. The CONTRACTOR will ascertain when the Work, or designated portions thereof, is ready for the ENGINEER's Substantial Completion inspection. CONTRACTOR will provide required regulatory or permit authority acceptance documentation for the ENGINEER's review at inspection.

40.3 Notice of Final Acceptance. ENGINEER shall issue a written Notice of Final Acceptance of the Work as a whole when satisfactorily inspected. ENGINEER's written Notice of Final Acceptance of the Work as a whole under this Contract shall be conclusive except with regard to latent defects, fraud, or such gross mistakes as amount to fraud, or with regard to CITY's rights under the Clause titled "WARRANTY".

GC-41 WARRANTY AND COMPONENT WARRANTIES

41.1 Warranty Standards. CONTRACTOR warrants to CITY that equipment and materials furnished under this Contract shall be new, or clear title and of the most suitable grade of their respective kinds for their intended uses, unless otherwise specified. All workmanship shall be first-class and performed in accordance with sound construction practices acceptable to ENGINEER. All equipment, materials, and workmanship shall conform to the requirements of the Contract documents.

41.2 Warranty Period. CONTRACTOR warrants all equipment and material it furnishes, and all work it performs against defects in CONTRACTOR's design/build, equipment, materials, or workmanship for a period from commencement of work to a date twenty-four (24) months after Beneficial Occupancy provided that all of requirements of this section have been met, unless more stringent requirements are otherwise specified elsewhere in the Contract documents. CONTRACTOR shall provide an additional thirty-six (36) month warranty on all chillers, pumps, starters, compressors, ventilation systems, fire detection systems, fire suppression equipment, emergency power, and communication equipment. A minimum of one (1) year labor warranty is required for all equipment/system replacement and repairs.

41.3 Warranty Guidelines.

41.3.1 Warranty should include manufacturers' and CONTRACTOR's name, telephone, contact, address, start, and end date of warranty.

41.3.2 All sections shall be tabbed and labeled.

41.3.3 A minimum of five (5) hard and two (2) electronic copies shall be furnished.

41.4 Discovery of Defects. If, at any time during the warranty period, the CITY or CONTRACTOR discovers any defect in the design/build, equipment, materials, or workmanship, immediate notice shall be given to the other parties. CONTRACTOR shall, within a reasonable time, propose corrective actions to cure such defects to meet the requirements of this Contract.

41.5 Remedies for Defects. ENGINEER, at his sole discretion, may direct CONTRACTOR in

writing and CONTRACTOR agrees to:

41.5.1 Rework, repair or remove and replace defective equipment and materials or re-perform defective workmanship to acceptable quality at a time and in a manner acceptable to ENGINEER;

41.5.2 Cooperate with others assigned by ENGINEER to correct such defects and pay to ENGINEER al actual costs reasonably incurred by ENGINEER in performing or in having performed corrective actions; or

41.5.3 Propose and negotiate in good faith an equitable reduction in the Contract price in lieu of corrective action. This clause is applicable only for discovery of defects prior to the acceptance of the Project.

41.6 Incidental Cost. All costs incidental to corrective actions including demotion for access, removal, disassembly, transportation, reinstallation, reconstruction, retesting, and re-inspection as may be necessary to correct the defect and to demonstrate that the previously defective work conforms to the requirements of this Contract shall be borne by CONTRACTOR.

41.7 Extended Warranty. CONTRACTOR further warrants any and all corrective actions it performs against defects in design/build, equipment, materials, and workmanship for an additional warranty period of twelve (12) months as an extension to the original specified warranty period following acceptance by ENGINEER of the corrected work.

41.8 Operations and Maintenance (O&M) Data/Manuals. Prior to the commissioning of any equipment or section of the work, submit five (5) hard and two (2) electronic copies of operation and maintenance data/manuals that are specifically applicable to this Contract and a complete and concise description of the provided equipment or product. Data containing extraneous information to be sorted through to find applicable instructions will not be accepted. Present information in sufficient detail to clearly explain O & M requirements of the system, equipment, component, and subassembly level. Include an index preceding each submittal.

Information Required in O & M Data/Manuals, as applicable:

1) Environmental Conditions Operating Instructions
2) Safety Precautions
3) Operator Pre-start
4) Startup, Shutdown, and Post Shutdown Procedures
5) Normal Operations
6) Emergency Operations
7) Operator Service Requirements
8) Installation Details
9) Preventive Maintenance Instructions, Plans, and Schedule
10) Lubrication Data
11) Corrective Maintenance Instructions
12) Troubleshooting Guides and Diagnostic Techniques
13) Wiring Diagrams and Control Diagrams Including Sequence of Operations
14) Maintenance and Repair Procedures

15) Removal and Replacement Instructions
16) Spare Parts and Supply Lists Including Cost
17) Parts Identification
18) Personnel Training Requirements
19) Testing Equipment and Special Tool Information

41.9 Binding and Delivery. The manuals shall be bound or otherwise securely enclosed in oil and moisture resistant binders and sections shall be tabbed. Each binder cover shall indicate bold type, the manufacturer's name, Contract number, model number, and serial number of the unit or equipment. Five (5) hard and two (2) electronic copies of the manuals shall be delivered with the shop drawings and must be approved with the shop drawings. Also included, shall be CONTRACTOR's name, address, telephone number and contact.

41.9 Training. Include in the applicable specification sections the following requirements:

41.9.1 The CONTRACTOR shall include in the base Contract, all costs required to train the OWNER's operation and maintenance personnel in the use and maintenance of the specific systems.

41.9.2 Training sessions shall be conducted by instructors certified or approved in writing by the manufacturer of the specific system or equipment.

41.9.3 Sessions shall be conducted for not less than four-hour periods during normal working hours, i.e., Monday through Friday, 8:00 a.m. to 5:00 p.m. Training session schedules shall inform to the requirements of the OWNER; therefore, such schedules shall be submitted to the OWNER for approval not less than two weeks prior to the training session. Training sessions for different systems shall not be scheduled concurrently. All training sessions shall be digitally videotaped – two copies shall be delivered to the OWNER> At the OWNER's discretion, provisions shall be made to allow up to six (6) OWNER's personnel to participate in final system check of all systems.

41.9.4 All Operations and Maintenance Manuals shall be approved and issued prior to training.

41.9.5 All training shall be completed prior to final acceptance of equipment, systems, etc.

GC-42 DISPUTES

42.1 Claims, Counterclaims, Disputes:

42.1.1 All claims, counterclaims, disputes, and any other matters in question arising under, or relating to, the Contract Documents, or the breach thereof, shall be processed in accordance with the provisions of this Clause and are subject to audit by the CITY.

42.1.2 A "Claim" means a written demand or assertion by the CONTRACTOR seeking an adjustment in the Contract Price and payment of monies so due, an extension or shortening in Contract Completion, the adjustment or interpretation of Contract terms,

or other relief arising under or relating to the Contract following denial of a submittal for Change Notice Request under "CHANGE DOCUMENTS". A written demand or assertion by the CONTRACTOR seeking the payment of money or an extension of time is not a Claim under this Clause until certified as required below. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a Claim under this Clause.

42.1.3 A Claim arising under the Contract, unlike a Claim relating to the Contract, is a Claim that can be resolved under a Contract provision that provides for, or excludes, the relief sought by the Claimant. A Claim arising under the Contract shall be resolved under the applicable provisions of the Contract. A Claim relating to the Contract must meet all requirements of this provision and any request for an increase in the Contract Price or an extension to the time for Contract Completion shall be calculated pursuant to and limited by the provisions of this Contract.

42.1.4 CONTRACTOR shall not be entitled to any damages or an adjustment in the Contract Price, and neither CITY nor its designated representatives shall be liable to CONTRACTOR or its Subcontractors in tort (including negligence) or Contract, except as specifically provided in this Contract.

42.2 When Notice and Claim Submittal Become Due:

42.2.1 For any Claim under this Clause to be valid, it shall be based upon written notice delivered by the CONTRACTOR to the ENGINEER promptly, but in no event later than seven (7) days, after the occurrence of the event giving rise to the Claim and stating the general nature of the Claim. The Claim submittal with all supporting cost data and CPM schedule analysis shall be delivered by the CONTRACTOR to the ENGINEER within sixty (60) days after that occurrence (unless the ENGINEER allows an additional period of time to ascertain more accurate data in support of the Claim). The responsibility to substantiate a Claim shall rest with the party making the Claim.

42.2.2 A Claim by the CONTRACTOR shall be made in writing and submitted to the ENGINEER within the timeframe required by GC 42.2.1 for a written decision.

42.3 Requirements for contractor Claims:

42.3.1 For all CONTRACTOR Claims seeking an increase in the Contract Price or time for Contract Completion, the CONTRACTOR shall submit with the Claim an affidavit certifying that:

42.3.1.1 The Claim is made in good faith, and the amount claimed accurately reflects the adjustments in the Contract Price or time for Contract Completion for which the CONTRACTOR can prove the CITY is liable, and covers all direct, supplemental, indirect, consequential, serial, and cumulative costs and delays to which the CONTRACTOR is entitled as a result of the occurrence of the claimed event;

42.3.1.2 Supporting cost and pricing data are current, accurate, complete, and represent the best of the CONTRACTOR's knowledge and belief; and

42.3.1.3 If the CONTRACTOR is an individual, the affidavit shall be executed by that individual; if the CONTRACTOR is not an individual, the affidavit shall be executed by a senior company official in charge at the CONTRACTOR's plant or location involved, or a responsible officer or general partner of the CONTRACTOR.

42.3.2 The attention of the CONTRACTOR is drawn to state and federal laws regarding penalties for false claims. The CITY will prosecute the CONTRACTOR to the fullest extent of the law for the submission of a false, fictitious, or unsubstantiated Claim.

42.3.3 A Claim for an adjustment of the time for Contract Completion shall be supported by an analysis of the Progress Schedule detailing the impact of the event giving rise to the Claim.

42.3.4 Any costs or expenses for consultants, experts, or legal representation that the CONTRACTOR elects to engage to investigate, prepare, and substantiate any claim related to any dispute shall be born solely by the CONTRACTOR.

42.4 Determination on a Claim. For CONTRACTOR-certified claims of $50,000.00 or less, the ENGINEER will, if requested in writing by the CONTRACTOR, render a determination within sixty (60) days of the request. For CONTRACTOR-certified claims over $50,000.00, the ENGINEER will, within sixty (60) days tender a determination of the Claim or notify the CONTRACTOR of the date by which the determination will be made. If CONTRACTOR and ENGINEER cannot resolve any claim or dispute, CONTRACTOR agrees to participate in good faith in non-binding Mediation if requested by the ENGINEER. The cost of Mediation will be split equally between CONTRACTOR and ENGINEER. If a resolution cannot be reached through mediation, the CONTRACTOR's sole appeal of the ENGINEER's Final Determination is to institute legal action in Fulton Superior Court within sixty (60) days after Final Completion of the Work.

42.5 Dispute Defined.

42.5.1 Any Claim that is denied by the ENGINEER shall be considered a Dispute within the meaning of this Clause.

42.5.2 Pending final resolution of any Claim or Dispute, including litigation, the CONTRACTOR shall proceed diligently with performance of the Work, and comply with any decision of the CITY or the ENGINEER.

42.5.3 In the event the CITY is a prevailing party in any litigation brought under, or to enforce the provisions of this Contract, CONTRACTOR shall pay to CITY all its costs, expenses and fees associated with the litigation and the preparation thereof, including, but not limited to, reasonable attorneys' fees, expert witness fees, and all expenses incurred. CONTRACTOR shall pay CITY's reasonable attorneys' fees and other costs

whether the services are performed by CITY's employees or independent counsel.

42.6 Failure to Provide Notice is a Waiver. The CITY must receive notice in strict compliance with the Contract of all Claims and Disputes in order to investigate such Claims and Disputes and to make decisions that will eliminate or minimize any additional costs or delays to the Work, the Project or to the CITY's overall expansion program. CONTRACTOR acknowledges that it has no right in law or equity to seek any increase to the Contract Price or an extension to the time for Contract Completion or any milestone(s), unless CONTRACTOR strictly complies with all requirements of this Clause. Failure by CONTRACTOR to meet all of the requirements of this Clause shall be deemed an intentional waiver by CONTRACTOR of any right to file a lawsuit seeking redress of any type. Compliance with all the requirements of this Clause is a strict condition precedent to CONTRACTOR having the right to file a lawsuit seeking redress of any type. The CITY is entitled to have any lawsuit dismissed with prejudice by showing that CONTRACTOR did not strictly comply with all of the requirements of this Clause.

42.7 Venue. CONTRACTOR acknowledges and agrees that the exclusive jurisdiction and venue for any legal action or proceeding, at law or in equity, arising out of or relating to this Contract shall be the Superior Court for Fulton County, Georgia. CONTRACTOR waives all objections it may have as to venue in the Fulton County Superior Court. CONTRACTOR also consents to the Fulton County Superior Court's jurisdiction for any such action or proceeding, regardless of CONTRACTOR's residence or domicile.

GC-43 MUTUAL WAIVER OF CONSEQUENTIAL DAMAGES

43.1 CONTRACTOR and OWNER expressly waive claims against each other for consequential damages arising out of, or relating to, this Contract. This mutual waiver includes:

43.1.1 Damages incurred by the OWNER for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity, or of the services of such persons; and

42.1.2 Damages incurred by the CONTRACTOR for principal office expenses including the compensation of the personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work. This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination. Provided, however, nothing in this Contract shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract documents.

GC-44 RECORDS AND AUDITS

CONTRACTOR shall maintain records and accounts in connection with the performance of this Contract that will accurately document incurred costs, both direct and indirect, including, but not limited to, labor hours and costs, equipment hours and costs, Subcontractor costs, material costs, and other costs of whatever nature, by cost code, including budgeted amounts, for a period of three (3) years from the expiration of CONTRACTOR's Contract unless otherwise specified by applicable law. As used in this agreement, "records" includes books, documents, accounting procedures and practices, and other data, regardless of type and regardless of

whether such items are in written form, in the form of computer data, or in any other form.

CITY, or its designated representatives, shall have the right to examine and copy all such records, including weekly and monthly summary reports of the entire project, labor cost reports, and equipment cost reports, at all reasonable times, with advance notification. CONTRACTOR may also be required to provide an electronic "data dump" of each transaction posted to each cost code, labor hours and costs, and equipment hours and costs, and other transactions. Such data shall be in the format of an electronic spreadsheet or database, and not in "PDF" or other image formats.

44.1 City of Atlanta (COA) Audit. As used in this agreement, "records" includes book, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or in any other form.

44.2 Whenever the OWNER enters into any type of contractual arrangement including, but not limited to, lump sum contracts (i.e. fixed priced or stipulated sum contracts), unit price, cost plus or time and material contracts with or without a guaranteed maximum (or not-to-exceed amounts), CONTRACTOR's and Subcontractors' "records" shall, upon reasonable notice, be open to inspection and subject to audit and/or reproduction during normal business working hours. Such audits may be performed by an OWNER's representative or an outside representative engaged by OWNER. The OWNER, or its designee, may conduct such audits or inspections throughout the term of this contract and for a period of three years after final payment or longer if required by law. OWNER's representatives may (without limitation) conduct verifications such as counting employees at the Construction Site, witnessing the distribution of payroll, verifying information and amounts through interviews and written confirmations with CONTRACTOR employees, field and agency labor, Subcontractors, and vendors.

44.3 CONTRACTOR's "records", as referred to in this contract, shall include any and all information, materials, and data of every kind and character, including without limitation, records, books, papers, documents, subscriptions, recordings, agreements, purchase orders, leases, contracts, commitments, arrangements, notes, daily diaries, superintendent reports, drawings receipts, vouchers and memoranda, and any and all other agreements, sources of information and matters that may in OWNER's judgment have any bearing on, or pertain to, any matters, rights, duties or obligations under or covered by any Contract Document. Such records shall include (hard copy, as well as computer readable data if it can be made available), written policies and procedures; time sheets; payroll registers; payroll records; cancelled payroll checks; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, negotiation notes, etc.); original bid estimates; estimating work sheets; correspondence; change order files (including documentation covering negotiated settlements); backcharge logs and supporting documentation; invoices and related payments documentation; general ledger, information detailing cash and trade discounts earned, insurance rebates and dividends; and any other CONTRACTOR records which may have a bearing on matters of interest to the OWNER in conjunction with the CONTRACTOR's dealings with the OWNER (all foregoing hereinafter referred to as "records") to the extent necessary to adequately permit evaluation and verification of any or all of the following:

44.3.1 Compliance with contract requirements for deliverables

44.3.2 Compliance with approved plans and specifications

44.3.3 Compliance with OWNER's business ethics expectations

44.3.4 Compliance with Contract provisions regarding the pricing of change orders

44.3.5 Accuracy of CONTRACTOR representations regarding the pricing of invoices

44.3.6 Accuracy of CONTRACTOR representations related to claims submitted by the CONTRACTOR or any of his payees.

44.4 CONTRACTOR shall require all payees (examples of payees include Subcontractors, material suppliers, insurance carriers, etc.) to comply with the provisions of this article by including the requirements hereof in a written contract agreement between CONTRACTOR and payee. CONTRACTOR will ensure that all payees (including those entering into lump sum contracts) have the same right to audit provisions contained in this contract.

44.5 OWNER's authorized preventative or designee shall have reasonable access to the C ONTRACTOR's facilities, shall be allowed to interview all current or former employee's to discuss matters pertinent to the performance of this Contract and shall be provided adequate and appropriate work space in order to conduct audits in compliance with this article.

44.6 If an audit, inspection, or examination, in accordance with this article, discloses overpricing or overcharges, of any nature, by the CONTRACTOR to the OWNER in excess of one percent (1%) of the total Contract billed to date, in addition to making adjustments for the overcharges, all reasonable cost of the OWNER's audit shall be reimbursed to the OWNER by the CONTRACTOR. Any adjustments and/or payments, which must be made as a result of any such audit or inspection of the CONTRACTOR's invoices and/or records, shall be made within a reasonable amount of time, not to exceed 90 days, from presentation of OWNER's findings to CONTRACTOR.

GC-45 INDEMNITY

45.1 Hold Harmless Agreement. In addition to its agreement to obtain and maintain the insurance as set forth herein, CONTRACTOR shall defend, indemnify and hold harmless the CITY, its officers, agents and employees, from and against any and all suits, actions, legal, or administrative proceedings, claims, damages, demands, liabilities, interest, attorney's fees, costs, and expenses of whatsoever kind or nature, including without limitation, those arising out of injury to, or death of, CONTRACTOR's employees, officers, agents or any subconsultant/Subcontractors' officers, agents or employees, whether arising before or after the completion of work, which allegedly arises out of any act or omission of the CONTRACTOR or any subconsultant/Subcontractor employed by the CONTRACTOR or any of the CONTRACTORS' and/or subconsultants'/Subcontractors' officers, agents or employees, whether active or passive. This defense, indemnification, and hold harmless agreement shall also apply to any and all claims which result from any condition created or maintained by the CONTRACTOR or any Subcontractor employed by CONTRACTOR, or any of the CONTRACTORS' and/or Subcontractors' officers, agents or employees, of which condition was not specified to be created or maintained by this Contract.

The CONTRATOR further agrees that its agreement to defend, indemnify and hold harmless the CITY, its officers, agents and employees shall not be limited to the limits of the liability insurance under this Contract and the attached specifications. However, CONTRACTOR shall not be required to indemnify the CITY, its officers, agents, and employees for any claims resulting from the sole negligence or willful misconduct of the CITY, or any other party released, indemnified, or held harmless pursuant to this Contract. This paragraph shall survive any termination or expiration of this Contract.

45.2 Negligence and Waiver. CONTRACTOR's aforesaid release, indemnity and hold harmless obligations, or portions or applications thereof, shall apply even in the event of the fault or negligence, whether active or passive, or strict liability of the parties released, indemnified or held harmless to the fullest extent permitted by law, but in no event shall they apply to liability caused by the willful misconduct or sole negligence of the party released, indemnity by an industrial insurance or workers' compensation statute. CONTRACTOR further agrees that this Contract to indemnify and hold harmless the parties released shall not be limited to the limits or terms of the liability insurance, if any required under this Contract and/or otherwise maintained by the CONTRATOR. This indemnity provision shall survive any termination or expiration of this Contract.

GC-46 PATENT AND INTELLECTUAL PROPERTY INDEMNITY

46.1 Indemnification and Substitution. CONTRACTOR hereby indemnifies and shall defend and hold harmless CITY, and its officers, agents, employees and its authorized representatives from and against any and all claims, actions, losses, damages, and expenses, including attorneys' fees, arising from any claim, whether rightful or otherwise, that any concept, product, design, equipment, material, process, copyrighted material or confidential information, or any part thereof, furnished by CONTRACTOR under this Contract constitutes an infringement of any patent or copyrighted material or a theft of trade secrets. If use of any part of such conept, product, design, equipment, material, process, copyrighted material or confidential information is limited or prohibited, CONTRACTOR shall, at its sole expense, procure the necessary licenses to use the infringing or a modified but non-infringing concept, product, design, equipment, material, process, copyrighted material or confidential information or, with CITY's prior written approval, replace it with substantially equal but non-infringing concepts, products, designs, equipment, materials, processes, copyrighted material or confidential information; provided however,

46.1.1 That any such substituted or modified concepts, products, designs, equipment, material, processes, copyrighted material or confidential information shall meet all the requirements and be subject to all the provisions of this Contract; and

46.1.2 That such replacement or modification shall not modify or relieve CONTRACTOR of its obligations under this Contract.

46.2 Exclusion if Furnished. The foregoing obligation shall not apply to any concept, product, design, equipment, material, process, copyrighted material or confidential information the detailed design of which (excluding rating and/or performance specifications) has been furnished in writing by the CITY to CONTRACTOR.

GC-47 NON-WAIVER

Failure by CITY or its designated representatives to insist upon strict performance of any terms or conditions of this Contract; failure to delay to exercise any rights or remedies provided herein or by law; failure to properly notify CONTRACTOR in the event of breach; the acceptance of, or payment for, any goods or services hereunder; the review or failure to review designs shall not release CONTRACTOR from any of the warranties or obligations of this Contract and shall not be deemed a waiver of any right of CITY to insist upon strict performance hereof.

GC-48 ARCHAEOLOGICAL AND HISTORICAL FINDINGS

48.1 No Known Significance. To the best of the knowledge of CITY, the Jobsite is not within any property, district, or site, and does not contain any building, structure or object listed in the current National Register of Historic Places published by the United States Department of Interior.

48.2 Stop Work. Should the CONTRACTOR encounter, during its operations, any building, part of a building, structure, or object, which is incongruous with its surroundings, which might be considered to be of archaeological or historical interest, CONTRACTOR shall immediately cease operations in that location and notify the ENGINEER in writing. The ENGINEER will investigate and will direct the CONTRACTOR either to resume its operations or to suspend operations in accordance with the Clause titled "SUSPENSION OF WORK".

GC-49 EXPLOSIVES

49.1 Transport of Explosives. Explosives shall be transported to the Jobsite only when required to perform the Work under this Contract and with prior notice to, and written approval of, CITY. CONTRACTOR shall be responsible for properly purchasing, transporting, storing, safeguarding, handling and using explosives required to perform the Work under this Contract. CONTRACTOR shall employ competent and qualified personnel for the use of explosives and, notwithstanding any other provision in this Contract to the contrary, shall assume full responsibilities for the cost of any incidental or consequential damages caused by the improper use of explosives. Residual surplus explosives shall be promptly removed from the Jobsite and properly disposed of by CONTRACTOR.

49.2 Notice of Detonation. CONTRACTOR shall notify ENGINEER in writing no less than forty-eight (48) hours in advance of each intended detonation of explosives. CONTRACTOR shall submit a comprehensive blasting plan for each intended use of explosives to ENGINEER for approval. The plan shall describe drilling plans and patterns, types and amounts of explosives, and methods. Safety and storage considerations shall also be included.

GC-50 DRUGS, ALCOHOL, AND WEAPONS

50.1 Policy. CONTRACTOR's personnel shall not bring onto the Jobsite, or any other location where the provisions of this Contract apply:

50.1.1 Any firearm of whatsoever nature, knife with a blade exceeding four (4) inches

(100 millimeters) in length or any other object which in the sole judgment of ENGINEER is determined to be a potential weapon.

50.1.2 Alcoholic beverages of any nature.

50.1.3 Illegal or CITY prohibited non-prescription drugs of any nature without exception.

50.2 Violations. CONTRACTOR shall abide by and enforce the requirements of this Clause to include the immediate removal from the Work under this Contract, of any employee who has violated the requirements of this Clause or who ENGINEER, in his sole judgment, determines has violated the requirements of this Clause.

GC-51 ESCROW DOCUMENTS

51.1 Generally. The Escrow Bid Documents constitute all documents generated by CONTRACTOR (or its subcontractors, if applicable) in preparation of its Bid for this project. CONTRACTOR was required to submit one complete set of its Escrow Bid Documents to the CITY to be held in the CITY's secured vault located within the Department of Procurement ("escrow"). Such Escrow Bid Documents shall remain in escrow for the duration of the Contract. Nothing in the Escrow Bid Documents shall change or modify the terms or conditions of the Contract Documents.

If the CONTRACTOR subcontracts any part of the Work, the Escrow Bid Documents must include the documents of each subcontractor whose total subcontract price exceeds five percent (5%) or Five Hundred Thousand ($500,000) Dollars, whichever is less, of the total Contract price. Such documents must be filed in the same manner and at the same time as the CONTRACTOR's Escrow Bid Documents and shall remain in escrow for the duration of the Contract. CITY retains the right to require the CONTRACTOR to submit Escrow Bid Documents from any other subcontractor.

An Escrow Bid Documents Certificate ("Certificate") must accompany the Escrow Bid Documents at the time they are placed in escrow. The Certificate must be signed by an individual authorized by the CONTRACTOR to execute the bid proposal who must represent and warrant (1) that the material in the Escrow Bid Documents constitutes all the documents used in preparation of the Bid, (2) that he or she has personally examined the contents of the Escrow Bid Documents container, (3) that the documents in the container are accurate and complete, and (4) that no other Bid preparation information shall be considered in resolving disputes.

51.2 Format and Contents. CONTRACTOR may submit Escrow Bid Documents in their usual cost-estimating format. The Escrow Bid Documents shall be in English.

The Escrow Bid Documents must clearly itemize the estimated costs of performing the Work of each Bid item contained in the Bid schedule. Bid items should be separated into sub-items as required to present a complete and detailed cost estimate and allow a detailed cost review. The Escrow Bid Documents shall include all quantity takeoffs, crew, equipment, calculations of rates of production and progress, copies of quotations from subcontractors and suppliers, and memoranda, narratives, consultant's reports, add/deduct sheets, and all other information used

by the CONTRACTOR to arrive at the prices contained in its Bid. Estimated costs should be broken down into the CONTRACTOR's usual estimate categories such as direct labor, repair labor, equipment operation, equipment ownership, expendable materials, permanent materials, and subcontract cost as appropriate. Plant and equipment and indirect costs should be detailed in the CONTRACTOR's usual format. The CONTRACTOR's allocation of plant and equipment, indirect costs, contingencies, markup and other items to each Bid item shall be included.
All costs shall be identified. For Bid items amounting to less than Ten Thousand ($10,000) Dollars, estimated unit costs are acceptable without a detailed cost estimate, provided that labor, equipment, materials, and subcontracts, as applicable, are included and provided that indirect costs, contingencies, and markup, as applicable, are allocated.

Bid Documents provided by the CITY should not be included in the Escrow Bid Documents unless needed to comply with the requirements of this specification.

51.3 Purpose. Escrow Bid Documents will be used to assist in the negotiation of price adjustments, change orders, settlement of disputes, claims and litigation against the CITY related to the Contract. They will not be used for pre-award evaluation of the CONTRACTOR's anticipated methods of construction or to assess the CONTRACTOR's qualifications for performing the Work.

51.4 Examination. The Escrow Bid Documents shall be examined by the CITY and the CONTRACTOR (or designated representative) at any time deemed necessary by the CITY or the CONTRACTOR, to assist in the negotiation of price adjustments and change orders, or the settlement of disputes, claims and litigation related to this Contract.

Examination of the Escrow Bid Documents is subject to the following conditions:

51.4.1 The Escrow Bid Documents are proprietary and confidential regarding any "trade secrets." (See Confidentiality and Georgia Open Records Act section below.)

51.4.2 The CITY and CONTRACTOR may each designate one or more representatives in writing which shall be provided to the other party at least ten (10) days prior to any scheduled examination. Such representatives may be authorized to examine the Escrow Bid Documents on behalf of their respective principal. No other person shall have access to the Escrow Bid Documents.

51.5 Ownership. The Escrow Bid Documents are and shall remain the property of the CONTRACTOR, subject only to joint review by the CITY and the CONTRACTOR, as provided herein.

51.6 Confidentiality and Georgia Open Records Act. The CITY acknowledges that the Escrow Bid Documents may contain information that the CONTRACTOR, or its Subcontractor(s), considers "trade secret," as that term is defined in O.C.G.A. § 10-1-761. Information provided to the City is subject to disclosure under the Georgia Open Records Act. Pursuant to O.C.G.A. § 50-18-72(a)(34), "[a]n entity submitting records containing trade secrets that wishes to keep such records confidential under this paragraph shall submit and attach to the records an affidavit affirmatively declaring that specific information in the records constitute trade secrets pursuant to Article 27 of Chapter 1 of Title 10 [O.C.G.A. § 10-1-760 et seq.]."

51.7 Final Disposition. The Escrow Bid Documents will be returned to the CONTRACTOR at such time as the Contract has been completed and final settlement has been achieved.

GC-52 MISCELLANEOUS

52.1 Severability. In the event that any provision of this Agreement is declared invalid, unenforceable or unlawful, such provisions shall be deemed omitted and shall not affect the validity of other provisions of this Agreement.

52.2 Further Assurances. Each Party shall provide such further documents or instruments required by the other Party as may be reasonably necessary to give effect to this Agreement.

52.3 No Drafting Presumption. No resumption of any Applicable Law relating to the interpretation of contracts against the drafter shall apply to this Agreement.

52.4 Survival. Any provision of this Agreement which contemplates performance subsequent to any termination or expiration of this Agreement or which must survive in order to give effect to its meaning, shall survive the expiration or termination of this Agreement.

52.5 Third Party Beneficiaries. This Agreement is not intended, expressly, or implicitly, to confer on any other Person any rights, benefits, remedies, obligations or liabilities.

52.6 Cumulative Remedies. Except as otherwise provided herein, all rights and remedies under this Agreement are cumulative and are in addition to, and not in lieu of, any other remedies available under Applicable Law, in equity or otherwise.

52.7 Entire Agreement. The Contract Documents contain the entire Agreement of the Parties relating to their subject matter and supersede all previous communications, representations or agreements, oral or written, between the Parties with respect to such subject matter. This Agreement may only be amended or modified by a writing executed by each Party's authorized representative and each such writing shall be deemed to incorporate the Contract Documents, except to the extent that CITY is authorized under Applicable Law to issue Unilateral Change Documents. SERVICE PROVIDER MAY NOT UNILATERALLY AMEND OR MODIFY THIS AGREEMENT BY INCLUDING PROVISIONS IN ITS INVOICES, OR OTHER BUSINESS FORMS, WHICH SHALL BE DEEMED OBJECTED TO BY CITY AND OF NO FORCE OR EFFECT.

52.8 Unauthorized Goods or Services. CONTRACTOR acknowledges that this Agreement and any changes to it by amendment, modification, change order, or other similar document may have required, or may require, the legislative authorization of the CITY's Council and approval of the Mayor. Under Georgia law, Service Provider is deemed to possess knowledge concerning the CITY's ability to assume contractual obligations and the consequences of Service Provider's provision of goods or services to the CITY under an unauthorized contract, amendment, modification, change order or other similar document, including the possibility that the Service Provider may be precluded from recovering payment for such unauthorized goods or services. Accordingly, Service Provider agrees that if it provides goods or services to the CITY under a contract that has not received proper legislative authorization, or if Service Provider provides goods or services to the CITY in excess of the any contractually authorized goods or services, as

required by the CITY's Charter and Code, the CITY may withhold payment for any unauthorized goods or services provided by Service Provider. Service Provider assumes all risk of non-payment for the provision of any unauthorized goods or services to the CITY, and it waives all claims to payment or to other remedies for the provision of any unauthorized goods or services to the CITY, however characterized, including, without limitation, all remedies at law or equity.

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT
EXHIBIT "B" CONSTRUCTION CONTRACT SPECIAL CONDITIONS
FC-8746, TAXIWAY PAVEMENT REPLACEMENT 2016

Table of Contents

SC-01 DEFINITIONS 91
SC-02 COMMENCEMENT, PROGRESS AND COMPLETION OF THE WORK 93
SC-03 LIQUIDATED DAMAGES 94
SC-04 CONTRACT ADMINISTRATION 95
SC-05 CITY FURNISHED DRAWINGS AND SPECIFICATIONS 95
SC-06 CITY FURNISHED FACILITIES, MATERIALS 96
SC-07 CONTRACTOR FURNISHED DRAWING, DATA, AND SAMPLES 97
SC-08 KEY PERSONNEL 101
SC-09 ESSENTIAL SUBCONTRACTORS 101
SC-10 ADDRESSES 102
SC-11 MEASUREMENT FOR PAYMENT 103
SC-12 INVOICING AND PAYMENT 104
SC-13 WAGE REQUIREMENTS 107
SC-14 PROJECT CONTINGENCY / ALLOWANCES 107
SC-15 TEMPORARY ACCESS AND HAUL ROADS 108
SC-16 CONTRACTORS' WORK AREA 108
SC-17 CLEANING UP 111
SC-18 COORDINATION AND WORK ON AIRPORT PROPERTY 111
SC-19 PROTECTION OF AIRPORT OPERATIONS SYSTEMS 112
SC-20 DELAY FOR OPERATIONS 112
SC-21 CUTTING AND PATCHING 113

SC-01 DEFINITIONS

AASHTO means The American Association of State Highway and Transportation Officials, the successor association to AASHO.

Access Road means the right-of-way; the roadway and all improvements constructed thereon connecting the airport to a public highway.

AIP means Airport Improvement Program, a grant-in-aid program, administered by the Federal Aviation Administration.

Air Operations Area (AOA) means for the purpose of these specifications, the term Air Operations Area shall mean an area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An Air Operation Area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.

Airside means the area of the Airport consisting of the airfield, aircraft parking ramps and other areas requiring a special Airport Security Identification badge to gain legal access. The general public does not have access to this area.

ASTM means The American Society for Testing and Materials.

Central Passenger Terminal Complex (CPTC) means the facilities at the Airport consisting of the North Terminal, South Terminal, Terminal Atrium, Concourses T, A, B, C, D, E, and F, and Airfield (active Runways and Taxiways).

Contract Line Item means a discretely priced portion of Work identified in the Exhibit titled "QUANTITIES, PRICING AND DATA FORMS."

Contract Schedule means the Work execution schedule developed and approved pursuant to the Exhibit titled "SCHEDULE REQUIREMENTS."

Drainage System means the system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted through the airport area.

H-JDP means Hartsfield-Jackson Development Program – H-JAIA development plan that includes major efficiencies/capacity projects associated with the Master Plan and replacement/upgrade/maintenance projects associated with the existing facility.

Landside means all areas outside the Airside, but still located on the Airport.

Large Hub Airport means an airport that enplanes more than one percent of the nation's passengers annually.

Lighting means a system of fixtures providing or controlling the light sources used on or near the Airport or within the Airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the Airport or to aid in the operation of aircraft landing at, taking off

from, or taxiing on the Airport surface.

MARTA means Metropolitan Atlanta Rapid Transit Authority.

Pavement means the combined surface course, base course, and sub base course, if any, considered as a single unit.

PROPONENT means the legal entity proposing, its/their respective directors, officers, partners, joint venture, employees, agents, representatives, permitted assigns and successors, presented to the CITY for approval to perform specific work in accordance with the Scope of Work defined in this Request for Proposal.

Secured Area means the area located within the SIDA surrounding the terminal or concourses primarily used for parking / servicing aircraft.

SIDA means the Security Identification Display Area.

Sterile Area means the area located within the terminal and concourses that require passage through a TSA checkpoint to access.

Structures means Airport facilities such as bridges; culverts; catch basins; inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases, transformers, flexible and rigid pavements, navigational aids, buildings, vaults, and other manmade features of the Airport that may be encountered in the work and not otherwise classified herein.

Subgrade means the soil which forms the pavement foundation.

Taxiway means for the purpose of this document, the portion of the air operations area of an Airport that has been designated by Airport for movement of aircraft to and from the Airport's runways or aircraft parking areas.

TSA means the Transportation Security Administration.

Utility Contracting means undertaking to construct, erect, alter, or repair or have constructed, erected, altered, or repaired any utility system in which the cost of the utility system work exceeds one hundred thousand dollars ($100,000.00).

Utility Contractor means a sole proprietorship, partnership, or corporation, which is engaged in utility contracting under express or implied contract or which bids for, offers to perform, purport to have the capacity to perform or does perform utility contracting under express or implied contract.

Utility Foreman means any individual who is employed by a licensed CONTRACTOR to have oversight and charge of the construction, erection, alteration, or repair of utility systems.

Utility Manager means any individual who is employed by a utility CONTRACTOR to have oversight and charge of the construction, erection, alteration, or repair of utility systems.

SC-02 COMMENCEMENT, PROGRESS AND COMPLETION OF THE WORK

2.1 Commencement. CONTRACTOR shall commence Work according to the accepted schedule following written Notice to Proceed from CITY, but in no event later than ten (10) business days thereafter. To facilitate the start of construction as early as possible, CONTRACTOR is strongly encouraged to submit its Safety, Security, Environmental, Quality Control, Fire Prevention plans, and the FAA Safety Plan Compliance Document (SPCD) to the CITY for review and approval immediately after Award of the Contract by the Council of the City of Atlanta. CONTRACTOR acknowledges that construction cannot begin until the Safety, Security and Quality Control plans are approved and that the development and submittal of CONTRACTOR submittals prior to the Contract being fully executed and Notice to Proceed issued is at CONTRACTOR's risk. Prior to any actual construction being performed, there shall be a Pre-Construction Conference to discuss details of execution.

2.2 Intermediate Milestones. CONTRACTOR shall complete the following intermediate milestones under this Contract:

NO.	CONTRACT MILESTONES
1.	CONTRACTOR shall achieve Substantial Completion on or before **One Hundred and Sixty Five (165) calendar days from Notice to Proceed.**
2.	Reopen taxiway after multi-day closure as per approved baseline schedule.
3.	Work starts in AOA after all approvals and permitting are complete – 60 days after Notice to Proceed.
4.	CONTRACTOR shall provide O&M manuals, warranties and As-Builts within **Ninety (90) calendar days** from the date of substantial completion of the entire project.

2.3 Substantial Completion. CONTRACTOR shall achieve Substantial Completion of the Work under this Contract on or before **One Hundred and Sixty Five (165) calendar days from Notice to Proceed**. This performance period is inclusive of the time required to gain approval for the Safety and Security plans which may require as many as 60 calendar days for review and approval. The SPCD must also be submitted and approved prior to commencement of work. CONTRACTOR acknowledges that CITY has purchased the entirety of the performance period. CONTRACTOR's schedule may indicate an earlier Substantial Completion date than required by CITY; however, CONTRACTOR is not entitled to any additional compensation should delays occur until the delays exceed the performance period indicated above.

2.4 Advance Information. CONTRACTOR shall give ENGINEER full information in advance in writing as to its plans for performing each part of the Work. If at any time, CONTRACTOR's actual progress is inadequate to meet the requirements of this Contract, ENGINEER may notify CONTRACTOR to take such steps as may be necessary to improve its progress. If, within a reasonable period as determined by ENGINEER, CONTRACTOR does not improve performance to meet the Contract Milestones set forth above, ENGINEER may require an increase in CONTRACTOR's labor force, the number of shifts, overtime operations, additional days of Work construction plant and equipment, all without additional cost to CITY. Neither such notice, nor

ENGINEER's failure to issue such notice, shall relieve CONTRACTOR of its obligation to achieve the quality of Work and rate of progress required by this Contract.

2.5 Noncompliance with ENGINEER's Instructions. Noncompliance with ENGINEER's instructions shall be grounds for ENGINEER's determination that CONTRACTOR is not prosecuting the Work with such diligence as will assure completion within the time specified. Upon such determination, CITY may terminate this Contract pursuant to the Clause titled "TERMINATION FOR DEFAULT."

SC-03 LIQUIDATED DAMAGES

3.1 Estimated Liquidated Damages. The parties hereby agree that the damages which CITY to determine with certainty and, therefore, have in good faith estimated as fair compensation, the Liquidated Damages as set forth below. If CONTRACTOR fails to deliver the equipment or materials or perform the services within the times specified in this Contract for the established Milestones & Substantial Completion, or any extensions granted in writing, the CONTRACTOR shall pay to CITY as fixed, agreed, and Liquidated Damages for each calendar day of delay the sum(s) specified below, which amounts shall be independently calculated as follows:

NO.	BASE BID CONTRACT MILESTONES	LIQUIDATED DAMAGES
1.	CONTRACTOR shall achieve Substantial Completion on or before **One Hundred and Sixty Five (165) calendar days from Notice to Proceed.**	Three Thousand Dollars and Zero Cents ($3,000.00) per calendar day.
2.	Reopen taxiway after multi-day closure as per approved baseline schedule.	One Hundred Dollars and Zero Cents ($100.00) per minute.
3.	CONTRACTOR shall provide O&M manuals, warranties, and As-Builts within **Ninety (90) calendar days** from the date of substantial completion of the entire project.	Three Thousand Dollars and Zero Cents ($3,000.00) per calendar day.
4.	Failure to open taxiway on time after closures.	One Hundred Dollars and Zero Cents ($100.00) per minute.

3.2 Application of Liquidated Damages not a Change. The application of Liquidated Damages shall not effect a change in the Contract milestone or relieve CONTRACTOR of its obligation to improve its progress, pursuant to the Clause titled "COMMENCEMENT, PROGRESS, AND COMPLETION OF THE WORK," to achieve, or to mitigate the failure to achieve, the Contract milestone date or stated area reopening.

3.3 Payment of Liquidated Damages. Payments of Liquidated Damages shall become due immediately upon failure to achieve Contract milestones. CITY shall be entitled to withhold from payments due, offset against other obligations, deduct from retainage, and draw down on letter(s) of credit or performance securities any and all Liquidated Damages due from CONTRACTOR.

3.4 No Restriction of Rights and Remedies. Nothing in this Clause shall operate to restrict any other rights and remedies available to CITY at law or under this Contract.

SC-04 CONTRACT ADMINISTRATION

CONTRACTOR agrees to utilize forms, reports and formats for information furnished by the ENGINEER in conjunction with the execution of work under this Contract.

4.1 Preconstruction Conference. After the award of the Contract and prior to commencement of the Work, a preconstruction conference between the CITY and the CONTRACTOR will be held. The time and place of the meeting will be established by the CITY. All involved parties shall be prepared to discuss any issues or concerns with the execution of the Work.

4.2 Coordination and Progress Meetings. The CONTRACTOR and any requested subcontractors and suppliers shall participate in weekly meetings with the ENGINEER to review and status construction progress and discuss scheduling changes, as required. The time and place for the meetings will be established by the ENGINEER. From time to time, and at the discretion of the ENGINEER, the frequency of such meetings may be lessened or increased, based on the issues and progress at hand. Each Contractor involved shall assume all liability, financial or otherwise, in connection with its contract and shall protect and save harmless CITY from any and all damages that may arise because of inconvenience, delays, or loss experienced by it due to coordination of the Work on the Project and the CITY's other CONTRACTORS. CITY does not warrant or guarantee the coordination of the Work of the CITY's CONTRACTORS nor does the CITY warrant or guarantee the represented completion dates for any contract.

SC-05 CITY FURNISHED DRAWINGS AND SPECIFICATIONS

5.1 CITY will Furnish. CITY will furnish specifications and prints of engineering design drawings for each part of the Work under this Contract. Such drawings will give information required for the preparation of shop detail drawings by CONTRACTOR. CONTRACTOR shall, immediately upon receipt thereof, check all specifications and drawings furnished and shall promptly notify ENGINEER in writing of any omissions or discrepancies in such specifications or drawings.

5.1.1 Two (2) copies of all specifications, one (1) full size and two (2) half-size prints of

drawings will be furnished to CONTRACTOR without charge. The CONTRACTOR shall also be provided, on compact disc, the drawings and specifications in electronic portable document format (PDF) for CONTRACTOR's use.

5.2 Drawings (Issued for Construction). All drawings listed in the Exhibit titled "INDEX OF DRAWINGS" are a part of this Contract; however, CONTRACTOR shall perform Work only in accordance with drawings marked "Issued for Construction" (IFC), which may be issued by ENGINEER after commencement of work on this Contract. Such IFC drawings may be revised from time to time by Change Notice and upon issuance become a part of the Contract, superseding or supplementing the original contract drawings.

5.3 Drawings at the Jobsite. CONTRACTOR shall maintain one complete and current set of all Contract Documents available at the Jobsite at all times, including designer-reviewed CONTRACTOR drawings.

SC-06 CITY FURNISHED FACILITIES, MATERIALS

Facilities. The facility listed below will be furnished by CITY and shall be used by CONTRACTOR for this project only.

6.1 Use Charges. NONE

6.2 Temporary Facilities. NONE

6.3 Use of Premises.

6.3.1 In general, the CONTRACTOR shall have limited use of the premises for construction operations as indicated on Contract Documents.

6.3.2 The CONTRACTOR shall limit use of premises to work areas indicated on Contract Documents. Do not disturb portions of the Project Site beyond areas in which work is indicated.

6.3.3 Any shutdown of Airport equipment or systems shall require a 7-day advance notice to the Airport.

6.3.4 For Electrical Work/Temporary Power, the CONTRACTOR shall coordinate temporary power needs by the CONTRACTOR, such as Electric Welding Machines, with the Airport representative in establishing power service point locations. The CONTRACTOR shall provide all equipment and installation to provide the temporary power needs.

6.3.5 CONTRACTOR shall manage premises to maintain a neat, orderly, and clean appearance. CONTRACTOR shall regularly mow along Airport roadways. CONTRACTOR shall comply with any directive of the ENGINEER to remedy conditions of unclean or disorderly appearance within the Work area.

6.4 Owner Furnished Materials. NONE

SC-07 CONTRACTOR FURNISHED DRAWING, DATA, AND SAMPLES

7.1 Drawings, Data, and Samples by CONTRACTOR. When drawings, samples, certificates and data are required by the Contract Documents or good engineering and construction practices, CONTRACTOR shall prepare and submit them to ENGINEER for DOA review. CONTRACTOR shall allow a minimum of twenty-one (21) calendar days for ENGINEER's review. CONTRACTOR shall prepare and submit to the ENGINEER a submittal schedule, at the same time the Contract Schedule is submitted. Such schedule shall incorporate all of the required and specified submittals, including, but not limited to, drawings, samples, and data. The submittal schedule shall identify each item together with dates for submission of each for review. The CONTRACTOR shall maintain consistency and logic between the submittal schedule and the Contract schedule.

7.2 ENGINEER Review. ENGINEER review and permission to proceed does not constitute acceptance or approval of submittal including, but not limited to, design details, calculations, analyses, test methods, construction methods, rigging plans, certificates or materials developed or selected by CONTRACTOR and does not relieve CONTRACTOR from full compliance with the Contract requirements.

7.3 Shop Drawings.

7.3.1 Description.

7.3.1.1 Original drawings, prepared by CONTRACTOR Subcontractors, suppliers or distributors, which illustrate the Work; showing fabrication, layout, setting or erection details.

7.3.1.2 Prepared by a qualified detailer.

7.3.1.3 Identify details by reference to sheet and detail numbers shown on contract drawings.

7.3.1.4 Maximum sheet sized: 24 inches x 36 inches

7.3.1.5 Reproductions for submittals: bond or black and white prints.

7.3.1.6 Shop drawings for structural details, false work and for temporary shoring shall be prepared by (or performed under the supervision of) a Georgia licensed P.E. (provided by CONTRACTOR) who shall sign and seal each shop drawing submitted.

7.4 Product Data.

7.4.1 Manufacturer's Standard Schematic Drawings.

7.4.1.1 Modify drawings to delete information that is not applicable to Project.

7.4.1.2 Supplement standard information to provide additional information

applicable to Project.

7.4.1.3 Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.

7.4.1.3.1 Clearly, mark each copy to identify pertinent materials of products.

7.4.1.3.2 Show dimensions and clearances required.

7.4.1.3.3 Show performance characteristics and capacities.

7.5 Samples.

7.5.1 Physical examples. To illustrate materials, equipment, or workmanship, and to establish standards by which completed work is judged.

7.5.2 Office Samples. Of sufficient size and quantity to clearly illustrate specified requirements.

7.5.3 Functional Characteristics. Of product or material, with integrally related parts and attachment devices.

7.6 CONTRACTOR's Responsibilities.

7.6.1 Review and approve shop drawings, product data, and samples prior to submission. Shop drawings that have not been reviewed by CONTRACTOR will be automatically returned to CONTRACTOR.

7.6.2 Verify:

7.6.2.1 Field Measurement, Dimensions, and Existing Elevations

7.6.2.2 Field Construction Criteria

7.6.2.3 Catalog Numbers and Similar Data

7.6.3 Coordinate each submittal with requirements of Work and of Contract documents.

7.6.4 CONTRACTOR's responsibility for errors and omissions in submittals is not relieved by ENGINEER's review of submittals.

7.6.5 CONTRACTOR's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by ENGINEER's review of submittals, unless ENGINEER gives written acceptance of specific deviations.

7.6.6 Notify ENGINEER in writing at time of submission of deviations in submittals from

requirements of Contract Documents.

7.6.7 Being no work, which requires submittals until return of submittals with ENGINEER's signature indicating a Code 1 or Code 2 review stations (See "Code Notation")

7.6.8 After ENGINEER's review, distribute copies.

7.7 Submission Requirements.

7.7.1 The shop drawings shall be submitted in sufficient time to allow discussion and correction prior to beginning the Work. Work shall not be performed, nor materials ordered, prior to the review of the drawing except at CONTRACTOR's risk.

7.7.2 Submit one (1) electronic copy or six (6) hard copies of all product data and shop drawings excluding shop drawings that require the actual drawing be stamped. Submittals will be returned electronically, excluding shop drawings, that require the actual drawing be stamped.

7.7.3 Accompany submittals with transmittal letter, in duplicate containing:

7.7.3.1 Date;

7.7.3.2 Project title and number;

7.7.3.3 CONTRACTOR's name and address;

7.7.3.4 The number of each shop drawing product data and sample submitted;

7.7.3.5 Notification of deviations from contract documents; and

7.7.3.6 Other pertinent data.

7.7.4 Telephone communications or fax transmittals by CONTRACTOR requesting the review and/or approval of CONTRACTOR's submittal will not be accepted by ENGINEER.

7.7.5 Submittals shall include:

7.7.5.1 Data and revision dates;

7.7.5.2 Project title and number;

7.7.5.3 The name of:

8.7.5.3.1 The Engineer responsible for the submittal

7.7.5.3.2 CONTRACTOR;

7.7.5.3.3 Subcontractor;

7.7.5.3.4 Supplier;

7.7.5.3.5 Manufacturer; and

7.7.5.3.6 Separate detailer, when applicable.

7.7.6 Identification of product or material

7.7.7 Relation to adjacent structure or materials;

7.7.8 Field dimensions clearly identified as such;

7.7.9 Specification section number;

7.7.10 Applicable standards, such as ASTM number of Federal Specification;

7.7.11 A blank space, 5 inches x 5 inches for ENGINEER's stamp;

7.7.12 Identification of deviations from Contract documents; and

7.7.13 CONTRACTOR's stamp, initialed or signed, certifying to a review of the submittal, verification of field measurements and compliance with Contract documents.

7.8 Code Notation.

7.8.1 No exceptions taken (Code 1).

7.8.2 Make Corrections Noted. Work may proceed subject to incorporation of noted corrections (Code 2). Contractor must resolve the comments indicated and resubmit to obtain a Code 1 Notation prior to Completion of the affected work.

7.8.3 Amend and Resubmit. Work may not proceed; revise and re-submit (Code 3).

7.8.4 Rejected – See Remarks. Work is not acceptable; Work may not proceed (Code 4).

7.9 Resubmission Requirements of Shop Drawings.

7.9.1 Revise initial drawings as required and resubmit as specified for initial submittal.

7.9.2 Indicate on drawings any changes which have been made other than those requested by ENGINEER.

7.9.3 Product Data and Samples. Submit new data and samples in the same manner as required for initial submittals.

7.9.4 Labeling of Samples. Each sample shall bear a label showing CONTRACTOR's name, Project name, Contract number, name of the item, manufacturer's name, brand name, model number, supplier's name, and reference to the appropriate drawing number, technical specification section and paragraph number; all as applicable.

7.10 Distribution of Submittals After Review.

7.10.1 Distribute copies of shop drawings and product data which carry ENGINEER's stamp to:

ENGINEER – six (6) copies
Others as required

7.10.2 Distribute samples as directed.

7.10.3 Disposition of Samples. Samples which have been reviewed may, at ENGINEER's sole discretion, be returned to CONTRACTOR or retained.

7.11 Certificates and Data. Where certificates are required, four (4) copies of each certificate shall be submitted by, and at the expense, of CONTRACTOR. Submittal shall be made not less than fifteen (15) calendar days prior to the time that the materials represented by such certificates are needed for incorporation into the Work.

7.12 Certificates to Identify. Certificates shall clearly identify the material being certified and shall include but not be limited to, the following information: CONTRACTOR's name, Project name, contract number, name of the item, manufacturer's name, and reference to the appropriate drawing, technical specification section and paragraph number; all as applicable.

7.13 CITY's Rights in Data. CITY shall have an irrevocable unrestricted royalty-free license to use all reports, Information, data, plans, drawings, specifications, computer programs, technical reports, operating manuals or other similar work products developed by CONTRACTOR and paid for by CITY under this Contract, or any other documents procured by, given to, prepared by, or assembled by CONTRACTOR under this Contract.

SC-08 KEY PERSONNEL

8.1 CONTRACTOR shall not reassign, or remove, the key personnel listed below without the prior written authorization of CITY:

NAME	TITLE / POSITION
TBD	Project Manager
TBD	Safety Manager
TBD	Superintendent
TBD	Project Scheduler
TBD	QA Manager

8.2 In addition to requirements elsewhere in the contract, Project Manager shall have the following experience and qualifications:

8.2.1 Contract administration and interpretation;
8.2.2 Writing ability and computer skills needed to prepare correspondence and documents related to assigned project;
8.2.3 Coordination of communications, approvals, notifications, and record keeping related to changes in the assigned work;
8.2.4 Ability to establish, interpret, and update schedules and records of all correspondence related to contract activity; and
8.2.5 Good understanding of diversity participation requirements.

Qualification skills may be supplemented by a Construction Administrator or Subconsultant as needed. Resume shall be required.

SC-09 ESSENTIAL SUBCONTRACTORS

9.1 The following designated Subcontractors, submitted during the bid process on "FORM B, Essential Subcontractor Qualification Statement" of the Exhibit titled "QUANTITIES, PRICING AND DATA FORMS," are deemed to be essential by the CITY to the execution of this Contract. These Essential Subcontractors may not be removed or substituted by the CONTRACTOR without proper written notice with justification and approval by the CITY.

Company Names	Scope of Subcontracted Services
TBD	Joint Sealing
TBD	Markings
TBD	Electrical
TBD	PCCP

9.2 Consent of CITY for Subcontracts. CONTRACTOR shall submit to the CITY a list of any third parties for the performance of all or any portion of the work within fifteen (15) calendar days from Notice to Proceed date for informational purposes. Those Subcontractors designated as essential in the Clause titled "ESSENTIAL SUBCONTRACTORS" need not be resubmitted.

SC-10 ADDRESSES

For all notices, demands, consents, approvals and requests to CITY, the address will be:

City of Atlanta Department of Aviation
1255 South Loop Road
Hartsfield-Jackson Atlanta International Airport
College Park, Georgia 30337

Facsimile (404) 209-1190
Attention: Aviation Assistant General Manager – Planning and Development

With a copy to:

City of Atlanta Department of Aviation
P.O. Box 20509
Hartsfield-Jackson Atlanta International Airport
Atlanta, Georgia 30320
Facsimile (404) 520-6803
Attention: Aviation General Manager

Department of Procurement
City of Atlanta
55 Trinity Avenue S.W.
City Hall South, Suite 1900
Atlanta, GA 30303-0307
Attention: Chief Procurement Officer

Hartsfield-Jackson Development Program
1255 South Loop Road
College Park, GA 30337
Facsimile (404) 684-8973
Attention: Resident Engineer

SC-11 MEASUREMENT FOR PAYMENT

11.1 Lump Sum Items. To establish a basis for payment against Lump Sum items set forth in the Exhibit titled QUANTITIES, PRICING AND DATA FORMS," CONTRACTOR shall, within ten (10) calendar days after Notice to Proceed, provide a Schedule of Values which proposes:

11.1.1 A reasonable number of measurable interim tasks required to accomplish each lump sum item; and

11.1.3 An allocation of the price to each task with reasonable relationship to the costs incurred in its accomplishment.

11.2 Schedule of Values. ENGINEER shall review CONTRACTOR's Schedule of Values, determine the appropriate tasks and values for progress payments and so advise CONTRACTOR in writing. The Schedule of Values shall be reconcilable to the Project Schedule.

11.3 Payment for Materials on Hand. Partial monthly estimates may include delivered cost of materials to be incorporated in the Work, provided that such materials meet the requirements of the Contract Documents, and are delivered to acceptable sites on the Airport property or at other sites in the vicinity that are acceptable to the CITY. Such delivered costs of stored or stockpiled materials may be included in the monthly estimates after the following conditions are met:

11.3.1 The material has been stored or stockpiled in a manner acceptable to the ENGINEER at, or on, an approved site. The CITY reserves the right to inspect.

11.3.2 The CONTRACTOR has furnished the ENGINEER with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

11.3.3 The CONTRACTOR has furnished the ENGINEER with satisfactory evidence that the material and transportation costs have been paid.

11.3.4 The CONTRACTOR has furnished the CITY legal title (free of liens or encumbrances of any kind) to the material stored or stockpiled.

11.3.5 The CONTRACTOR has furnished the CITY evidence that the material stored or stockpiled is insured against loss by damage or disappearance at any time prior to use in the Work.

It is understood and agreed that the transfer of title and the CITY's payment for such stored or stockpiled materials shall in no way relieve the CONTRACTOR of its responsibilities for furnishing and placing such materials in accordance with the Contract Documents.

In no case will the amount of partial payments for materials on hand exceed the Contract Price for such materials or the Contract Price for the Contract item where such materials will be utilized.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

11.4 Surveys to Determine Quantities. CONTRACTOR shall make all surveys necessary for determining all quantities of work to be paid under this Contract. Copies of field notes, computations and other records made by CONTRACTOR for the purpose of determining quantities shall be furnished to ENGINEER upon request. CONTRACTOR shall notify ENGINEER in writing prior to the time such surveys are made. ENGINEER, at his sole discretion, may witness and verify such surveys. If ENGINEER performs surveys to verify CONTRACTOR surveys which are the basis of payment requests and CONTRACTOR's survey proves to be inaccurate, the cost of verification surveys shall be paid by CONTRACTOR. Measurements and computations shall be made by such methods as ENGINEER may consider appropriate for the class of work measured and the estimate of quantities of work completed shall be compatible with the reporting requirements of the Exhibit titled "SCHEDULE REQUIREMENTS." The dividing limits, lines, or planes between adjacent items or classes of excavation, concrete, or other types of work where not definitely indicated on the drawings or in the specifications shall be as determined by ENGINEER.

SC-12 INVOICING AND PAYMENT

12.1 Submittal of Invoices. CONTRACTOR shall prepare the invoice from the 26th of the month to the 25th of the following month. The invoice must be submitted to the construction manager (CM) on the 5th day of the next month. CONTRACTOR shall meet with the CM, five (5) days prior to submission of the invoice request to verify the quantity of Work in place for progress payment. The CONTRACTOR shall provide the necessary schedule and cost reports for review and agreement of invoiced quantities. Invoices must be entered in the CITY's Online Invoicing System

(OLIS).

12.2 Retainage. Within thirty (30) calendar days after receipt of a correct invoice, CITY will pay CONTRACTOR ninety percent (90%) of the approved invoice amount. When fifty (50%) percent of the Contract, including change orders and other additions the Contract value provided for by the Contract documents is due, and the manner of completion of the Contract work and its progress are reasonably satisfactory to the CITY, the CITY will not withhold any more retainage. At the discretion of the CITY and with the approval of the CONTRACTOR, the retainage of each Subcontractor may be released separately as the Subcontractor completes its Work. At the CITY's sole discretion and approval of the Surety, CITY may reduce previously retained amounts upon satisfactory completion of remaining Work. If, after discontinuing the retention, the CITY determines that the work is unsatisfactory or has fallen behind schedule, retention may be resumed at the previous level. If retention is resumed by the CITY, the CONTRACTOR and Subcontractors shall be entitled to resume withholding retainage accordingly. The retainage shall be shared by the CONTRACTOR and subcontractors as their interest may appear.

12.3 Releases of all Claims. CITY may, as a condition precedent to any payment, require CONTRACTOR to submit for itself, its Subcontractors, immediate and remote, and all material suppliers, vendors, laborers, and other parties acting through or under it, complete waivers and releases of all claims against CITY arising under or by virtue of this Contract. Upon request, CONTRACTOR shall, in addition, furnish acceptable evidence that all such claims have been satisfied.

12.4 Amounts Withheld. Any amounts otherwise payable under this Contract may be withheld, in whole or in part, if:

12.4.1 Any claims are filed against CONTRACTOR by CITY or third parties arising out of performance of this Contract;

12.4.2 CONTRACTOR is in material default of any Contract condition including, but not limited to, the schedule, quality assurance and health and safety requirements;

12.4.3 CONTRACTOR has not submitted:

12.4.3.1 Schedules as defined in the Exhibit titled "SCHEDULE REQUIREMENTS,"

12.4.3.2 Proper insurance certificates, or not provided proper coverage or proof thereof, and

12.4.3.3 Required Performance and Payment Bonds or CITY approved equivalent securities.

12.4.4 Adjustments are due from previous overpayment or audit result; or

12.4.5 Offsets in favor of CITY in other transactions are asserted.

12.5 Release of Withholdings. CITY will release and pay such withheld amounts if CONTRACTOR:

12.5.1 Has provided As-Built information approved by the ENGINEER.

12.5.2 Pays, satisfies, or discharges any claim of CITY, or third parties against CONTRACTOR; or

12.5.3 Cures all defaults in the performance of this Contract.

12.6 Claims Against CONTRACTOR. If claims filed against CONTRACTOR connected with performance under this Contract, for which CITY may be held liable if unpaid (e.g. unpaid withholding and back taxes), are not promptly removed by CONTRACTOR after receipt of written notice from CITY to do so, CITY may remove such claims and deduct all costs in connection with such removal form withheld payments or other monies due, or which may become due, to CONTRACTOR. If the amount of such withheld payment or other monies due CONTRACTOR under this Contract is insufficient to meet such costs, or if any claim against CONTRACTOR is discharged by CITY after final payment is made, CONTRACTOR and its Surety or sureties, if any, shall promptly pay CITY all costs incurred thereby regardless of when such claim arose, or whether such claim imposed a lien upon the Project or the real property upon which the Project is situated.

12.7 Payment of Final Invoice. CITY shall, within thirty (30) calendar days following Final Acceptance of the Work as a whole and after submittal of a final invoice, pay to CONTRACTOR the amount then remaining due, provided that, CONTRACTOR shall have furnished CITY for itself, its Subcontractors, immediate and remote, and all material suppliers, vendors, laborers, and other parties acting through or under it, waivers and releases of all claims against CITY arising under or by virtue of this Contract, except such claims, if any, as may with the consent of CITY, be specifically excepted by CONTRACTOR from the operation of the release in stated amounts to be set forth therein.

12.8 Final Release of Retainage. Prior to the Final release of Retainage, the CONTRACTOR shall certify to the CITY, in writing, in a form satisfactory to the CITY, that all Subcontractors, materialmen, suppliers, and similar firms or persons involved in the CITY Contract, have been paid in full at the time of Final payment to the CONTRACTOR by the CITY, or will be paid in full utilizing the monies constituting Final payment to CONTRACTOR.

12.9 Payment Does Not Constitute Acceptance. No payments of invoices, or portions thereof, shall at any time constitute approval or acceptance of any Work under this Contract, nor be considered a waiver by CITY of any of the terms of this Contract; however, title to all equipment and materials which has vested in CITY pursuant to the Clause titled 'TITLE AND RISK OF LOSS" shall not be part of CONTRACTOR's property or estate, unless otherwise specified by applicable law, in the event CONTRACTOR is adjudged bankrupt or makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of CONTRACTOR's insolvency, or if all or any portion of this Contract is terminated.

12.10 Submittal of Invoices. CONTRACTOR shall submit an original and one (1) copy to:

Hartsfield-Jackson Development Program
Construction Management
Attn: Assigned Resident Engineer (TBD)
1255 South Loop Road
College Park, GA 30337

Reference: PROJECT NUMBER FC-8746 – Taxiway Pavement Replacement – 2016

12.11 Waiver of Applicability of Prompt Pay Act. CONTRACTOR specifically waives the application to this Contract of Georgia Code Annotated §§ 13-11-1, 13-11-4, 13-11-7, and 13-11-8.

SC-13 WAGE REQUIREMENTS

CONTRACTOR shall pay the prevailing wages as stipulated by the wage scale(s), which is incorporated in the Contract Documents (Section titled "WAGE AND BENEFITS RATES"). Such scale of wages to be paid shall be posted by the CONTRACTOR in a prominent and easily accessible place at the site of the work.

SC-14 PROJECT CONTINGENCY AND ALLOWANCES

The "Project Contingency" allowance is that sum of money set aside and under the control of the ENGINEER, or his designee, as part of the Project budget which has been designated to pay for scope modifications, unforeseen events, Work items consistent and related to the Contract but not shown on the drawings and/or specifications but necessary for the successful completion of the Work, or emergences during the course of the Project not otherwise contemplated in the Contract. The CITY is solely responsible for the appropriation of these funds. CONTRACTOR shall have no claim to such funds. The Work shall be assigned and directed by the ENGINEER, or his designee, in written form. Measurement and payments shall be in accordance with the Clause titled "INVOICING AND PAYMENT" and the Clause titled "PRICING OF ADJUSTMENTS."

The Allowance is that sum of money included in the Total Contract Price that is under the control of the ENGINEER, or his designee, to pay for the scope set out for the allowance item. Once the scope of work for the allowance items is fully defined and issued to the CONTRACTOR, measurement and payments shall be in accordance with the Clause titled "INVOICING AND PAYMENT" and the Clause titled "PRICING OF ADJUSTMENTS." If the compensation for completing the allowance item work is less than the allowance amount, the savings shall revert to the CITY. If the compensation for completing the allowance item work is more than the allowance amount, the CONTRACTOR shall be paid the difference. The difference shall be funded by either the issuance of a Project Contingency or a Change Order. All such allowances shall cover all direct, indirect, and general condition costs of the allowance work and all profit and overhead of the CONTRACTOR for the allowance work.

SC-15 TEMPORARY ACCESS AND HAUL ROADS

15.1 General. CONTRACTOR shall, at its expense, construct and maintain temporary access and haul roads as may be necessary for the proper performance of this Contract. CONTRACTOR shall submit a layout of all proposed roads prior to road construction. The layout shall show widths of roads, direction of traffic, curves, grades, and related information in sufficient detail for review by ENGINEER. Roads constructed on CITY's land or rights-of-way shall be subject to CITY's approval.

15.1.1 The CONTRACTOR's access route to the Project site shall be as shown on drawings.

15.1.2 The location of access and haul routes in the Aircraft Operations Area (AOA), if applicable, are as shown on the drawings. Use of unauthorized haul routes shall not be acceptable.

15.1.3 Roads used by the CONTRACTOR for access or hauling shall be kept clean and accessible to all other Airport traffic for the entire duration of the Project. Haul trucks must be covered and any spillage or debris buildup promptly removed from all haul routes on Airport and public roads. No separate payment shall be made for keeping the roads clear and accessible.

15.1.4 The CONTRACTOR shall control dust and debris from its operation to a level acceptable to the CITY and have on the Project vacuum sweepers, watering trucks, and other equipment necessary to control dust. All methods for controlling dust shall be subject to the CITY's approval. Dust control shall be strictly monitored due to its impact on aircraft safety. Failure to properly control dust, or to respond to any request to do so, will result in construction activities being stopped.

15.1.5 All excess material produced by the CONTRACTOR's operations shall be disposed of off Airport property at an appropriate, licensed construction and demolition disposal facility at no additional cost to the CITY.

SC-16 CONTRACTORS' WORK AREA

16.1 Assignment of Work Areas. All CONTRACTOR work areas on the Jobsite will be assigned by ENGINEER. CONTRACTOR shall confine its operations to the areas so assigned. Should CONTRACTOR find it necessary or advantageous to use any additional offsite area for any purpose whatsoever, CONTRACTOR shall, at its expense, provide and make its own arrangements for the use of such additional offsite areas.

16.2 Air Operations Area Controls. At all times during the performance of this Contract, CONTRACTOR shall provide for free and unobstructed movement of aircraft in the Air Operations Area (AOA) of the Airport, shall identify all hazards to aircraft and shall provide for the control of personnel and vehicular traffic, all in accordance with Section 16.3 and 16.4. A detailed Traffic Control Plan shall be submitted for approval to the ENGINEER prior to the commencement of any construction activities.

16.3 Operating within Critical Areas. When the Work requires CONTRACTOR to conduct its operations within areas adjacent to active runways, taxiways, aprons, and/or navigational aids, the Work shall be coordinated with CITY and FAA through ENGINEER. CONTRACTOR shall request authorization from ENGINEER forty-eight (48) hours prior to any closure or interference with the Aircraft Operations. While working in the AOA, CONTRACTOR shall maintain constant communications and with the ENGINEER and shall immediately obey all instructions from the ENGINEER.

16.4 Operating Close to Aircraft. When working in close proximity to aircraft, CONTRACTOR shall:

16.4.1 Yield the right-of-way to aircraft.

16.4.2 Keep the movement of vehicles across active taxiways and aprons to a minimum.

16.4.3 Obtain proper approval from the ENGINEER before allowing any equipment or vehicles to cross an active runway.

16.4.4 Require all operators to maintain a safe and reasonable speed.

16.4.5 Utilize equipment with due regard for existing weather conditions.

16.4.6 Remove, from the Jobsite, any person operating unauthorized vehicles or equipment in a restricted area, or operating vehicles or equipment in a reckless and unreasonable manner.

16.4.7 Keep all trash and debris from taxiways, runways, and ramp areas.

16.4.8 Prohibit all vehicles and equipment from being operated within one hundred sixty (160) feet of the centerline of an active taxiway or within two hundred fifty (250) feet of the centerline of the active runway, except on Airport service roads or with the express consent of ENGINEER.

16.4.9 Immediately cease work and vacate any operations or work area at any time if instructed to do so by ENGINEER. These instructions may be issued by radio or other appropriate means. CONTRACTOR shall not return to a vacated area until authorized by ENGINEER.

16.5 Closing the AOA. When the Work requires closing the AOA, or portion of such area, CONTRACTOR shall furnish, erect, and maintain temporary markings and associated lighting conforming to the requirements of FAA Advisory Circular 150/5370-2F Operational Safety of Airports During Construction. Open-flame type lights shall not be permitted within the AOA.

16.6 Employee Parking. CONTRACTOR shall arrange employee parking outside the AOA and provide its employees transportation into the Jobsite. CONTRACTOR's access point into the AOA shall be as directed by the ENGINEER.

16.7 Storage of Equipment and Materials. Materials shall be so stored as to assure the preservation of their quality and fitness of the Work. Stored materials, even though approved before storage, may again be inspected prior to their use in the Work. Stored materials shall be located so as to facilitate their prompt inspection. The CONTRACTOR shall coordinate the storage of all materials with the ENGINEER. Materials to be stored on Airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft or ground traffic. CONTRACTOR shall not store materials on the AOA without written approval by DOA Airside Operations and the FAA. Unless otherwise shown on the plans, the storage of materials and the location of the CONTRACTOR's plant and parked equipment or vehicles shall be as directed by the ENGINEER. Private property shall not be used for storage purposes without written permission of the owner or lessee of such property. The CONTRACTOR shall make all arrangements and bear all expenses for the storage of materials on private property. All storage sites on private or airport property shall be restored to their original condition by the CONTRACTOR at his/her entire expense, except as otherwise agreed to (in writing) by the CITY or lessee of the property. CONTRACTOR shall base his bid on no stored materials on the AOA without written approval by DOA Airside Operations and FAA. Such approval may be withheld.

16.7 Material Handling. Contractor's responsibility for materials and plant equipment required for the performance of this Contract shall include:

16.7.1 Receiving and unloading;

16.7.2 Storing in a secure place and in a manner subject to City's review. Outside storage of materials and equipment subject to degradation by the elements shall be in weather tight enclosures provided by the contractor;

16.7.3 Delivering from storage to construction site all materials and plant equipment as required;

16.7.4 Maintaining complete and accurate records for City's inspection of all materials and plant equipment received, stored and issued for use in the performance of this Contract.

16.8 Construction Lighting for Night Work. The Contractor shall cooperate with the FAA and the City when aligning his construction floodlights so as not to interfere with aircraft pilots or air traffic controllers' vision. When requested by the City, the Contractor will respond quickly to adjust the lighting as directed.

16.9 Height Restrictions. FAA Regulation for use of cranes and other elevated equipment will be strictly enforced. The Contractor shall be responsible for submitting FAA Form 7460 to the City and obtaining FAA approval prior to Contractor's use of any elevated equipment. Allow a minimum of 45 days for the Form 7460 to process through FAA.

16.10 Protection of Employees. When the project is within the vicinity of large jet aircraft operations the Contractor shall take all precautions necessary to protect his employees, equipment, and work in progress from aircraft noise and jet engine blast.

SC-17 CLEANING UP

17.1 Clean Work Areas. CONTRACTOR shall, at all times, keep its work areas in a neat, clean and safe condition. While working in the AOA, the CONTRACTOR shall keep the areas immediately adjacent to the Jobsite clean at all times. The CONTRACTOR shall sweep adjacent pavement areas at least once daily or as directed by the ENGINEER. If grass within the construction limits exceeds ten (10) inches in height, the CONTRACTOR is responsible for mowing. CONTRACTOR shall, on a daily basis, remove from the Work area all its equipment and uninstalled materials while maintaining temporary walls and protective barriers to provide a neat and safe area for the public. Upon completion of any portion of the Work, CONTRACTOR shall promptly remove from the Work area all its equipment, construction plant, temporary structures, and surplus materials not to be used at, or near, the same location during later stages of the Work.

17.2 Rubbish and Salvage. Upon completion of the Work and prior to final payment, CONTRACTOR shall, at its expense, satisfactorily dispose of all rubbish, remove all plant, buildings, equipment, and materials belonging to CONTRACTOR and return to CONTRACTOR's warehouse or Jobsite storage area all salvageable CITY supplied materials. CONTRACTOR shall leave the premises in a neat, clean and safe condition.

17.3 Failure to Comply. In the event of CONTRACTOR's failure to comply with the foregoing requirements, CITY may accomplish same at CONTRACTOR's expense.

17.3 Maintenance. Contractor shall maintain the Work including any provisionally accepted portions thereof and including any portions occupied by City or put into service until final acceptance of the Work as a whole. Use shall not constitute acceptance, relieve Contractor of its responsibilities, or act as a waiver by the City of any terms of this contract.

SC-18 COORDINATION AND WORK ON AIRPORT PROPERTY

18.1 For some portions of this Project, construction will occur within the Security Identification Display Area (SIDA). The SIDA is the airport security area with restricted access. The CONTRACTOR will be required to meet all requirements for entering and operating in these areas as described in the Exhibit titled "AIRPORT SECURITY REQUIREMENTS."

18.2 All CONTRACTOR personnel, including subcontractors, engaged in work within the SIDA shall be Airport badged and fingerprinted as required in the Exhibit titled "AIRPORT SECURITY REQUIREMENTS." Due to the time necessary to complete the badging and fingerprinting process, the CONTRACTOR may start the process after contract Award and before construction NTP.

18.3 All construction activities within the SIDA shall be conducted in a manner acceptable to the CITY and FAA to provide acceptable levels of safety, security, and access for all Airport operations. Periodic meetings will be held to coordinate the activities of this contract with other Airport operations.

18.4 All costs associated with establishing and maintaining SIDA security shall be included in the price bid for mobilization unless included in a separate Special Provisions (SP) item.

18.5 The CONTRACTOR shall cooperate with existing and future Contractors working in the area and at all times will coordinate its efforts to maintain necessary construction and hauls routs and to assure that all contracts continue on a timely basis.

SC-19 PROTECTION OF AIRPORT OPERATIONS SYSTEMS

19.1 Location of Airport Operations Systems. In addition to CONTRACTOR's general obligations in the Clause titled "CONTRACTOR'S WORK AREA," numerous Airport operations systems, including, but not limited to, radio receivers and transmitters, U.S. Weather Bureau facilities, Navigation Aids, Communication and Security systems and associated electrical cables will be in use during the performance of Work. CONTRACTOR shall protect such systems at all times. Airport Operations Systems may be shown on drawings, marked by ENGINEER, or obvious from visual inspection but CONTRACTOR shall inquire and inspect to determine the location of any and all such systems and shall be responsible to avoid damage to any of them at all times.

19.2 Damage to Airport Operations Systems. If any portion of any Airport operations system is damaged by CONTRACTOR, or anyone operating under CONTRACTOR's control or direction, CONTRACTOR shall immediately notify ENGINEER in writing and propose both temporary and permanent repairs to restore system functions and return the system to its original condition at no additional cost to the CITY. The material, workmanship, and methods for repairs must all be approved by ENGINEER and such repairs may be witnessed or inspected by owners or operators of such systems as well as ENGINEER. If in the opinion of ENGINEER, CONTRACTOR is not qualified to perform such repairs, they may be performed by others and the reasonable costs of such repairs shall be deducted from payments otherwise due CONTRACTOR.

19.3 Protection of Utilities. Work around any existing underground utilities shall be performed in a manner that will avoid damages to the utilities. Prior to commencing with Work, the CONTRACTOR shall accurately locate or get appropriate utility company to locate above and below ground utilities, which may be affected by the Work. The CONTRACTOR shall protect all utilities not designated for removal, relocation, or replacement in the course of the construction. The CONTRACTOR shall provide 72 hours of advanced notice to the utility owner, CITY, and FAA prior to beginning construction in the vicinity of the existing utility line. For existing utility location assistance, call the Utilities Protection Center (UPC) at 1-800-282-7411 and FAA at (404) 669-1260.

SC-20 DELAY FOR OPERATIONS

20.1 Restrictions to Access. Access to work areas may be restricted from time to time by necessity of Airport operations. CONTRACTOR has taken into account and provided in its planning, scheduling, and pricing for disruptions including, but not limited to, clearing traffic congestion or accidents, repairs to Airport facilities, heightened Security conditions and the like.

20.2 Closures. Runway and Taxiway closures at any time, or duration, are prohibited during the following holidays:

20.1.1 Memorial Day Weekend: Thursday through Tuesday

20.1.2 Labor Day Weekend: Thursday through Tuesday

20.1.3 One week prior to Thanksgiving through the Monday after Thanksgiving

20.1.4 One week prior to Christmas day through one week after New Year's Day

SC-21 CUTTING AND PATCHING

CONTRACTOR shall be responsible for all cutting, fitting, and patching required to complete the Work. The ENGINEER, at his discretion, may request the uncovering of the Work to provide for alterations, restoration, or refinishing of existing work. A written request to the ENGINEER, in advance of cutting or patching items of work which may affect structural value or integrity, is required for approval.

CITY OF ATLANTA

DEPARTMENT OF AVIATION

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT
PROJECT NUMBER FC-8746
TAXIWAY PAVEMENT REPLACEMENT - 2016

EXHIBIT C
QUANTITIES, PRICING AND DATA

TABLE OF CONTENTS

FORM A. SCHEDULE OF QUANTITIES AND PRICES 115

FORM A-1 SCHEDULE OF UNIT & LUMP SUM PRICES..... ERROR! BOOKMARK NOT DEFINED.

FORM B. ESSENTIAL SUBCONTRACTOR QUALIFICATION STATEMENT 133

FORM C. PRELIMINARY CONTRACT SCHEDULE..... 135

FORM D. PROJECT ORGANIZATION AND WORK PLAN..... 136

FORM E. SAFETY PROGRAM..... 137

FORM F. RESUMES OF KEY PERSONNEL..... 143

FORM G. SUMMARY OF QC PROGRAM 144

FORM H. WORK IN PROGRESS 145

FORM I. EXPERIENCE STATEMENT 146

EXHIBIT "C"
FORM A. SCHEDULE OF QUANTITIES AND PRICES

01) SCOPE OF WORK

The Pavement Evaluation 2010 and 2013 identified Taxiways L6 and F3 as well as portions of Taxiway E for partial pavement replacement based on many factors including the age, PCI Index, and the number and frequency of repairs. Portions of Taxiway E identified for replacement include the section from Ramp 2 to Taxiway E5 and from Taxiway D to Delta TOC entrance. A total of 38,000 square yards of pavement is to be replaced. Work includes concrete pavement, centerline lights, and subgrade repair.

02) UNIT & LUMP SUM PRICES

Unit and Lump Sum prices quoted in Form A -1 Schedule of Unit & Lump Sum Prices shall be firm all-inclusive prices. Payment of the Unit and/or Lump Sum prices shall constitute full payment for performance of the corresponding work and shall cover all costs of whatever nature incurred by the CONTRACTOR in accomplishing the Work in accordance with the provisions of this Contract.

The Total Base Bid Price for performing the Work is $_____

that is_____ **(Words)**

Additive Alternate No. 1 (Contractor's Cost for Insurance)

_____ ***Dollars (Words)***

($_____)

03) QUANTITIES

The quantities where noted in the Schedule of Unit & Lump Sum Prices, are approximations subject to variations as stated in 5.0 and no claim shall be made for deficiency or over-run, actual or relative. Payment will be made for the actual quantities of each Schedule of Unit Prices item incorporated into the Work in accordance with the Contract requirements based on the unit prices established in the Schedule.

04) PERFORMANCE AND PAYMENT SECURITIES

The cost of the Performance and Payment Bonds are to be distributed through the various items of work.

05) ADJUSTMENTS

All prices are fixed for the duration of the Contract and are not subject to escalation for any reason. Payment of the Total Contract Price shall constitute full payment for performance of the Work and covers all costs of whatever nature incurred by CONTRACTOR in accomplishing the Work in accordance with the provisions of the Contract.

The CITY reserves and shall have the right to make such adjustments in the Work as may be necessary or desirable to complete the Work originally intended in an acceptable manner. Unless otherwise specified herein, the CITY may make such adjustments in the Work as may increase or decrease the originally awarded contract quantities. Adjustments shall not invalidate the Contract nor release the surety, and the CONTRACTOR agrees to accept payment for such adjustments as if the altered work had been a part of the original Contract. The adjustments which are for work within the general scope of the Contract shall be covered by Change Order issued by the ENGINEER. Change Orders for altered work shall include extensions of Contract time where, in the ENGINEER's opinion, such extensions are commensurate with the amount and difficulty of added work.

If the CITY and the CONTRACTOR are unable to agree on a unit adjustment for any Contract item that requires a change order, the CITY reserves the right to terminate the Contract with respect to the item and make other arrangements for its completion.

All Change Orders shall require consent of the CONTRACTOR'S surety and an increase of the performance and payment bonds.

Adjustments shall not increase the total cost of the project, based on the originally estimated quantities and the unit prices bid. Should it become necessary for the best interest of the CITY to make changes in excess of those herein specified, the same shall be covered by Change Order.

06) REQUIRED SUBMITTALS

When notified by the Department of Procurement (DOP), the CONTRACTOR will within ten (10) days submit the following documents to CITY executed by CONTRACTOR and its Surety, or issued by CONTRACTOR'S insurers providing the insurance required by the Contract, as applicable, the following:

a) Performance Bond;

b) Payment Bond; and

c) Accord Certificate of Insurance.

07) OWNER'S CONTROLLED INSURANCE PROGRAM

The CITY, at its option, may consider the implementation of the Owner's Controlled Insurance Program. Items under the Base Bid shall include the CONTRACTOR'S cost of procuring and maintaining Automobile Liability Insurance and Builders Risk Insurance as stipulated in Exhibit D; Insurance and Bonding.

CITY OF ATLANTA
DEPARTMENT OF AVIATION
HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

TAXIWAY PAVEMENT REPLACEMENT 2016

EXHIBIT "C"

FORM A-1 SCHEDULE OF UNIT & LUMP SUM PRICES

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
SP-1-1	LUMP SUM	L.S., MOBILIZATION, AT _____ _____ PER LUMP SUM				
SP-2-1	ALLOWANCE	AS REQUIRED, PROJECT CONTINGENCY, AT _____ _____ PER ALLOWANCE	**1,500,000**	**00**	**1,500,000**	**00**
SP-3-1	2	PER., SUSPENSION TIME (7 HOUR CLOSURE), AT _____ _____ PER PERIOD				
SP-3-2	500	MIN., STANDBY TIME, AT _____ _____ PER MINUTE				
SP-3-3	4	PER., DOWN-TIME (5 HOUR CLOSURE), AT _____ _____ PER PERIOD				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
SP-4-1	LUMP SUM	L.S., TRAFFIC CONTROL, AT _____ _____ PER LUMP SUM				
SP-5-1	LUMP SUM	L.S., UTILITY COORDINATION AND SCHEDULING, AT _____ _____ PER LUMP SUM				
SP-6-1	250	HRS., WATERING FOR DUST CONTROL, AT _____ _____ PER HOUR				
SP-7-1	LUMP SUM	L.S., AS-BUILTS, AT _____ _____ PER LUMP SUM				
SP-8-1	LUMP SUM	L.S., AIRCRAFT MOVEMENT AREA (AMA) ESCORTING, AT _____ _____ PER LUMP SUM				
P-101-1	1,000	L.F., BITUMINOUS PAVEMENT CRACK REPAIR, AT _____ _____ PER LINEAR FOOT				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
P-150-1	46,900	S.Y., REMOVAL OF PAVEMENT AND BASE COURSES, VARIABLE THICKNESS, AT _____ _____ PER SQUARE YARD				
P-150-2	2	EA., REMOVE AND RELOCATE SIGN, AT _____ _____ PER EACH				
P-150-3	1	EA., REMOVE AND RELOCATE LIGHT POLE, AT _____ _____ PER EACH				
P-152-1	64,500	S.Y., SELECTIVE GRADING, AT _____ _____ PER SQUARE YARD				
P-152-2	100	C.Y., ROCK EXCAVATION, AT _____ _____ PER CUBIC YARD				
P-152-3	100	C.Y., TRENCH ROCK EXCAVATION, AT _____ _____ PER CUBIC YARD				
P-152-4	80	C.Y., BACKFILL, AT _____ _____ PER CUBIC YARD				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
P-152-5	4,400	C.Y., EXCESS EMBANKMENT, AT _____ _____ PER CUBIC YARD				
P-152-6	45,000	S.Y., SUBGRADE PREPARATION, AT _____ _____ PER SQUARE YARD				
P-156-1	LUMP SUM	L.S., SEDIMENT/EROSION CONTROL, AT _____ _____ PER LUMP SUM				
P-156-2	28	EA., INLET SEDIMENT TRAP, AT _____ _____ PER EACH				
P-156-3	80	L.F., BLOCK FILTER, AT _____ _____ PER LINEAR FOOT				
P-156-4	1	EA., SLOTTED BOARD DAM, AT _____ _____ PER EACH				
P-401-1	9,200	TON, BITUMINOUS LEVELING COURSE, AT _____ _____ PER TON				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
P-402-1	2,500	TON, RECYC ASPH CONC 12.5MM SUPERPAVE, GP. 1 OR 2, INCL BIT MATL & H LIME, AT _____ _____ PER TON				
P-402-2	7,500	TON, RECYC ASPH CONC 25MM SUPERPAVE, GP. 1 OR 2, INCL BIT MATL & H LIME, AT _____ _____ PER TON				
P-432-1	1,500	S.Y., MILL BITUMINOUS PAVEMENT, 2" DEPTH, AT _____ _____ PER SQUARE YARD				
P-501-1	26,975	S.Y., NON-REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT, 20" THICK, AT _____ _____ PER SQUARE YARD				
P-501-2	4,900	S.Y., REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT, 20" THICK, AT _____ _____ PER SQUARE YARD				
P-501-3	4,010	S.Y., NON-REINFORCED VARIABLE DEPTH PORTLAND CEMENT CONCRETE PAVEMENT, 20"-26" THICK, AT _____ _____ PER SQUARE YARD				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
P-501-4	3,650	S.Y., REINFORCED VARIABLE DEPTH PORTLAND CEMENT CONCRETE PAVEMENT, 20”-26” THICK, AT _____ _____ PER SQUARE YARD				
P-501-5	860	S.Y., NON-REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT, 16” THICK, AT _____ _____ PER SQUARE YARD				
P-501-6	430	S.Y., REINFORCED VARIABLE DEPTH PORTLAND CEMENT CONCRETE PAVEMENT, 16”-20” THICK, AT _____ _____ PER SQUARE YARD				
P-501-7	495	C.Y., LOW SLUMP, LOW STRENGTH FILL CONCRETE, AT _____ _____ PER CUBIC YARD				
P-501-8	2,500	S.Y., NON-REINFORCED VARIABLE DEPTH PORTLAND CEMENT CONCRETE PAVEMENT AT TW E10, 16” THICK, AT _____ _____ PER SQUARE YARD				
P-501-9	765	S.Y., REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT AT TW E10, 16” THICK, AT _____ _____ PER SQUARE YARD				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
P-502-1	1,350	S.Y., GRIND CONCRETE PAVEMENT, AT _____ _____ PER SQUARE YARD				
P-602-1	4,010	GAL., BITUMINOUS PRIME COAT, AT _____ _____ PER GALLON				
P-603-1	6,500	GAL., BITUMINOUS TACK COAT, AT _____ _____ PER GALLON				
P-605-1	29,600	L.F., COLD APPLIED SEALANT, CONTRACTION, CONSTRUCTION, AND LONGITUDINAL JOINTS, AT _____ _____ PER LINEAR FOOT				
P-605-2	6,400	L.F., ASPHALT/ PCC JOINT, AT _____ _____ PER LINEAR FOOT				
P-605-3	3,400	L.F., COLD APPLIED SEALANT, EXPANSION JOINTS, AT _____ _____ PER LINEAR FOOT				
P-615-1	600	S.F., CONCRETE DRAINAGE FLUME, AT _____ _____ PER SQUARE FOOT				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
P-621-1	36,100	S.F., PAVEMENT STRIPING AND MARKING REMOVAL, AT _____ _____ PER SQUARE FOOT				
P-621-2	53,350	S.F., PERMANENT PAVEMENT STRIPING AND MARKING, AT _____ _____ PER SQUARE FOOT				
P-621-3	26,100	S.F., TEMPORARY PAVEMENT STRIPING AND MARKING, AT _____ _____ PER SQUARE FOOT				
P-629-1	2,350	GAL., COAL TAR SEALER/REJUVENATOR, AT _____ _____ PER GALLON				
P-630-1	600	GAL., THERMOPLASTIC COAL TAR EMULSION SEALCOAT, AT _____ _____ PER GALLON				
D-701-1	75	L.F., STORM SEWER, RCP, 24" DIAMETER, CLASS V, AT _____ _____ PER LINEAR FOOT				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
D-701-2	75	L.F., PIPE BEDDING TYPE C, AT _____ _____ PER LINEAR FOOT				
D-701-3	LUMP SUM	L.S., TRENCH AND EXCAVATION PROTECTION, AT _____ _____ PER LUMP SUM				
D-705-1	5,050	L.F., 6" PERFORATED UNDERDRAIN PIPE, AT _____ _____ PER LINEAR FOOT				
D-705-2	6,400	L.F., 8" PERFORATED UNDERDRAIN PIPE, AT _____ _____ PER LINEAR FOOT				
D-705-3	1,700	L.F., 8" NON-PERFORATED CONCRETE ENCASED UNDERDRAIN PIPE, AT _____ _____ PER LINEAR FOOT				
D-705-4	20	EA, UNDERDRAIN CLEANOUT , AT _____ _____ PER EACH				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
D-705-5	2,950	C.Y., COARSE AGGREGATE UNDERDRAIN BACKFILL, #89 STONE, AT _____ _____ PER CUBIC YARD				
D-751-1	3	EA, INLET TYPE "B", AT _____ _____ PER EACH				
D-751-2	2	EA, DRAINAGE MANHOLE, AT _____ _____ PER EACH				
D-751-3	2	EA, RESET EXISTING MANHOLE/INLET TO GRADE, AT _____ _____ PER EACH				
D-751-4	100	C.Y., MISCELLANEOUS CONCRETE, AT _____ _____ PER CUBIC YARD				
T-901-1	29,900	S.Y., SEEDING, AT _____ _____ PER SQUARE YARD				
T-901-2	29,900	S.Y., TEMPORARY SEEDING, AT _____ _____ PER SQUARE YARD				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
T-901-3	355	HR., WATERING FOR GRASSED AREAS, AT _____ _____ PER HOUR				
T-904-1	10,600	S.Y., SODDING, AT _____ _____ PER SQUARE YARD				
T-905-1	29,900	S.Y., TOPSOILING, 4-INCH DEPTH, AT _____ _____ PER SQUARE YARD				
T-905-2	10,600	S.Y., TOPSOILING, 1-INCH DEPTH, AT _____ _____ PER SQUARE YARD				
T-908-1	60,000	S.Y., ASPHALT SPRAY MULCHING, AT _____ _____ PER SQUARE YARD				
U-150-1	30	L.F., INSTALL 36-INCH DIA. SPLIT STEEL SLEEVE AROUND EXISTING WATERMAIN, AT _____ _____ PER LINEAR FOOT				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
L-108-1	42,000	L.F., #8 AWG, FAA SPECIFICATION L-824, TYPE "C", 5000 VOLT, AT _____ _____ PER LINEAR FOOT				
L-108-2	18,000	L.F., BARE COUNTERPOISE WIRE, INSTALLED IN TRENCH, INCLUDING GROUND RODS AND EXOTHERMIC WELDED CONNECTION, AT _____ _____ PER LINEAR FOOT				
L-108-3	340	EA, ¾" X 10' COPPER CLAD STEEL GROUND RODS, FOR SAFETY GROUNDING, AT _____ _____ PER EACH				
L-108-4	670	EA, L-823 CONNECTOR KIT,AT _____ _____ PER EACH				
L-108-5	1,340	EA, CABLE TAG, AT _____ _____ PER EACH				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
L-110-1	6,500	L.F., 2" SCHEDULE 80 PVC DUCT, CONCRETE ENCASED UNDER NEW SHOULDER PAVEMENT, AT _____ _____ PER LINEAR FOOT				
L-110-2	6,500	L.F., 2" SCHEDULE 80 PVC DUCT, CONCRETE ENCASED UNDER NEW PCC PAVEMENT, AT _____ _____ PER LINEAR FOOT				
L-110-3	2,000	L.F., 2" SCHEDULE 40 PVC DUCT, DIRECT EARTH BURIED, AT _____ _____ PER LINEAR FOOT				
L-110-4	3,000	L.F., MANDREL AND SWAB EXISTING 2" CONDUIT, AT _____ _____ PER LINEAR FOOT				
L-110-5	150	L.F., 2-WAY 4" SCHEDULE 80 PVC DUCT, CONCRETE ENCASED, AT _____ _____ PER LINEAR FOOT				
L-111-1	8	EA., ELECTRIC MANHOLE, AT _____ _____ PER EACH				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
L-112-1	LUMP SUM	LS, PHOTOMETRIC TESTING OF THE LIGHTING SYSTEM, AT _____ _____ PER LUMP SUM				
L-116-1	525	L.F., 2-WAY, 4" DIRECTIONAL DRILL – PER LINEAR FOOT, AT _____ _____ PER LINEAR FOOT				
L-116-2	500	L.F., 4-WAY, 4" DIRECTIONAL DRILL – PER LINEAR FOOT, AT _____ _____ PER LINEAR FOOT				
L-120-1	72	EA, L-825C(L) LED TAXIWAY CENTERLINE LIGHT, BI-DIRECTIONAL, GREEN/GREEN ON A NEW L-868B BASE CAN IN NEW PAVEMENT, AT _____ _____ PER EACH				
L-120-2	111	EA, L-852D(L) LED TAXIWAY CENTERLINE LIGHT, BI-DIRECTIONAL, GREEN/GREEN ON A NEW L-868B BASE CASE IN NEW PAVEMENT, AT _____ _____ PER EACH				
L-120-3	3	EA, L-852C(L) LED TAXIWAY CLEARANCE BAR LIGHT, UNI-DIRECTIONAL YELLOW ON A NEW L-868B BASE CAN IN NEW PAVEMENT, AT _____ _____ PER EACH				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
L-121-1	6	EA, L-852T(L) LED TAXIWAY EDGE LIGHT, ON A NEW L-867B BASE CAN IN MILLED SHOULDER PAVEMENT, AT _____ _____ PER EACH				
L-121-2	81	EA, L-852T(L) LED TAXIWAY EDGE LIGHT, ON A NEW L-867B BASE CAN IN NEW SHOULDER PAVEMENT, AT _____ _____ PER EACH				
L-121-3	16	EA, L-852T(L) LED TAXIWAY EDGE LIGHT, ON A NEW L-868B BASE CAN IN NEW FULL STRENGTH PAVEMENT, AT _____ _____ PER EACH				
L-121-4	4	EA, L-852T(L) LED TAXIWAY EDGE LIGHT, INSTALLED ON EXISTING BASE CAN, AT _____ _____ PER EACH				
L-122-1	17	EA, L-858(L) TAXIWAY GUIDANCE SIGN INSTALLED ON NEW CONCRETE BASE, 3-MODULE, AT _____ _____ PER EACG				
L-122-2	2	EA, L-858(L) TAXIWAY GUIDANCE SIGN INSTALLED ON NEW CONCRETE BASE, 5-MODULE, AT _____ _____ PER EACH				

ITEM NO.	PRELIMINARY CONSTRUCTION QUANTITY	ITEM WITH UNIT OR LUMP SUM PRICE WRITTEN IN WORDS	UNIT PRICE IN FIGURES		AMOUNT	
			DOLLARS	CENTS	DOLLARS	CENTS
L-124-1	LUMP SUM	L.S., ELECTRIC AIRFIELD DEMOLITION, AT _____ _____ PER LUMP SUM				
L-124-2	2	EA, REMOVE EXISTING FIXTURE AND INSTALL 3/4" STEEL PLATE ON L-868B BASE CAN (PERMANENT), AT _____ _____ PER EACH				
L-124-3	16	EA, INSTALL ¾" STEEL PLATE ON EXISTING L-868B BASE CAN (TEMPORARY), AT _____ _____ PER EACH				
L-124-4	4	EA, REMOVE EXISTING FIXTURE AND INSTALL 1/2" STEEL PLATE ON L-867B BASE CAN (TEMPORARY), AT _____ _____ PER EACH				
L-125-1	LUMP SUM	L.S., INSTALLATION OF TEMPORARY EDGE LIGHTING SYSTEM FOR TAXIWAY E-10, COMPLETE, FOR ALL PHASES, AT _____ _____ PER LUMP SUM				
		TOTAL BASE BID _____ _____ _____				

EXHIBIT "C"

FORM B. ESSENTIAL SUBCONTRACTOR QUALIFICATION STATEMENT

This Form "B", Essential Subcontractor Qualification Statement is submitted for the following proposed Essential Subcontractor:

Company Name:_____ Phone:_____

Address: _____ Facsimile:_____

_____

Number of Years in business:_____

Contact Person:_____ Email:_____

Scope of Work to be performed by Subcontractor on this Project:_____

_____

As applicable:

License(s) held:_____ Number:_____ Expires:_____

_____ _____ _____

Certification(s) held:_____ Expires:_____

_____ _____

References: (a minimum of two (2) references are required)

1. Prime Contractor: Company Name _____

   Address _____

   City, State, Zip _____

   Phone _____

   E-mail _____

   Project Name: _____

   Location of Project: _____

   Contact Person: _____

Phone Number: _____

Date(s) of Project: _____

Description/Summary of Services: _____

Value/Amount of Subcontract: _____

2. Prime Contractor: Company Name _____

Address _____

City, State, Zip _____

Phone _____

E-mail _____

Project Name: _____

Location of Project: _____

Contact Person: _____

Phone Number: _____

Date(s) of Project: _____

Description/Summary of Services: _____

Value/Amount of Subcontract:_____

EXHIBIT "C"

FORM C. PRELIMINARY CONTRACT SCHEDULE

In accordance with the Invitation to Bid (ITB) the Bidder shall submit a preliminary project schedule meeting the following requirements:

1. Produce the schedule in P3 software or equivalent from Primavera.
2. Clearly indicate the Critical Path for the proposed work.
3. Show all contract Milestones as stated in SC-2.
4. Show all Phases that are indicated on the drawings using the same names for the phases as used on the drawings.
5. Show all phase requirements that are indicated on the drawings.
6. Show the Durations of all Tasks.
7. Provide a hard copy of the schedule on 11" X 17" paper with a minimum font size of 10pt. The document shall be in color. The Critical Path shall be in Red.
8. Show the continuity and flow of the work.
9. The level of detail in the schedule shall match the level of detail in the Work Plan (FORM D).
10. The number of tasks shall be reasonable with the cost of the project and the baseline schedule requirements. (i.e., a bid of $3 million would be approximately 20 construction tasks included, a bid of $10 million would be over 40 construction tasks indicated).

Failure to provide a preliminary schedule as described above may result in the bid being found non-responsive.

EXHIBIT "C"

FORM D. PROJECT ORGANIZATION AND WORK PLAN

In accordance with the Invitation to Bid (ITB) the Bidder shall submit information regarding the project Organization meeting the following requirements:

1. Organization chart with the titles of key personnel proposed to manage this project.
2. A written description of the organization, defining lines of authority, responsibility, and communication.
3. A written description outlining the overall working of the organization with particular emphasis on Home Office/Site interfaces and the procedures for monitoring and controlling the work.

In accordance with the Invitation to Bid (ITB) the Bidder shall submit a detailed narrative project Work Plan. The intention of this work plan is for the Bidder to explain the means and methods used in making the preliminary schedule tasks occur as indicated in FORM "C". For the purposes of this submittal means and methods is defined as the resources made available and procedures or techniques to be used in meeting the preliminary schedule provided in FORM"C". The Work Plan shall meet the following requirements:

1. The level of detail in the Work Plan shall be the same as the level of detail in the schedule.
2. Discuss the plan for making all contract Milestones as stated in SC-2 and shown on the preliminary schedule, including the preparation, submittal, and approval of the safety and security plans prior to start of work in the field.
3. Discuss how the Bidder intends to accomplish all Phases that are indicated on the drawings using the same names for the phases as used on the drawings.
4. Discuss the number of crews the bidder will utilize for the project. Show how and which crews will be associated with each scope of work.
5. Provide the work hours and days of work. Provide this for each phase unless the plan is the same for the entire project. These work hours and days of work shall be coordinated with and support the preliminary schedule in FORM "C" and meet the contract requirements.
6. Explain what is driving the Critical Path shown on the preliminary schedule in FORM "C".

EXHIBIT "C"

FORM E. SAFETY PROGRAM

The Bidder must demonstrate that it is committed to implementing a first rate safety program and that it has an exceptional safety and environmental record. The Bidder and its essential subcontractors identified on Form B must submit their current Experience Modification Rate (EMR). If an EMR is not available Bidder or essential subcontractor must submit a written statement detailing the Firm's safety record on its last five projects including contact names and numbers where the City can verify the safety record statement.

The Bidder must provide a Log and Summary of OSHA violations and any fines or settlements of its Company, Firm, or joint venture partners for the past thirty-six (36) months. Attach the Log and Summary of Occupational Injuries and Illnesses as required by the U. S. Department of Labor for the past thirty-six (36) months. Provide OSHA Recordable Incident Rate (Year 2009) and OSHA Lost Days Away Incident Rate (Year 2009). This is applicable to site construction and installation activities only.

Bidder is to complete attached Safety and Health History (SHH) form.

SAFETY AND HEALTH HISTORY FORM

1A. List your Firm's Interstate Experience Modification Rate (EMR) for the three (3) most recent years and total hours worked.

	20_____	20_____	20_____
a. EMR	_____	_____	_____
b. Hours Worked	_____	_____	_____

1B. If the state where the jobsite is located has an EMR rating system, provide the state EMR for the three (3) most recent years and total hours worked.

	20_____	20_____	20_____
a. EMR	_____	_____	_____
b. Hours Worked	_____	_____	_____

2. SAFETY PERFORMANCE

2A. List safety performance incident rates for the three (3) most recent years:

	20_____	20_____	20_____
a. OSHA Recordable Incident Rate	_____	_____	_____
b. Lost Workday Case Incident Rate	_____	_____	_____

2B. Use your OSHA No. 200 Log to fill in the three (3) most recent years:

	20_____	20_____	20_____
a. Number of first aid cases	_____	_____	_____
b. Number of lost workday cases.	_____	_____	_____
c. Number of restricted workday cases.	_____	_____	_____
d. Number of cases with medical attention only.	_____	_____	_____
e. Number of fatalities.	_____	_____	_____

3. Check your type of work:

___ Non-Residential Building
___ Heavy (Non-Highway) Construction
___ Mechanical
___ Electrical
___ Other (State Type): _____
___ Earthwork
___ Concrete
___ Architectural

SAFETY AND HEALTH HISTORY (Continued)

4. Are accident reports (OSHA 200) and report summaries sent to the following and how often?

	No	Yes	Monthly	Quarterly	Annually
a. Project Superintendent/Site Mgr.	___	___	___	___	___
b. Vice President/Mgr. of Construction	___	___	___	___	___
c. Safety Director	___	___	___	___	___
d. President of Firm ___	___	___	___	___	

5. Do you hold site safety meetings for field employees both Manual and Non-Manual?
   Yes ___ No ___

   How Often?
   Weekly ___ Bi-Weekly ___ Monthly ___ Less Often, As Needed ___

6. Do you conduct project safety inspections?
   Yes ___ No ___

   If yes, who conducts this inspection?

TITLE	HOW OFTEN?

7. How are accident records and accident summaries kept? How often are they reported?

	No	Yes	Monthly	Annually
a. Accidents totaled for the entire company	___	___	___	___
b. Accidents totaled by project ___	___	___	___	
(1) Subtotaled by superintendent	___	___	___	___
(2) Subtotaled by foreman ___	___	___	___	

8. How are the costs of individual accidents kept? How often are they reported?

	No	Yes	Monthly	Annually
a. Costs totaled for the entire company	___	___	___	___
b. Costs totaled by project	___	___	___	___
(1) Subtotaled by superintendent	___	___	___	___
(2) Subtotaled by foreman ___	___	___	___	

SAFETY AND HEALTH HISTORY (Continued)

9. List key Safety and Health personnel planned for this project. Please list name, expected position and safety performance on their last three projects (OSHA Recordable and Lost Workday Case Incident (LWCI) rates). When a project has not been specified, list key company personnel.

NAME	POSITION	PROJECT	OSHA	LWCI

10. Do you have a written safety program?

Yes ___ No ___

If yes, submit a copy for evaluation.

11. Do you have an orientation program for new hires?

Yes ___ No ___

If yes submit a copy for evaluation. Does it include instruction on the following?

	Yes	No		Yes	No
a. Head protection	___	___	i. Fire protection	___	___
b. Eye protection	___	___	j. First aid facilities	___	___
c. Hearing Protection	___	___	k. Emergency procedures	___	___
d. Respiratory protection	___	___	l. Toxic substances	___	___
e. Safety belts and lifeline	___	___	m. Trenching and excavation	___	___
f. Scaffolding	___	___	n. Signs, barricades, flagging	___	___
g. Perimeter guarding	___	___	o. Electrical safety	___	___
h. Housekeeping	___	___	p. Rigging and crane safety	___	___
			q. Road Safety (Driving)	___	___

SAFETY AND HEALTH HISTORY (Continued)

12. Do you have a program for newly hired or promoted foremen?

    Yes ___ No ___

    If yes submit a copy for evaluation. Does it include the following?

	Yes	No		Yes	No
a. Safe work practices	___	___	e. First aid procedures	___	___
b. Safety supervision	___	___	f. Accident investigation	___	___
c. Toolbox meetings	___	___	g. Fire protection and prevention	___	___
d. Emergency procedures	___	___	h. New worker orientation	___	___

13. Do you hold craft "toolbox" safety meetings?

    Yes ___ No ___

    How Often?

    Weekly ___ Bi-Weekly ___ Monthly ___ Less Often, As Needed ___

14. Do you have a written Hazard Communication program?

    Yes ___ No ___

    If yes, how is it implemented on each project?

    _____

    _____

    _____

    _____

15. Do you have/require Material Safety Data Sheets (M.S.D.'s) for material/chemicals/equipment?

    Yes ___ No ___

    If yes, explain field procedure for informing craft workers about potential hazards:

    _____

    _____

    _____

    _____

SAFETY AND HEALTH HISTORY (Continued)

16. List three (3) client references that could verify the quality and management commitment of your safety program.

Name	Address	Phone No.
a._____	_____	_____
	_____	
b._____	_____	_____
	_____	
c._____	_____	_____
	_____	

EXHIBIT "C"

FORM F. RESUMES OF KEY PERSONNEL

Bidder to provide a resume for each key person to be assigned to the Contract, containing at least the following information on each person (attach and properly designate additional pages, if necessary):

POSITION: _____

TITLE: _____

a. Name:

b. Education/Qualifications:

c. Present Position in Bidder's Company:

d. Relevant Experience:

e. Safety performance metrics from the last three (3) projects (First Aid cases, Recordable Incident Rate and Lost Workday Case Rate)

f. Employment History:

Resumes are required for the following positions: Project Manager, Construction Superintendent, Safety Director and Quality Control Manager all of whom would be assigned full time to the Contract. Refer to Special Conditions 8.2 for additional qualification requirements.

Key personnel will be listed in the Special Condition titled "KEY PERSONNEL" (SC-8), restricting their replacement without CITY consent.

EXHIBIT "C"

FORM G. SUMMARY OF QC PROGRAM

Bidder to provide a summary description of the Quality Control (QC) Program (refer to Exhibit I) to be implemented in performance of the Work. This summary shall include information on the organization of the program, including the authority and responsibility of all involved personnel. As a minimum the Bidder shall submit the following information in narrative form:

(1) Quality Control Program Administrator.

(2) Items of work in this project where Quality Control Testing will be accomplished.

(3) Corrective Action program.

NOTES:
Final program will be approved as submitted under the Contract requirements

EXHIBIT "C"
FORM H. WORK IN PROGRESS

The following contracts are currently in progress or in bid stage for the following OWNERS or Prime Contractors:

Item No.	Customer Name, Address, Representative and Phone No.	Work Description	Location	Value	Start/Stop

NOTES:
Work Description: Describe work scope and then indicate if prime, subcontract or in bid stage.
Start/Stop: Provide schedule starting date and completion by mo/yr, e.g. Jan93/Sep94.

EXHIBIT "C"

FORM I. EXPERIENCE STATEMENT

The Bidder submits the following statement as to its experience qualifications. In the case of a joint venture **or LLC**, separate forms will be submitted for previous experience of the joint venture and the experience of each party of the joint venture **or LLC.**

1. This company has been engaged in the contracting business under its present business name for _____ years.
2. Experience in work of a nature similar in type and magnitude to that set forth in the Bid extends over a period of _____ years.
3. All awarded contracts have been satisfactorily completed, except as follows (Name any and all exceptions and reasons therefore, attaching additional pages if necessary):

_____

_____

_____

_____

4. The following contracts, covering work similar in type and magnitude to that set forth in the Bid, have been satisfactorily completed within the last five (5) years.

5. Column completion notes:
   a. Work Description: Describe work scope and then indicate if prime or subcontract.
   b. Start/Stop: Provide starting date and actual/forecast completion by mo/yr, e.g. Jan 93/Sep94.
   c. Schedule and Budget: State either "over", "on", or "under" the Contract schedule and budget.

EXHIBIT "C"
FORM I. EXPERIENCE STATEMENT (continued)

Item No.	Customer Name, Address, Representative and Phone No.	Work Description	Location	Value	Start/Stop	Schedule	Budget

Exhibit D

CONSTRUCTION SAFETY AND HEALTH PLAN (OCIP)
FC-8746 Taxiway Pavement Replacement 2016

1.0 Safety and Health Plan.

1.1 The City of Atlanta ("CITY") has established this Construction Safety and Health Plan ("Plan") to promote safety and to minimize and control hazards and risks associated with construction projects at the Airport.

1.2 It is our goal to have zero safety incident Projects where all personnel can perform assigned tasks in a safe environment in accordance with governmental requirements and industry standards as specified in paragraph 2.0 of this document.

1.3 In this Plan, CITY's Safety Representatives include City of Atlanta's Office of Enterprise Risk Management, its CITY Controlled Insurance Program Safety (OCIP) Director, the Program Safety Manager, designated CITY Safety professionals performing as Owner Representative, and any other designee of CITY. In the event of any conflicting determinations among the CITY's Safety Representatives and / or consultants, the decision of the Director of CITY's Office of Enterprise Risk Management shall prevail.

1.4 The following CONTRACTOR submitted plans require approval by CITY before construction work can be started:

1.4.1 Site Specific Safety Plan (see paragraph 8.0 of this document)

1.4.2 Fire Prevention Plan (see paragraph 9.0 of this document)

1.4.3 Hazard Communication Plan (see paragraph 10.0 of this document)

1.4.4 Traffic Control Plan (see paragraph 11.0 of this document)

1.4.5 Trench Excavation Plan (if required) (See paragraph 12.0 of this document)

1.5 If a project is designated to be covered under the OCIP insurance coverage, the CONTRACTOR must first enroll the company through the OCIP web-based system and, additionally, ensure all subcontractors are properly enrolled. No contractor or subcontractor personnel will be allowed on a construction site until

all OCIP enrollment requirements are complete; OCIP badging is complete; the Project Safety Manager is approved; and required Plans, per paragraph 1.4, are approved.

2.0 Government Requirements and Industry Standards.

2.1.1 CONTRACTOR will comply with all Governmental Requirements and industry standards pertaining to safety and health at any Jobsite, including, but not limited to:

- 2.1.1.1 OSHA Construction Safety and Health Regulations, CFR Part 1926
- 2.1.1.2 CFR Part 1910
- 2.1.1.3 NFPA Standards
- 2.1.1.4 Operational Safety on Airport Construction (FAA 150/5370-2C)
- 2.1.1.5 N.E.C Standards
- 2.1.1.6 ANSI Standards
- 2.1.1.7 EPA Standards
- 2.1.1.8 MUTCD Standards

3.0 Responsibilities. This Plan is part of the Contract Documents. CONTRACTOR must, at all times, comply with all aspects of this Plan as well as ensure that all employees and subcontractors comply with the provisions of this Plan. CONTRACTOR will provide to CITY, and any person designated by CITY, access to CONTRACTOR personnel and to CONTRACTOR owned facilities for the purpose of performing audits and inspections of CONTRACTOR, CONTRACTOR personnel and/or any of the relevant information relating to the Plan and/or this Agreement. CONTRACTOR is subject to being audited under this Plan at any time during the term of this Agreement. CONTRACTOR shall provide full cooperation to CITY and its designated persons in connection with audit functions and examinations by regulatory authorities.

3.1 Contractor Responsibilities.

3.1.1 CONTRACTOR must include the obligations of this Plan in all of its written employment agreements, Subcontracts, purchase orders and any other documents utilized by it in obtaining goods and services relating to CONTRACTOR's performance of this Contract and Work on the Project. The failure of CONTRACTOR to submit any reports required by this Plan or to violate any of its provisions shall be sufficient cause to terminate CONTRACTOR'S right to proceed with the work. Stoppage or termination to proceed under this provision should not give rise to CONTRACTOR's right to seek damages or other relief for any resulting delay.

Noncompliance with any provision is sufficient cause for the City to delay approval of CONTRACTOR'S invoices for progress payments.

3.1.2 CONTRACTOR's Project Safety Manager may conduct as many inspections as he/she deems necessary on a daily basis. However, CONTRACTOR **must conduct** at least one (1) inspection per day of CONTRACTOR's Work, Jobsites and storage areas to assure safe conditions and practices. The Project Safety Manager will determine the number of daily inspections based on the sensitivity of the work being performed and in a sufficient manner to monitor safe operations on the Project.

3.1.3 Provide for training of all Employees in all Plan requirements, to include OCIP and CONTRACTOR safety orientation as well as trade training.

3.1.4 Immediately report to CITY'S Safety Representatives of any death, injury or damage to property at any Jobsite (or Work storage area) on the Airport or any other property adjacent to or near the Airport at which Work under this Contract is performed, per paragraph 7.0 of this document.

3.1.5 Full cooperation in the conduct of inspections by CITY's Safety Representatives, governmental agencies and other agencies of competent jurisdiction, e.g. OSHA. Copies of citation notices received by CONTRACTOR or its subcontractors from such agencies must be submitted to the CITY's Safety Representatives immediately upon receipt.

3.1.6 Use of equipment and protective devices as required by applicable regulatory agencies and CITY.

3.1.7 Immediate correction by CONTRACTOR of any unsafe conditions or unsafe acts by its employees, subcontractors, vendors, suppliers, etc.

3.1.8 Medical surveillance requirements for personnel exposed to hazardous substances, e.g. radiation badges.

3.1.9 Safety requirements and procedures for decontamination facilities, e.g. protective clothing and warning signs.

3.1.10 The use of forms and other information attached to this Plan, or such other forms or versions of those forms that CITY may, from time to time, direct CONTRACTOR to use.

3.1.11 Thorough investigation of safety incidents to ensure the inclusion of witness statements, completed incident forms, development of lessons learned that are fully distributed through the contractor's team and its subcontractor's, and incident investigation follow-up when new information has been obtained.

4.0 CONTRACTOR Obligations. The CONTRACTOR acknowledges that the effectiveness of this Plan depends on the active participation and cooperation of the CONTRACTOR, its Subcontractors and all Employees.

4.1 **General.** CONTRACTOR must:

4.1.1 Employ a full- time site dedicated Project Safety Manager per shift. The Project Safety Manager shall ensure that all of the Contractor's and its Subcontractors' activities under this Contract are in compliance with this Plan, the Contractor's Site-Specific Safety Plan, all Governmental Requirements and applicable industry standards. The CONTRACTOR's Project Safety Manager must submit weekly reports to the CITY's Safety Representatives each Monday on the previous week's inspections. CONTRACTOR's Project Safety Manager must utilize the Contractor's Safety Performance Report as required by OCIP.

4.1.1.1 The CONTRACTOR's responsibility cannot be delegated to subcontractor, suppliers or other persons. CONTRACTOR and lower tier subcontractor shall have a safety representative as a member of its organization at the jobsite whose duty it shall be to conduct its safety program and monitor subcontractor's compliance with the requirements of this document and preventing unsafe conditions and accidents. CONTRACTOR shall submit the qualifications (Resumes) of all proposed safety representatives to the CITY's Safety Representatives for review and consent prior to mobilization on the site. If the subcontractor's projected workforce is a total of twenty-five (25) or less an appropriately trained and experienced supervisor shall be given the duties of Safety Representative. If the subcontractor's projected workforce is twenty-five (25) or more a full-time safety professional shall be assigned to the site. When the subcontractor's total trade work force exceeds one hundred fifty

(150) or more an additional safety professional shall be assigned. CONTRACTOR will be in compliance with paragraph 4.2: *Training Attendance Requirements.*

4.1.2 Comply with applicable Governmental Requirements, industry standards, and Airport Regulations and Requirements, as outlined in this Plan and the Contract Documents.

4.1.3 Provide safety incident data to the City's Safety Representatives, as required.

4.1.4 Must return OCIP badges to the OCIP Office when CONTRACTOR's employees are no longer working on the Project.

4.1.5 CONTRACTOR is ultimately responsible for accident prevention and Jobsite safety. This responsibility may not be delegated to Subcontractors or other Persons.

4.1.6 **Experience Modification Rate (EMR) Requirements for Subcontractor(s):**

4.1.6.1 Contractor shall not, without the prior written approval of ENGINEER, subcontract with any entity which exceeds the following safety ratings for the previous year.

4.1.6.1.1	EMR:	1.00
4.1.6.1.2	LWDC:	2.00
4.1.6.1.3	OSHA Recordable:	4.00

4.1.6.2 If the Contractor elects to enter into a subcontract with any entity that exceeds the above minimum requirements, the Contractor shall submit supporting documents to the CITY identifying the reason(s) for the Subcontractor's rate(s) being higher than the above stipulated rates. The additional documents to be submitted include the previous three (3) years OSHA 300 Logs, the previous three (3) years EMR ratings and any other documents deemed necessary by the ENGINEER to complete the review. In addition, the Contractor will provide, in writing, to the

ENGINEER those additional safety oversight and mitigation measures to include changes to its work plan that the Contractor will implement in monitoring and in assisting the "at risk" Subcontractor until that portion of the Contract is complete. The ENGINEER, the Program Safety Manager and the OCIP Safety Director will review the submitted documents. The ENGINEER will render a decision regarding acceptance of the "at risk" Subcontractor on the project site and/or into the OCIP.

4.2 Training Attendance Requirements.

4.2.1 All Employees must attend a required Project Safety Orientation Class provided by the CONTRACTOR prior to starting Work on any Airport project. The orientation will cover all requirements outlined in section 4.4.1. After completion of the Project Safety Orientation Class, workers will receive an OCIP badge that must be worn on the outer layer of clothing between the belt and the shoulder.

4.2.2 CONTRACTOR, upon request, must provide evidence of the competent person's training for critical items of work (e.g., trench excavation).

4.3 CONTRACTOR Project Safety Manager Approval Process.

4.3.1 CONTRACTOR shall submit a resume(s) showing the experience and qualifications for Contractor's proposed Project Safety Manager(s) to the CITY's Safety Representatives prior to mobilization at any Jobsite. The minimum qualifications for a CONTRACTOR Project Safety Manager must have verifiable experience administering a safety program with a comparable size workforce on a similar type project. The Program Safety Manager and the CITY's OCIP Safety Director will review the submitted resumes for the Contractor's proposed original or successor Safety Manager(s) to assure that the minimum qualifications are met.

4.3.2 CONTRACTOR's project manager and superintendent must have a minimum of OSHA 30 safety training.

4.3.3 CONTRACTOR's Project Safety Manager must be OSHA 500 authorized.

4.3.4 CONTRACTOR is solely responsible for ensuring that its Project Safety Manager is of the caliber and quality to ensure compliance with the Construction Safety and Health Plan and the Contractor's Site-Specific Safety Plan.

4.3.5 The CITY reserves the right to interview a proposed candidate to better ascertain knowledge and experience before approving or disapproving a candidate. After the Project Safety Manager is approved, the CITY reserves the right to remove CONTRACTOR'S Project Safety Manager at any time for non-performance and/or non- compliance with The Construction Safety and Health Plan.

4.4 **CONTRACTOR's Project Safety Manager Responsibilities.** Contractor's Project Safety Manager must perform daily safety inspections of all Jobsites to eliminate unsafe acts and/or conditions in violation of the Contract Documents, Contractor's Site-Specific Safety Plan, and OSHA regulations.

4.4.1 Ensure that all workers attend, prior to commencing Work, an orientation program coordinated by the CONTRACTOR that will include, as a minimum, a review of: (a) hazards present in the area of Work; (b) the personal protective equipment and apparel employees must use or wear as specified under OSHA, and this Plan, (c) accident/incident reporting procedures; and (d) the panel of physicians available for treatment. Meetings must be conducted to accommodate all language requirements of the CONTRACTOR's Employees attending.

4.4.2 Ensure all Employees and subcontractors are made aware of the steps to take in the event of an accident or incident and the location of first aid facilities.

4.4.3 Provide weekly written reports to CITY'S Safety Representatives of all observed unsafe conditions or practices at any Jobsite, in violation of the Contract Documents, Contractor's Site-Specific Safety Plan, OSHA, Governmental Requirements or industry standards, specifically detailing all corrective actions taken.

4.4.4 Conduct root cause analysis following ALL personnel, equipment, and near-miss incidents.

4.4.5 Assist Program Safety Manager in the follow up root cause analysis, to include all documentation requested by the Program Safety Manager.

4.4.6 Review safety meeting reports submitted by all Job Superintendents and take necessary action to ensure that meaningful weekly safety meetings are being conducted.

4.4.7 Implement safety-training programs for all Job Superintendents and Employees applicable to specific responsibilities of each position.

4.4.8 Control the availability and use of necessary safety Equipment, including Personal Protective Equipment (PPE) for all Employees.

4.4.9 Cooperate with Safety Managers of other contractors, and take necessary steps to promptly implement appropriate safety recommendations.

4.4.10 Hold safety meetings on a weekly basis. Documentation of topics discussed and attendees must be maintained by CONTRACTOR and provided to the CITY'S Safety Representatives on the Monday following each week of the Project Work. Meetings must be conducted to accommodate all language requirements of the CONTRACTOR's Employees attending.

4.4.11 Provide monthly man-hour reports to the OCIP Administrator on the Monday following the 10th of the month. CONTRACTOR will ensure compliance of his staff and his subcontractors.

4.4.12 Attend the scheduled OCIP Safety Meeting at time and location determined by the OCIP Safety Director. The schedule of OCIP Safety meetings will be provided at the start of the project.

5.0 Miscellaneous Safety Requirements.

5.1 **Safe Operations.** CONTRACTOR is fully and solely responsible for conducting all operations under this Contract at all times in such a manner as to avoid the risk of endangerment to health, bodily harm to individuals and damage to property. CONTRACTOR must continually and diligently inspect all equipment, materials and Work to discover any conditions that might involve such risks

and is solely responsible for discovery and correction of any such conditions.

5.2 **Safety Orders.** CONTRACTOR must have copies of appropriate Federal, State and Local Safety Regulations at all Jobsites available for Employees to review and must comply with all provisions.

5.3 **General Safety Provisions**. CONTRACTOR must protect the health and safety of Employees, the public and other Persons, prevent damage to property, Materials, supplies, and Equipment and avoid interrupting the normal operation of the Airport. Although the list below is not exhaustive, CONTRACTOR must:

5.3.1 Ensure only approved safety cans are used for flammable and combustible liquids. "No Smoking or Open Flame" signs and fire extinguishers must be provided where required or as directed by owner's safety representative. Approved safety cans must be metal with flash arresters and spring-loaded tops.

5.3.2 Prevent construction/maintenance activities or materials from hampering any crash-fire-rescue vehicle access to any parts of the Airport.

5.3.3 Continuously remove all bird attractions, such as edibles (food scraps, etc.) or other miscellaneous garbage, trash, or pooled water at all Jobsites where CONTRACTOR is performing Work.

5.3.4 Secure all material and equipment to prevent displacement from wind or jet blast. No survey or barricade tape is to be used on any project inside the Aircraft Movement Area (AMA).

5.3.5 Have temporary electrical service equipped with ground fault circuit interrupters.

5.3.6 Provide adequate and proper fencing, barricading, marking, and lighting of construction, maintenance or other sections of the Airport that are temporarily closed to normal Airport use.

5.3.7 Ensure that all Employees working on, erecting, dismantling or modifying any scaffolding are trained by a competent person.

5.3.8 The CONTRACTOR must ensure all documentation of project safety training as well competent person training are maintained and are easily accessible, if required.

6.0 Protection of the Public and Property. CONTRACTOR must take all steps necessary to ensure protection of the public and property, including, but not limited to, adhering to the following requirements:

6.1 When it is necessary to maintain public use of Jobsites involving sidewalks, entrances to buildings, lobbies, corridors, aisles, stairways, and vehicular roadways, CONTRACTOR must protect the public with appropriate guardrails, lighting, barricades, temporary fences, overhead protection, temporary partitions, shields, and adequate visibility. This mandatory protection must guard against harmful radioactive rays or particles, flying materials, falling or moving materials and equipment, hot or poisonous materials, explosives and explosive atmospheres, flammable or toxic liquids and gases, open flames, energized electric circuits, or other harmful exposures.

6.2 Sidewalks, entrances to buildings, lobbies, corridors, aisles, doors, or exits that remain in use by the public must be kept clear of obstructions to permit safe ingress and egress of the public at all times.

6.3 Appropriate warnings, signs and instructional safety signs must be conspicuously posted where necessary. In addition, a signalman must control the movement of motorized equipment in areas where the public might be endangered, in accordance with the MUTCD.

6.4 Sidewalk sheds, canopies, catch platforms, and appropriate fences must be provided when it is necessary to maintain public pedestrian traffic adjacent to the erection, demolition or structural alteration of outside walls on any structure.

6.5 A temporary fence must be provided around the perimeter of above ground operations adjacent to public areas, except where a sidewalk shed or fence is required. Perimeter fences must be at least six (6) feet high. They may be constructed of wood or metal frame and sheathing, wire mesh or a combination of both. When the fence is adjacent to a sidewalk near a street intersection, at least the upper section of the fence must be open wire mesh from a point not over four (4) feet above the sidewalk and extending at least twenty-five (25) feet in both directions from the corner of the fence. Fences, which serve also as a component of the airfield security fence or within the Air Operations Area (AOA), shall be constructed in accordance with applicable Airport specifications.

6.6 Safe and adequate pedestrian zones and public transportation stops, as well as pedestrian crossings of the work at intervals not exceeding three hundred (300 feet) (90 m) also must be maintained, unless otherwise modified by CITY.

6.7 CONTRACTOR must furnish, erect, and maintain all barricades, warning signs and markings for hazards necessary to protect the public and the Work. When used during periods of darkness, such barricades, warning signs and hazard markings must be suitably illuminated, in accordance with the MUTCD.

6.8 Warning signs and lights, meeting Airport and FAA requirements, must be maintained from dusk to sunrise along the guardrails, barricades, temporary sidewalks, and at every obstruction to the public. These items must be placed at both ends of the protections or obstructions and not over twenty (20) feet apart alongside of the protections or obstructions.

6.9 Temporary sidewalks must be provided when a permanent sidewalk is obstructed by CONTRACTOR's operations. Guardrails must be provided on both sides of temporary sidewalks.

6.10 Fuel-burning lanterns, burn barrels, torches, flares, or other open-flame devices, are prohibited.

7.0 Accident Investigation and Reporting.

7.1 **ALL ACCIDENTS, INCIDENTS, NEAR MISSES, UNSAFE ACTS OR UNSAFE CONDITIONS MUST BE <u>IMMEDIATELY</u> REPORTED PER THE INCIDENT REPORTING PROTOCOL AND FOLLOWED UP WITH A WRITTEN REPORT WITHIN TWENTY-FOUR (24) HOURS OF THE OCCURRENCE. THIS PROTOCAL DOCUMENT WILL BE PROVIDED UPON ENROLLMENT IN THE OCIP.**

7.2 **First Aid. All accidents which occur from operations or Work performed at the Airport <u>must</u> be referred to the listed panel of physicians<u>, except i</u>n cases of extreme emergency. This list will be provided to the CONTRACTOR upon enrollment in the OCIP.**

7.3 **Emergency Telephone Numbers. CONTRACTOR <u>must post</u> a list of emergency telephone numbers; to include** doctor and ambulance, fire, etc., next to telephones at the Project.

7.4 **Posted panel of physicians.** CONTRACTOR must post the Panel of Approved Physicians furnished by the OCIP Insurance Carrier in a conspicuous location where it can be seen by all Employees.

7.5 CONTRACTOR must secure the affected area immediately after the accident in order to prevent any alteration of the scene before the investigation. The area is to be cordoned off and an individual posted by CONTRACTOR to restrict unauthorized personnel as necessary.

7.6 CONTRACTOR shall not make any news releases or statements to the public regarding any matters related to the Project.

7.7 CONTRACTOR must obtain witness statements when there has been an incident/accident. The witness must sign and date the statement. CONTRACTOR must provide the CITY'S Safety Representatives with all witness statements within twenty-four (24) hours of completion of witness statements.

7.8 The Incident/Accident Report form must be filed within twenty-four (24) hours of the occurrence with the CITY's Safety Representative, the Program Safety Manager, and the OCIP Safety Director.

7.9 Appropriate drug screening must be conducted after any incident or accident within four (4) hours.

7.10 CONTRACTOR will conduct a root cause analysis with the appropriate parties involved in the incident and other stakeholders within 48 hours of the incident. A detailed summary report of the results of the analysis will be provided to the CITY's Program Safety Manager and the OCIP Safety Director.

8.0 Site-Specific Safety Plan.

8.1 **General:** This Plan is intended as a universal document for all work the CONTRACTOR is to perform per the Contract Documents. Once approved by the CITY's Office of Enterprise Risk Management, it must be fully briefed and disseminated to all contractor personnel and subcontractor personnel. This Plan is a "living document" and will be updated as needed.

8.2 Site specific safety plan must be developed in accordance with guidelines in Appendix 1 of this document.

9.0 Fire Prevention Plan / Program.

9.1 **General.** A Fire Prevention Plan / Program must be submitted in writing to the ENGINEER, for review and coordination with other Jobsite activities prior to commencing Work at any Jobsite. Such program must include:

9.1.1 At a minimum, OSHA and NFPA standards.

9.1.2 Restriction of burning to designated areas. No unauthorized fires shall be permitted on Jobsite.

9.1.3 Assignment of fire watches, trained and equipped to prevent or control fires, for all welding and burning operations. Fires should be monitored for three hours after the burning.

9.1.4 Proper identification, storing, handling and use of inflammable Material to prevent accidental ignition.

9.1.5 Adequate fire extinguishing Equipment appropriate for the operations being performed must be provided and Employees must be trained in the maintenance and use of such Equipment.

9.1.6 Evacuation procedures and fire drills as required by the Program Safety Manager.

10.0 Hazard Communication Plan / Program.

10.1 **General.** A Hazard Communication Plan / Program must be submitted in writing to the Program Safety Manager and the OCIP Safety Director for review and coordination with other Jobsite activities prior to commencing Work at any Jobsite. This Program shall include:

10.1.1 Receipt/Identification of Material Safety Data Sheets (MSDS) for Materials being brought onto the Jobsite by CONTRACTOR or its Subcontractors.

10.1.2 Employee training on MSDS's and in the handling and disposal of Materials that fall under statutory regulations.

10.1.3 Medical Surveillance Program. CONTRACTOR will establish a medical surveillance program to monitor the health of employees whose work environment may be exposed to

occupational hazards. Health records will be maintained for thirty (30) years after the last date of employment.

11.0 Traffic Control Plan.

11.1 **General.** The CONTRACTOR must also submit to DOA Operations for approval a comprehensive plan detailing how traffic will be maintained on all Work under this Contract. For vehicular and pedestrian traffic, CONTRACTOR must furnish, erect and maintain barricades, warning signs, lights and other traffic control devices in reasonable conformity with the Manual of Uniform Traffic Control Devices (MUTCD) for Streets and Highways (published by United States Government Printing Office).

12.0 Trench Excavation Plan.

12.1 **General.** Before excavating any trench five (5) feet or more in depth, CONTRACTOR must submit to ENGINEER and CITY's Safety Representatives a detailed plan showing the design of shoring, bracing, sloping or other provisions to be made for the Employees' protection from the hazard of caving ground during the excavation of such trench. The Plan must be designed per OSHA standards.

13.0 Construction Requirements.

13.1 **Fall Protection Requirements.** These fall protection requirements are mandatory for all trades, involved in performing Work on the Project.

13.1.1 CONTRACTOR must apply and enforce 100% fall protection for all work performed six (6) feet or more above ground or finished floor level.

13.1.2 CONTRACTOR must take all practical measures to eliminate, prevent and control fall hazards. The Project must be surveyed prior to the commencement of any Work to identify all hazards of Personnel falling from elevations. First consideration must be given to the elimination of those hazards. If a fall hazard cannot be practically eliminated, second consideration must be given to implementing effective permanent means of fall protection.

13.1.3 All Employees who are working where fall hazards cannot be eliminated or falls prevented must be uniformly equipped,

trained and given refresher training every twelve (12) months to minimize adverse effects of accidental falls.

13.1.4 All employees must utilize a full body harness with two (2) shock-absorbing lanyards to allow continuous protection.

13.1.5 Guardrail systems consisting of a top rail, mid-rail and toe plate must be installed on perimeter edges or scaffolding.

13.2 **Eye, Face and Head Protection Policy.** All personnel shall at all times wear American National Standard Institute approved safety glasses, hard hats and face shields (as needed) while working on the Jobsite.

13.3 **Lighting and other Hazard Markings**. CONTRACTOR must furnish, erect and maintain markings and associated lighting of open trenches, excavations, temporary stock piles and its parked construction Equipment that may be hazardous to the operation of emergency fire-rescue or maintenance vehicles on the Airport in reasonable conformance to FAA guidelines, including FAA Advisory Circular 150/5370-2D, Operational Safety on Airports during Construction. CONTRACTOR must identify each motorized vehicle or piece of construction equipment in reason conformance to FAA Advisory Circular 150-5370-2D.

14.0 Safety Not Separately Priced. Costs for performing all Work necessary to provide safety measures must be incidental to the prices for other items of Work, and not priced separately.

15.0 Enhanced Project Safety Rules. The project safety rules attached as Appendix 2 to this Exhibit will be briefed to all personnel and posted on the project site. These rules are intended to enhance OSHA requirements and to establish policy for projects on the Hartsfield-Jackson Atlanta International Airport (HJAIA).

Appendix 1 to Exhibit D

Components of a CONTRACTOR Health and Safety Plan

Section 1 – This section should include a safety commitment letter signed by the President of your company. The following items must be addressed by this letter:

a. Company commitment to being incident and injury free, and your company's philosophy on safety.

b. Company acknowledgement that they will support and participate in a light duty/return to work policy.

c. Company acknowledgement that they will commit to drug free workplace.

d. Company acknowledgement that they will comply with OSHA Standards 29 CFR 1926, 29 CFR 1910 and 46 CFR (if applicable)

e. Project Safety Manager's name and lines of authority, his authority regarding safety matters.

f. The following attachments should follow the commitment letter:
   1. Project Safety Manager and Alternate Safety Manager's resumes (must meet specification qualifications).
   2. Contact List for Supervisory Staff:
      i. Name
      ii. Job Title
      iii. Office Telephone Number
      iv. Cellular Telephone Number
      v. E-mail address
   3. List of Subcontractors:
      i. Name of Subcontractor
      ii. Address
      iii. Contact Person
      iv. Office Telephone Number
      v. Cellular Telephone Number
      vi. E-mail address

Section 2 – This section should include your company disciplinary policy which incorporates Section 6 of Appendix 2, Safety Rules for All Projects..

Section 3 – This section should include your company drug policy which incorporates Section 2 of Appendix 2, Safety Rules for All Projects.

Section 4 – This section should include the site specific job hazard analysis for your project. It should take the tasks in your project schedule, analyze the hazards and list the proposed safety measures to abate those hazards.

Section 5 – This section should include your health and safety program administration.

a. How you intend to conduct the on-site, day-to-day operations of your program and roles / responsibilities of those in your organization in compliance with state, federal and local jurisdictions, commitment to safety education and training.

b. How you handle new hire training, employee responsibilities, first aid, CPR, Return to Work Program, etc.

c. Include in this section how you will address the items included in 29 CFR 1926 Subpart C General Safety and Health Provisions.

Section 6 – This section should be broken up into safety categories. At a minimum, it shall include sections on the following:

a. Safe Work Practices
b. Housekeeping
c. Personal Protective Equipment
d. Respiratory Protection
e. Hearing Protection
f. Fall Protection
g. Fire Prevention
h. Ladder, Stairway and Ramp Safety
i. Scaffolding
j. Electrical Safety
k. Lockout / Tag out Procedures
l. Tool safety
m. Personal Hoists / Man-lifts
n. Welding and Cutting
o. Compressed Gas Cylinders
p. Excavation and Trenching
q. Mobile Equipment Operation and Operator Training
r. Trucking
s. Steel Erection
t. Cranes & Rigging
u. Hazardous Material Handling
v. Hazard Communication Compliance
w. Confined Space Entry Program
x. Concrete and Masonry Construction
y. Demolition
z. Explosives
aa. Work Zone Safety – MUTCD
bb. Site Security
cc. Miscellaneous – (Include any applicable items not covered above needed to successfully complete your contract.

Note: Not all items in Section 6 may be used in the course of your construction. If an item is not relevant, you may leave it out of your plan, but indicate under that item that it is not needed for your project. There may also be items not included above that are relevant, but which are not included above. Those items must still be addressed in your plan.

A failure to include items in your safety plan which may be needed later will not relieve you of the responsibility to comply with all government standards that would apply and we reserve the right to require a supplemental safety submission to address that specific issue.

Appendix 2 to Exhibit D

Safety Rules for All Projects

1. **OCIP Site Badges and OCIP Safety Orientation.**

   a. Badges will be issued upon completion of the required safety orientation and will be good until the expiration date shown on the badge. If a worker changes companies or projects, that worker may come in with a Safety Orientation Sign-Off Sheet from the CONTRACTOR'S Project Safety Manager for the new project. Information in the OCIP database will be updated and a new badge issued. Specified times for badging will be given to the contractor at the pre-construction meeting.

   b. All workers shall display their OCIP badge on the outer layer garment of clothing between the belt and shoulder. Workers who are on site without a badge will be asked to leave the project.

   c. Workers who lose their badge will be required to pay a $20.00 replacement fee for a new badge.

2. **Drug and Alcohol Testing.**

   a. Use and/or possession of intoxicants, alcohol or drugs, are strictly prohibited. Use and/or possession will result in immediate termination and removal from the project.

   b. Drug testing shall be a regular part of your program and include the following types of testing:

      i. Post Accident – a worker who has an accident will be drug tested at the hospital or clinic. This applies to property and personnel incidents.

      ii. For Cause – workers who exhibit behavior of a nature consistent with possible drug use will be subjected to immediate drug testing. Failure to comply with a request for testing will result in immediate removal from the project.

      iii. Random – random testing will be done at the company level. The cost of all drug testing will be borne by the CONTRACTOR.

3. **Personal Protective Equipment (PPE).**

   a. All contractor personnel, DOA personnel and owner representatives, City of Atlanta Personnel, Vendors, Suppliers, and all visitors to the jobsite will dress as follows:

i. Hardhats / construction helmets– must be worn 100% of the time while workers are on the project. The bill will face the front. No caps of any kind will be worn under hardhats. Hard hats must meet the applicable ANSI standards.
ii. Safety glasses will be worn 100% of the time while workers are on the project. Safety glasses must meet the applicable ANSI standards.
iii. Shirts with sleeves (minimum 4") – no cut offs or tank tops are allowed.
iv. Long pants extending to the boot
v. Work boots
vi. Reflective vests
vii. Hearing protection in accordance with OSHA standards
viii. Work gloves (as required by contractor internal policies)

b. The following items of clothing or manner of dress are not considered appropriate attire and will not be allowed:
   i. Cut-off shirts (sleeves or midriff)
   ii. Workers without shirts
   iii. Tennis shoes or hiking boots
   iv. Glasses that are not safety glass (meet ANSI Z87 standard)
   v. Jewelry – rings, earrings, body piercing, necklaces, etc. will not be worn around or near moving parts or tools.

4. **Housekeeping.** Housekeeping shall be done on a daily basis or as needed to ensure a safe working environment. Dumpsters shall be provided on each project for the removal of construction debris. Construction debris shall be removed to dumpsters daily or more often as needed. Work areas shall be cleaned as needed to provide for worker safety. Trash receptacles shall be provided on site for the disposal of cans, garbage and trash. These receptacles shall be clearly marked "Trash" and shall be emptied as needed to comply with sanitary requirements.

5. **Restrictions.**

a. No glass containers are allowed on the job site. Workers may use aluminum cans or plastic bottles and these must be disposed of properly.

b. When working on the Aircraft Operations Area (AOA), workers are to place all uneaten food; food wrappers, bottles and cans back in their lunch box and remove them. No debris (Foreign Object Debris (FOD) is to be left on the AOA.

c. No use of music devices are allowed on the jobsite, including, but not limited to radios, cellular phones, cassette players, CD player, or IPODs.

d. No yellow caution tape, red danger tape or survey tape is to be used on projects inside the Aircraft Operations Area (AOA).

6. **Imminent Danger to Life and Health situations (IDLH).** Anyone (e.g., visitors, consultants, excluded contractors, OCIP enrolled contractors, etc) who observes, has knowledge of, or is observed acting in a manner, which expose them or a coworker to serious injury or death will be disciplined as follows unless the act is so egregious that it requires immediate termination:

   a. first occurrence – Seventy-Two (72) hour suspension from Project. This suspension period will exclude weekends and all holidays. Within two (2) hours of the suspension, CONTRACTOR must provide CITY's Program Safety Manager with documentation of who has been suspended and when they are allowed back on the Project. Included in the documentation will be the date and type of re-training that will occur before the suspended individual is allowed to return to work. The CONTRACTOR must confiscate the individual's OCIP badge and provide evidence in the documentation. The badge can be returned to the individual upon completion of re-training requirements.

   b. second occurrence – Removal from Project

   c. Incidents that would result in a violation of this policy include, but not limited to the following:
      1) Fall protection issues (not being properly anchored)
      2) Excavation issues (no trench box or sides of the excavation not properly sloped)
      3) Electrical safety - failure to use proper lockout / tag out procedures
      4) Welding or cutting without proper eye protection
      5) Ladder safety – dangerous practices
      6) Riding in the back of a pick-up truck
      7) Confined Space Entry Safety (monitor, permit, training, etc.)
      8) Riding in or driving a truck or operating heavy equipment without using a seatbelt. The driver will be held responsible for compliance of the seatbelt policy by all passengers.

7. **Temporary Power.** All temporary power shall be on ground fault circuits at all times. If outlets are not ground fault circuit interrupter (GFCI) protected, a (GFCI) pigtail shall be used between the tool and the power source. All GFCI circuits should be tested before being used. They are mechanical devices, which can fail.

8. **Cranes.** The following additional requirements to OSHA will be followed when operating a crane on any project:

   a. Signalmen will stand where they may be clearly seen by the operator. They must be properly trained and have no other duties while they are signaling the crane operator.

   b. FAA Form 7460 must be filed and approved before crane use on Airport property.

9. **Ladders.** Fiberglass ladders only are acceptable for use on the project.

10. **Loitering.** There will be no loitering in the parking lots once the workday is completed. All employees should leave the job site in a reasonable period of time after the completion of their shift.

11. **Hot Work.** The following procedures will be followed for all hot work: cutting, grinding or welding:

    a. Flash arrestors shall be installed at the regulator on all cutting torches. An additional flash arrestor shall be installed on the manifold if used.

    b. Flash shields or blinds shall be used to prevent exposure of workers in the vicinity any welding operation. All efforts shall be made to prevent exposure of workers to ultraviolet rays and radiation energy.

    c. Fire extinguishers of the proper size and type shall be provided in all areas where hot work such as cutting, welding, grinding, etc. is taking place. The minimum size and type of fire extinguisher that is acceptable is a 5lb. ABC fire extinguisher. Fire extinguisher inspection tags must be in place on the unit and inspections must be current (within the last 6 months).

    d. "Hot Work Permits" must be obtained from the Atlanta Fire Inspector prior to the use of any open flame cutting, welding, etc. A copy of the permit must be on site at all times during any "Hot Work" activity.

12. **Protection.** See section 6 of this document.

13. **Respect.** Airport passengers and airline employees will be treated with the utmost respect and courtesy. Anything less may result in removal from the project site.

14. **Harassment.** Harassment of any kind (e.g., sexual, personal, property, etc) will not be tolerated in any area controlled by the HJAIA. Proof of harassment will be grounds for removal from the project and possible action by the CONTRACTOR.

15. **Work Place Violence.** All acts of work place violence will be reported to your supervisor, who shall report in accordance with the project's incident reporting protocol. This protocol document will be provided upon enrollment in the OCIP.

16. **Accidents or Incidents.** All accidents, incidents, near misses, unsafe acts or unsafe conditions must be immediately reported to your supervisor, who must immediately report the occurrence in accordance with the Project's incident reporting protocol and followed up with a written report within twenty-four (24) hours of the occurrence. This incident protocol document will be provided upon enrollment in the OCIP.

    a. First Aid – All accidents which occur from operations or work performed at the airport must be referred to the listed panel of physicians, except in case of extreme emergency.

    b. Emergency Telephone Numbers – A list of emergency telephone numbers, to include doctor, ambulance, police and fire numbers shall be posted at all telephones on the project.

END OF DOCUMENT

CITY OF ATLANTA

HARTSFIELD-JACKSON

Atlanta International Airport

OWNER CONTROLLED INSURANCE PROGRAM (OCIP) MANUAL

Effective Date: 11/02/2015
Manual Date: 02/08/2016 v3

Sheila Cassidy, OCIP Administrator, JLM Risk Management Group
Office: (404) 766-8715 | Cell: (404) 406-0273
sheila.cassidy@atlanta-airport.com

JLM Risk Management Group

Willis

INTRODUCTION

City of Atlanta (Owner) has purchased certain insurance coverages outlined in this manual under an Owner Controlled Insurance Program (OCIP) for Contractors of all tiers working on the Project who are enrolled in the OCIP. **Participation in the OCIP is mandatory, except for those identified as Excluded Parties, BUT ENROLLMENT IS NOT AUTOMATIC**. You must comply with the OCIP enrollment procedures outlined in this manual.

The City of Atlanta has determined that the OCIP is a **"Bid Net"** program, which means that Contractor's charges for the insurance coverages provided by the Owner (as outlined in Section 6) must be **EXCLUDED** from bid(s). The successful Contractor must warrant that its base price for the original scope of work and subsequent change orders will **EXCLUDE** all insurance charges for the coverages provided by the Owner for the Jobsite, including workers' compensation, employers' liability, general liability, excess liability, builders' risk, and contractors' pollution liability.

The successful Contractor shall provide the documentation described in this manual to estimate its excluded insurance charges. This estimate of excluded insurance charges is subject to review and approval by the OCIP Administrator and Owner. These estimates will be tracked by the OCIP Administrator *for reporting purposes only*.

Instructions for OCIP enrollment are detailed in Section 8.

The insurance coverage provided by the OCIP, as well as your rights and responsibilities under the program, are outlined in this manual and are as much a part of your Contract as the actual work specifications. All terms and conditions of this OCIP Manual are incorporated by reference into your Contract, and you are required to bind all your lower-tiered subcontractors to the terms, conditions and requirements of this manual.

NOTE: This Manual does not, and is not intended to, provide coverage interpretations or complete information about coverages. The terms and conditions of the insurance policies will govern how coverage is applied. The information herein is not intended to alter any provisions of the actual contract documents of the Contractors, and if any such conflict occurs, the contract documents will govern.

Table of Contents **Page**

Introduction 2
Section 1 - Directory 3
Section 2 - Definitions ..... 4 - 5
Section 3 - General Provisions 6
Section 4 - Safety & Loss Prevention ..... 7 - 8
Section 5 - Return to Work Policy 9
Section 6 - Insurance Provided by the Owner ..... 10 - 12
Section 7 - Insurance Provided by the Contractors and Subcontractors ..... 13 - 16
Section 8 - Enrolling in the OCIP ..... 17 - 19
Section 9 – OCIP Forms ..... 20 – 21
Section 10 – Claims Reporting ..... 22 – 23

SECTION 1 - DIRECTORY

Owner: **City of Atlanta/Department of Aviation**
Hartsfield-Jackson Atlanta International Airport

Project Development Director
Kathryn Masters
Phone: 404-382-1263
Cell: 404-867-3628
Email: kathryn.masters@atlanta-airport.com

Risk Management
Kathy Lloyd
Phone: 404-330-6877
Cell: 404-569-0794
Email: klloyd@atlantaga.gov

Catrina Gilbert
Phone: 404-382-2240
Cell: 404-387-4399
Email: catrina.gilbert@atlanta-airport.com

OCIP Program Management: **Willis Insurance Services of Georgia, Inc.**

OCIP Account Advocate-
Velvet Barrientos
Phone: 404-302-3862
Cell: 678-575-0609
Email: velvet.barrientos@willis.com

OCIP Claims Consultant-
David Simmons
Phone: 404-224-5062
Cell: 770-617-1390
Email: david.simmons@willis.com

OCIP Program Manager-
Shawn Williams
Phone: 407-833-4279
Cell: 321-303-0355
Email: shawn.williams@willis.com

OCIP Program Administration: **JLM Risk Management Group**

OCIP Administrator-
Sheila Cassidy
Phone: 404-766-8715
Cell: 404-406-0273
Email: sheila.cassidy@atlanta-airport.com

OCIP Safety Director-
Chris Blair
Phone: 404-766-8715
Cell: 404-465-0723
Email: chris.blair@atlanta-airport.com

SECTION 2 - DEFINITIONS

Contract: For purposes of this OCIP Manual only, the written agreement between City of Atlanta and the Construction Manager or General Contractor; or between the General Contractor and its Subcontractors; or between the Subcontractor and its lower tiered subcontractors.

Construction Manager (CM): The team retained by the Owner to assist in the management of construction projects.

Construction Safety and Health Plan: The manual that identifies the requirements for the Project's safety and loss prevention program as established by the Owner.

Contractor: For purposes of this OCIP Manual only, Contractor includes construction managers, prime or general contractors, and subcontractors of all tiers that perform work on the Project Site.

Enrolled Contractor(s): A Contractor of any tier who has been awarded work and met the requirements to become enrolled in the OCIP as evidenced by a certificate of insurance issued by the OCIP Administrator. The Owner may, at its discretion, include a Contractor in the OCIP who otherwise would be an Excluded Party by definition.

Excluded Party(ies): Material Hauler(s), contract haulers or truckers, architects/engineers, consultants, manufacturing representatives, vendors, Suppliers, material dealers, guard services, janitorial services, food services, or others merely making deliveries to or pickups from the Jobsite are excluded from the OCIP coverage. In addition, EIFS Contractors, asbestos abatement or other hazardous material Contractors, demolition or blasting Contractors, and Contractors whose contracts are less than $20,000 will be excluded from the OCIP coverage. The Owner may, at its discretion, exclude others from the OCIP.

> ***NOTE: although not covered under the OCIP, all Excluded Parties performing work onsite are required to submit the required OCIP forms and a certificate of insurance in order to provide satisfactory evidence of insurance in compliance with all minimum insurance requirements detailed in this manual.***

General Contractor(s): The firm identified in the Contract with the Owner to construct this Project.

General Contractor's Project Manager: The individual assigned by the General Contractor with overall Project responsibility.

Insured: Owner and all Enrolled Contractors and any other party named as an Insured on the OCIP certificates of insurance.

Insurer(s): Zurich American, Lloyds of London, Catlin and Chartis.

Insurer(s) Loss Control Representative(s): The individual(s) assigned to the OCIP by the Insurer(s) with safety and loss control responsibilities.

Jobsite: For purposes of this OCIP Manual only, the premises as defined in the contract documents appropriate to each project and any scheduled offsite location if dedicated solely to the project and approved by the Owner and Insurers. This shall not include operations at the Enrolled Contractor's regularly established workplace, plant, factory, office, shop, warehouse, yard or other property, even if such operations are for fabrication of materials to be used at the jobsite.

SECTION 2 – DEFINITIONS *(CONTINUED)*

Materials Hauler: Any entity whose role on the Project is to transport materials to and from the Project site. A Materials Hauler is designated as an independent contractor. The designation of Materials Hauler may be made by scope of contract, by primary function on the Project, or by definition. Nothing contained in the Contract Documents shall create any contractual relationship whatsoever between the Owner and any Materials Hauler. By definition, "Materials Haulers" are **not** considered Enrolled Contractors for OCIP coverage purposes.

OCIP: A program under which Workers' Compensation, Employer's Liability, General Liability and Excess Liability insurance are procured by the Owner for all Enrolled Contractors of every tier while performing specified operations at the project specific Jobsite.

OCIP Claims Consultant: The individual assigned by the OCIP Program Management who is responsible for coordinating the claims handling between the Owner, Enrolled Contractors and the Insurer(s).

OCIP Program Management: Willis Insurance Services of Georgia, Inc.

OCIP Program Administration: JLM Risk Management Group is responsible for the day-to-day administration of the OCIP.

OCIP Safety Director: The person employed by the OCIP Program Administration with safety and loss prevention responsibilities for the Project.

Offsite: Premises other than the Jobsite.

Onsite: See Jobsite definition.

Owner: City of Atlanta.

Project Site: See Jobsite.

Project Safety Manager: The individual assigned by the General Contractor who supervises its employees and all Subcontractors for safety at the Jobsite.

Site Safety Representative: The individual(s) assigned to perform Onsite safety duties.

Subcontractor: Any individual, firm, or corporation undertaking construction or other services under a Contract with a General Contractor or its Subcontractors to furnish labor, services, materials and/or equipment, and/or perform operations at the Project site.

Supplier: A person or organization supplying materials or equipment needed for the completion of the Work by virtue of an agreement ("Supply Agreement") with the General Contractor or Subcontractor; or by scope of contract, by primary function on the Project, or by definition. Nothing contained in the Contract Documents shall create any contractual relationship whatsoever between the Owner and any supplier. By definition, "Suppliers" are **not** considered Enrolled Contractors for OCIP coverage purposes.

SECTION 3 - GENERAL PROVISIONS

Each Contractor shall comply with the provisions stated below:

1. **Mandatory Compliance**

   Failure to comply with the registration, enrollment and all other requirements outlined in this manual may be deemed non-compliance with the terms of the Contract, and payments may be withheld until requirements are satisfactorily completed and approved by the OCIP Administrator.

2. **Meeting Attendance**

   At the request of the Owner, OCIP Program Management, OCIP Program Administration and Contractors shall attend meetings held to explain and discuss the OCIP.

3. **OCIP Manual Incorporated into Bid Specifications and Contract**

   This OCIP Manual and the Construction Safety and Health Plan will be a part of the bid specifications and bidders are expected to be familiar with the requirements prior to submitting their bids. In addition, this OCIP Manual and the Construction Safety and Health Plan are incorporated into each successful bidder's awarding Contract and accordingly, all provisions require mandatory compliance.

4. **Commencement of Work**

   Contractors shall not commence work at the Jobsite until:

   a) Enrolled Contractors have received written confirmation of enrollment or a certificate of insurance evidencing coverage under the OCIP issued by the OCIP Administrator and provided a certificate for offsite activities as required in this manual, or

   b) Excluded Parties have provided a certificate of insurance as required in this manual and have received written confirmation of approval from the OCIP Administrator, and

   c) All Parties have met the requirements of the Construction Safety & Health Plan.

SECTION 4 - SAFETY AND LOSS PREVENTION

Protecting people and property are of paramount importance to the success of this Project. Incidents on this Project can be controlled and prevented through safe work practices. All Contractors and Subcontractors and each of their employees are responsible for safety on this Project.

Active participation by the Contractors and Subcontractors in all project safety and loss prevention programs is mandatory. They must demonstrate to their employees complete support and continuing involvement in all safety and loss prevention programs.

1. Safety Policy Statement

It is the objective of the General Contractor and the Owner that a safe work place is provided. The General Contractor and all others employed on the Project will conduct their work in a safe manner consistent with good construction safety practices in addition to all written requirements.

The General Contractor and the Owner require full compliance with these safety guidelines, with all federal, state and local laws, statutes, ordinances, rules, regulations, requirements and guidelines of government authorities, agencies and any other authorities having control or responsibilities bearing on the performance of this Project work.

Contractors and subcontractors are charged with the responsibility of preventing the occurrence of incidents or conditions that could lead to injuries or illness. The ultimate success of our safety program depends fully upon the total cooperation of every individual employee, and it is the employer's responsibility to ensure that safety rules and procedures are enforced and to further ensure that effective training and education programs are employed. Work will be performed in a safe manner to protect all employees, visitors, the public and adjacent property.

2. Project Safety and Loss Prevention Program

Contractors and Subcontractors shall ensure that their bids include the cost to maintain a safety and loss prevention program that meets or exceeds the requirements contained in the Construction Safety & Health Plan.

The General Contractor will have a Project Safety Manager. This individual will be a technical advisor to the General Contractor's Project management team and will be responsible for monitoring Contractors' and Subcontractors' compliance with all safety and loss prevention programs. The Project Safety Manager, along with the General Contractor's Project Manager will attend all OCIP meetings between the Owner, Willis, JLM Risk Management Group and the Insurers.

Section 4 - SAFETY AND LOSS PREVENTION *(CONTINUED)*

The Project Safety Manager has authorization to stop any work that may stem from non-compliance with safety procedures.

Contractors and Subcontractors will be solely responsible for implementing the safety and loss prevention program and shall designate an Onsite safety competent person to direct their Onsite safety efforts. The safety competent person is responsible for directly overseeing the Contractor's and Subcontractor's employees to ensure that their safety programs and actions adhere to and comply with safety standards as established by federal, state, and local codes and regulations, and the **Construction Safety & Health Plan**.

3. Construction Safety & Health Plan

The Owner has developed a **Construction Safety & Health Plan**. The goal of this program is to eliminate injuries to employees and to reduce construction interruptions due to accidents by setting safety requirements. The **Construction Safety & Health Plan** is available to all bidders during the bidding process and will be incorporated into the successful bidders' Contracts.

Effect on Future Modifications: **The premium and loss experience on this Jobsite will be reported to the appropriate rating authorities in the normal manner for use in calculating future experience modifications. The fact that the loss experience on this Project will impact the Contractors' future insurance costs further underscores the importance of compliance with the Construction Safety & Health Plan.**

SECTION 5 - RETURN TO WORK POLICY

All Enrolled Contractors are required to comply with the Owners' Return-to-Work policy as outlined below.

Purpose

1. The purpose of the program is to place employees in temporary job positions while recovering from on-the-job injuries. The Owner and the Insurer are committed to working together to promote safety, recovery, and successful return of injured employees to temporary, modified work following a work related injury. Any injured employee who is placed in a modified work position is placed in that position for a **limited time only.**

Procedures

2. The General Contractor and the Owner will cooperate with the Insurer in conjunction with the Enrolled Contractor to facilitate the return to work of any injured employee capable of modified work status.

3. The Insurer's adjuster will communicate with the managed care clinic or treating physician to determine the injured employee's temporary restrictions.

4. Once the employee is released to modified work, the Insurer's adjuster will coordinate with the managed care nurse and/or treating physician and the employer to facilitate the injured employee's return to work.

5. Upon being released to return to modified work, the injured employee will report to his/her employer for modified work assignment.

6. The employer will obtain from the employee (and provide copies to the General Contractor) the return to work status instructions from the treating physician.

7. The employer is required to accommodate the injured employee to the fullest extent and facilitate the return to work.

8. **Follow Up/Communication with Insurer:** It will be the responsibility of the Insurer's adjuster to maintain communication with the treating physician and employer to facilitate the prompt return to work of an employee to full work status. Should the employee reach maximum medical improvement and still be precluded from returning to full work status, the Insurer's adjuster will confer with the General Contractor and the employer regarding reassignment of the employee or to determine if further action required.

SECTION 6 - INSURANCE PROVIDED BY THE OWNER

The Owner has procured, and will maintain at its own expense, the insurance coverages described below for all Enrolled Contractors. The limits of liability purchased apply collectively to all Insureds. The Owner intends to maintain Workers' Compensation, General Liability and Excess Liability coverage until Notice of Final Acceptance. Products/Completed Operations coverage is extended for 8 years after said notification as specified in the policy. Summaries of the insurance coverages provided by the Insurer(s) are as follows:

1. Workers' Compensation Insurance

Workers' Compensation insurance, as prescribed by the laws of the State of Georgia, and Employer's Liability insurance is provided with the following limits of liability:

$1,000,000	Each Accident
$1,000,000	Each Disease - Each Employee
$1,000,000	Each Disease - Policy Limit

This insurance will cover employees of all Enrolled Contractors while they are performing work at the Jobsite. Offsite operations are **excluded**.

2. Commercial General Liability Insurance

Commercial General Liability insurance is provided for activities at the Jobsite. The Policy has the following limits of liability (limits reinstate annually, except during Products/Completed Operations coverage extension):

$2,000,000	Each Occurrence
$5,000,000	General/Annual Aggregate
$5,000,000	Products/Completed Operations Aggregate (All Projects Combined)*
$2,000,000	Personal Injury and Advertising Liability
$ 300,000	Damage to Rented Premises
$ 10,000	Medical Expense

Contractor will assume the responsibility for the first $25,000 of any Property Damage Liability claim that is within the purview of this policy.

*The Products/Completed Operations aggregate is a single limit for both the policy and extension periods as defined in the policy. Includes Warranty/Repair Work Coverage Extension which provides **general liability** coverage during warranty or repair work undertaken by Enrolled Contractors during their contractual warranty period, but not to exceed two (2) years after the Enrolled Contractor's OCIP coverage is terminated at the conclusion of their work (as defined by the policy). ***NOTE, however, that Contractor's workers' compensation Injuries while involved in warranty/repair work shall be covered under the Contractor's practice policy and not the OCIP.***

Section 6 - Insurance Provided by the Owner (Continued)

3. **Excess Liability Insurance**
   Excess General Liability and Employer's Liability coverages will be provided with limits of $50,000,000 each occurrence and in the aggregate. The limits are excess of the primary limits described in Items 1 and 2 above.

4. **Builders' Risk:** Owner shall procure and maintain Builders' Risk insurance which provides "all risk" coverage on the buildings, structure or work, and property of the Owner in the care, custody and control of the Contractor. The policy or policies shall be in the name of the Owner, and Contractors as their interests shall appear, and this shall be so stated on the ACORD certificate of insurance.

   The policy will cover structures and materials during the course of construction that are part of the project and will provide coverage for materials while in domestic transit, or while stored temporarily away from the project site subject to policy sublimits.

   Contractor will assume the responsibility for the first $25,000 of any claim that is within the purview of this policy.

   Owner and Contractor waive all rights against each other for damages caused by fire or other perils to the extent covered by insurance obtained pursuant to this Builders' Risk insurance section or any other property insurance applicable to the work. Contractor shall require, by appropriate agreement, written where legally required for validity, similar waivers in favor of the Owner and the Contractor by Subcontractors. With respect to the waiver of rights of recovery, the Owner shall be deemed to include, to the extent covered by property insurance applicable thereto, its consultants, employees and such agents and representatives. The Contractor waives as against any separate contractor all rights for damages caused by fire or other perils in the same manner as is provided above as against the Owner. The Owner shall require, by appropriate agreement written wherever legally required for validity, similar waivers in favor of the Contractor by any separate contractor and its subcontractors.

5. **Contractors Pollution Legal Liability**
   The Owner will maintain Contractors Pollution Liability coverage for the duration of this contract for onsite activities. **Pollution Legal Liability** insurance covering pollution incidents at, under or emanating from the Project Site will be provided with coverage for third-party bodily injury, property damage, cleanup costs and defense costs. The policy will be written with a limit of at least **$10,000,000.**

   The first $25,000 of any claim that stems from the operations of the Contractor, its subcontractors or sub-consultants will be fully borne by the Contractor as determined by the Owner.

Section 6 - Insurance Provided by the Owner (Continued)

6. Certificates of Insurance

The OCIP Administrator will issue certificates of insurance for Commercial General Liability, Workers' Compensation/Employers' Liability, Excess Liability and other required coverages to the Construction Manager (if applicable), General Contractor and each Enrolled Subcontractor.

7. Insurance Policies

The summary of coverages contained in this OCIP Manual is prepared for the convenience of those involved in the Project and should not be construed in any way as an exact and binding analysis of coverage. In case of any claim or question with respect to coverage, the original policies will prevail as the sole binding documents. Each Enrolled Contractor will receive a Workers' Compensation policy. Specimen General Liability and Excess Liability policies are available upon request.

8. OCIP Insurance Premiums

The Owner is responsible for the payment of the OCIP premium. All return insurance premiums, insurance dividends, or monies due or to become due in connection with the OCIP shall be to the benefit of the Owner and are hereby assigned to the Owner.

9. OCIP Cancellation, Termination or Modification

Notwithstanding any other provision in this manual, it is the Owner's intent to keep the OCIP in force throughout the term of the Project. However, the Owner reserves the right to cancel, terminate or modify the OCIP or any portion thereof. To exercise this option, the Owner will provide 30 calendar days advance, written notice to all Insureds covered under the OCIP.

Enrolled Contractors will be required to immediately affect replacement insurance coverage, equivalent to what is currently required for Offsite and Excluded Parties. The reimbursement for the cost of such replacement insurance will be calculated on a pro-rata portion of the Enrolled Contractors' Form 2. Written evidence of such insurance must be provided to the Owner prior to the actual cancellation or termination date of the OCIP.

10. Contract Termination

Upon completion of all their work at the Project Site, Contractors whose practice policies have been endorsed with a Designated Workplace Exclusion Endorsement, or similar language, should advise their broker/agent of their work completion and request the endorsement be deleted from their policies. The endorsement must be deleted prior to any Contractor undertaking warranty work at the Project Site.

Section 7 - Insurance Provided by The Contractors and all Subcontractors

Enrolled Contractors and Excluded Parties will, at their own expense, carry and maintain at least the following insurance policies and minimum limits of liability on forms and with insurance companies acceptable to the Owner:

1. Business Automobile Liability Insurance

All Enrolled Contractors and Excluded Parties must provide Automobile Liability insurance covering the operation, maintenance and use, loading and unloading of all owned, hired, and non-owned vehicles on or away from the Project Site. The policy shall be endorsed to name the Owner, and other entities as required by contract, as additional insureds, on a primary and non-contributing basis and shall be endorsed with a Waiver of Subrogation in favor of the Owner and other entities as required by contract. Such insurance will provide coverage not less than that of the standard Commercial Automobile Liability policy with combined single limits not less than:

- Operations in the Non-AOA* area: $ 2,000,000
- Operations in the AOA* area: $10,000,000

*AOA = Aircraft Operations Area

- In accordance with Section 22-181(b) of Chapter 22, Code of Ordinances of the City of Atlanta, all vehicles requiring access to the restricted areas of the airport must be covered by an automobile liability policy in the minimum amount of ten million ($10,000,000) combined single limit for personal injury and property damage. The $10,000,000 limit of liability will also be imposed on any parties transporting workers, materials and/or equipment to the Airport site from parking lots or similar facilities.
- Contractual liability, if not provided in the policy form, is to be provided by endorsement.
- If hazardous materials or waste are to be transported, the Commercial Automobile Liability policy will be endorsed with the MCS-90 endorsement in accordance with the applicable legal requirements.

2. Workers' Compensation and Employer's Liability

All Enrolled Contractors must have Workers' Compensation and Employer's Liability insurance covering all employees for injuries that occur away from the Project site or after project completion or OCIP termination or cancellation.

Section 7 - INSURANCE PROVIDED BY THE CONTRACTORS AND ALL SUBCONTRACTORS *(CONTINUED)*

Excluded Parties must provide this coverage for all operations relating to this Project. The policy must contain a waiver of subrogation endorsement in favor of the Owner and other entities as required by contract, and provide not less than the following limits:

a. Workers' Compensation - Statutory Limits

b. Employer's Liability -

$1,000,000	Each Accident
$1,000,000	Each Disease - Each Employee
$1,000,000	Each Disease - Policy Limit

Note that the Owner does not permit Workers' Compensation Exemption Status.

3. Commercial General Liability Insurance

All Enrolled Contractors must have General Liability insurance covering third party losses that occur away from the Project, and after Notice of Final Acceptance or OCIP termination or cancellation. Excluded Parties must provide this coverage for all operations relating to this Project.

Coverage must be on an ISO Occurrence Form acceptable to Owner, and shall include, but not be limited to, Premises-Operations, Personal Injury, Blanket Contractual Liability, Property Damage (with exclusions K&L removed), Fire Legal Liability, Independent Contractors, explosion, collapse and underground, and Products/Completed Operations. Provided below are the minimum insurance limits required:

Limits	**All Parties**
$1,000,000	Each Occurrence
$2,000,000	General Aggregate
$2,000,000	Products/Completed Operations Aggregate*
$1,000,000	Personal Injury and Advertising Liability
$ 300,000	Damage to Premises Rented to You

*Including term up to 5 years after substantial completion

4. Umbrella/Excess Liability

The General Contractor Only: $10,000,000 Each Occurrence/Aggregate

Umbrella/Excess Liability insurance, insuring against bodily injury, personal and advertising injury, and property damage, and all other coverages as specified above (Employers' Liability, Commercial General Liability and Commercial Automobile Liability). Coverage must be follow form and must apply as excess of the scheduled underlying policies. The General Liability, Automobile Liability and Employers' Liability limit requirement may be met by primary coverage or a combination of primary and Umbrella/Excess insurance.

SECTION 7 - INSURANCE PROVIDED BY THE CONTRACTORS AND ALL SUBCONTRACTORS *(CONTINUED)*

5. Aviation Liability

If required by the Owner, All Enrolled Contractors and Excluded Parties must provide Aviation Liability insurance covering all owned, non-owned, and hired aircraft, used, operated, or hired by the Contractor or the applicable Subcontractor in connection with the Project, including bodily injury, property damage, and Passenger Liability with a minimum limit of $10,000,000 each occurrence.

6. Watercraft Liability

If required by the Owner, All Enrolled Contractors and Excluded Parties must provide Watercraft Liability and/or Protection and Indemnity insurance covering all owned, non-owned, and hired watercraft, used, operated, or hired by the Contractor or Subcontractor in connection with the Project, including bodily injury with a minimum limit of $1,000,000 each occurrence.

7. Professional Liability (<u>Architecture & Engineering Design Only</u>)

Per Claim Made and in the Aggregate $5,000,000

- Contractor/Consultant shall procure and maintain during the life of this contract Professional Liability insurance, including a three year Extended Reporting Provision.
- Owner reserves the right to provide this coverage and, should it elect to do so, will execute a deductive change order to remove the cost of this coverage from the contract price.

8. Qualifications of Insurers

Each Insurer of an Enrolled Contractor or Excluded Party who provides any insurance coverage required by this section must meet each of the following requirements:

- The Insurer must be authorized by the State of Georgia to transact property and/or casualty insurance business in the State of Georgia;
- The Insurer must have an A.M. Best Policyholder Rating of a "A-" and a Financial Rating of "Class VIII" or higher.

9. **Certificate of Insurance**

Prior to commencing any work at the Jobsite, all Enrolled Contractors and Excluded Parties must provide the Owner with a Certificate of Insurance. Failure of any party to provide such certificates of insurance will not be relief from the responsibility to carry and maintain such insurance. Certificates should be sent to the OCIP Administrator.

Coverage must include and Certificates of Insurance must evidence (see sample in forms section):

a) Reference to: City of Atlanta, Hartsfield-Jackson Atlanta International Airport

Section 7 - INSURANCE PROVIDED BY THE CONTRACTORS AND ALL SUBCONTRACTORS *(CONTINUED)*

b) Additional Insured: shall include City of Atlanta and others as required by contract as additional Insureds (as respects General and Automobile Liability). Coverage must be primary and non-contributory.

c) Waiver of Subrogation: shall obtain a waiver of subrogation in favor of City of Atlanta and others as required by contract (as respects Workers' Compensation).

d) Notice of Cancellation: All required policies shall be endorsed to provide that notice of cancellation shall be given to Owner by insurance agent/broker or carrier, or if unavailable, Contractor/Subcontractor must provide Owner with thirty (30) days advance written notice of cancellation or non-renewal (ten (10) days in the event of cancellation for non-payment of premium).

e) The insurance requirements described in the OCIP manual are not intended to, and shall not in any way, limit or quantify the liabilities and obligations each Contractor assumes pursuant to its contract. The insurance requirements are an independent contract provisions and shall survive the termination or expiration of this contract or any subcontract.

10. **Other Insurance Needed As Determined by Enrolled Contractors**

The OCIP, as previously outlined, is intended to afford broad coverage and relatively high limits of liability, but may not provide all the insurance needed. Enrolled Contractors should have their insurance agent, broker or consultant review the coverages and limits outlined herein for adequacy against your existing program. In order to eliminate duplicate insurance premiums, Enrolled Contractors should amend their insurance program to recognize coverage provided to them under this OCIP. It is suggested that Enrolled Contractors' General Liability and Workers' Compensation policies exclude coverage for this Jobsite <u>only to the extent coverage is provided by the OCIP</u>. In this manner, any broadened coverages or limits under the Enrolled Contractors' insurance program will still be available to them. Any insurance for higher limits or other coverages that are required by the Contract, by law, or needed for the Enrolled Contractors' protection must be purchased separately. Any premiums, deductibles or self-insured retentions under any additional coverages shall be borne by Enrolled Contractors.

Contractors' policies of insurance covering their owned or leased machinery, watercraft, vehicles, tools, or equipment against physical loss or damage must include waiver of subrogation endorsements in favor of the Owner and the General Contractor, their employees, agents or assigns.

SECTION 8 - ENROLLING IN THE OCIP

WillCIP: Online Enrollment & Payroll Reporting System

Follow the instructions outlined in the WillCIP Online Enrollment & Payroll Reporting System Instructions document. A copy of the document can be obtained from the OCIP Administrator.

IMPORTANT NOTES

a. Use premium rates in force at the time of the Contract Award. These rates will be applied to the entire project period.

b. Comply with requests from the OCIP Administrator for documentation. (e.g., Workers' Compensation, General Liability, and Excess Liability Declaration and Rate Pages)

c. Accurately estimate payroll and/or receipts anticipated for this Contract (initial bid and all change orders) so as to develop an accurate estimate of insurance costs. At completion of your work, a final audit will be conducted of the actual payroll, receipts and insurance costs.

d. Maintain accurate and complete payroll records and timely submit to a payroll/receipts audit by the OCIP insurers and/or OCIP Administrator upon request. OCIP insurers have the right to audit payroll records annually, upon completion of work or upon policy expiration.

e. Accurately utilize valid classification codes as defined in the latest version of the NCCI (National Council on Compensation Institute) Scopes Manual. These will also be audited and will be subject to change by the OCIP Manager should the work being performed not coincide with the classification codes and rates submitted with the enrollment.

f. The Contractor hereby warrants the accuracy of the information provided to the OCIP Administrator and OCIP insurers; and agrees that the Owner, the OCIP Administrator, and the OCIP insurers may audit the Contractor's records at any time to confirm the accuracy of the information provided, including any changes in the work as referenced in the Contract.

g. Contractors or Subcontractors may not commence work on this Project until enrollment is complete which requires that a complete enrollment is submitted, approved, and a certificate of insurance is provided by the OCIP Administrator to the Enrolled Contractor.

h. Enrollment is NOT automatic – Contractors are required to complete a separate enrollment for each project/contract under which they are performing work. Excluded Contractors (those not eligible to participate in the OCIP due to contract value or scope of services) are also required to submit OCIP forms and a certificate of insurance evidencing coverages and limits required by the OCIP.

i. Failure to submit the completed forms and documentation to the OCIP Administrator within 30 days of the initial request may result in a delay of your monthly progress payments.

SECTION 8 - ENROLLING IN THE OCIP (CONTINUED)

j. Enrolled Contractors must submit monthly reports for payroll and receipts associated with **Onsite** work for this Project.

k. Payroll and receipts must be submitted separately for each contract awarded for this Owner.

l. If no work is performed at the site during the reporting period, a report must still be submitted using zeros for payroll and receipts.

m. Use of Class Code 8810 shall apply ONLY to Onsite clerical employees who remain in the Onsite trailer and do not walk the Project.

n. Use of Class Code 5606 shall apply ONLY to individuals dedicated full time to this Project site, who work mainly inside the Onsite trailer, and supervise through foreman. Those who directly supervise work must be classified under the governing (majority) class code. Individuals classified under 5606 may not have their time split with another class code.

o. Monthly Payroll and Receipts Reports are due by the 10th of each month.

Failure to promptly provide payroll information will result in a delay of your monthly progress payments.

Certificate of Insurance

a. Provide a Certificate of Insurance including coverages and wording (as shown) with the actual limits on Certificate of Insurance. (See example in Forms Section.) A current certificate of insurance must be provided for each policy period.

b. Upload Certificate in the WillCIP system or Submit to:

Sheila Cassidy, JLM Risk Management Group
sheila.cassidy@atlanta-airport.com

SECTION 8 - ENROLLING IN THE OCIP (CONTINUED)

Notice of Completion Form

a. Each Enrolled Contractor will submit a Notice of Completion Form, once the Enrolled Contractor has completed all of its work (including punch-list items).

b. Submit to: Sheila Cassidy, JLM Risk Management Group
sheila.cassidy@atlanta-airport.com

SECTION 9 – OCIP FORMS

CITY OF ATLANTA - Hartsfield-Jackson Atlanta International Airport

Sample Certificate

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
INSURANCE AGENT'S NAME
ADDRESS
CITY, STATE ZIP CODE
TELEPHONE NO. (INCLUDING AREA CODE)

CONTACT NAME:
PHONE (A/C, No. Ext):
FAX (A/C, No):
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE	NAIC#
INSURER A : ABC Insurance Company	
INSURER B : DEF Insurance Company	
INSURER C : GHI Insurance Company	
INSURER D : JKL Insurance Company	
INSURER E :	
INSURER F:	

INSURED
YOUR COMPANY NAME
ADDRESS
CITY, STATE, ZIP CODE
TELEPHONE NO. (INCLUDING AREA CODE)

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN. THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYY)	POLICY EXP (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC	X		Policy Number	MO/DAY/YR	MO/DAY/YR	EACH OCCURRENCE DAMAGES TO RENTED PREMISES(Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS-COMP/OP AGG	$1,000,000 $300,000 $ $1,000,000 $2,000,000 $2,000,000
B	AUTOMOBILE LIABILITY ANY AUTO X ALL OWNED AUTOS X HIRED AUTOS SCHEDULED AUTOS X NON-OWNED AUTOS	X		Policy Number	MO/DAY/YR	MO/DAY/YR	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY(Per person) BODILY INJURY(Per accident) PROPERTY DAMAGE (Per accident)	See Limit* $ $ $ $
C	UMBRELLA LIAB X EXCESS LIAB CLAIMS-MADE DED RETENTION $			Policy Number	MO/DAY/YR	MO/DAY/YR	EACH OCCURRENCE AGGREGATE	SEE Limit Requirements
D	WORKERS COMPENSATION AND EMPLOYERS ' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	X	Policy Number	MO/DAY/YR	MO/DAY/YR	X WC Statutory Limits OTH-ER E.L. EACH ACCIDENT E.L. DISEASE – EA EMPLOYEE E.L. DISEASE – POLICY LIMIT	 $500,000 $500,000 $500,000
	OTHER							

***Coverage Limit Requirements:**
****AOA = Aircraft Operations Area**
$ 2,000,000 Combined Single Limit – Operations in NON-AOA**
$10,000,000 Combined Single Limit – Operations in AOA**

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
RE: City of Atlanta, Hartsfield –Jackson Atlanta International Airport ADDITIONAL INSURED (AUTO AND GENERAL LIABILITY): City of Atlanta and General Contractor. Coverage is primary & non-contributory. WAIVER OF SUBROGATION (WORKERS' COMPENSATION) for City of Atlanta and General Contractor.

CERTIFICATE HOLDER

City of Atlanta
Attn : Risk Manager
6000 N. Terminal Pkwy., Atrium Suite 4000
Atlanta, GA. 30320
Email to : sheila.cassidy@atlanta-airport.com

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

CITY OF ATLANTA Hartsfield-Jackson Atlanta International Airport

NOTICE OF COMPLETION FORM

Date: _____

From: _____
(Your Company Name)

Contact Name: _____

Telephone No: _____

Email Address: _____

Please be advised that the following Enrolled Contractor is scheduled to complete work.

Subcontractor:			
Contract Number:			
Contact/Title:			
Telephone No:			
Email Address:			
Work Description:			
Final Contract Value:			
Final Payroll:			
Start Date:		**Completion Date:**	

Name of lower-tiered Subcontractors, if any, which are included in this work:

_____

_____

Is this the only contract for this Contractor at this project? Yes _____ No _____

If no, please list: _____

_____

Signed By: **Title:** **Date:**

PLEASE SUBMIT TO: **Sheila Cassidy, OCIP Administrator, JLM Risk Management Group**
E-Mail Address: sheila.cassidy@atlanta-airport.com

SECTION 10 – CLAIMS ADMINISTRATION

Claims Reporting

All Workers' Compensation, General Liability and Builders Risk claims, including incidents, accidents and unusual circumstances which may reasonably be expected to develop into claims against OCIP policies, must be reported by Contractors and/or subcontractors as soon as possible. All accidents and incidents must be reported no later than the close of business on the date of the occurrence. Reports may be made by telephone or email to the contacts listed below.

Following any accident or incident, basic scene investigation should be undertaken by any involved Contractor's safety representative to establish the facts of the accident and to assist in the OCIP carrier's claims adjustment process.

- Determine what happened and write it down.
- Take photographs and/or measurements, as applicable.
- Identify all involved parties, including witnesses, and obtain contact information.
- Record date(s), time(s) and weather conditions.
- Preserve and protect physical evidence.
- Maintain complete confidentiality.
- Cooperate fully with the OCIP Carrier's adjuster.

Send Copies of all Claims Reports to:

- **OCIP Claims Consultant: David Simmons**
  david.simmons@willis.com **(404) 224-5062**
- **OCIP Administrator: Sheila Cassidy**
  sheila.cassidy@atlanta-airport.com **(404) 766-8715**
- **OCIP Safety Director: Chris Blair**
  chris.blair@atlanta-airport.com **(404) 465-0723**

Claim and Accident Reporting Procedures

The immediate reporting of all circumstances which might lead to, or involve a CLAIM is a requirement and non-compliance may jeopardize coverage. Refer all questions to the Owner's Construction Manager and or the Owner's insurance carrier. The following are minimum requirements for specific circumstances:

- Fatal and Serious Accidents (Employees and members of the public)

  Secure emergency medical services.
  Telephone, in the following order:
  a) Owner's Representative(s)
  b) Construction Manager

- Workers' Compensation – An Employer's First Report of Injury report shall be completed for all employees becoming injured or sick during the course of employment.

  Original and one copy to Owner's Representative(s)
  Two copies to Construction Manager
  One copy for Contractor's Records

- General Liability Insurance – A Claims Report shall be completed when any member of the public is injured and/or his/her property is damaged, and when injury occurs to personnel or property of other Contractors and/or Subcontractors.

  Original and one copy to Owner's Representative(s)
  Two copies to Construction Manager
  One copy for Contractor's Records

- All Risk Course of Construction (sometimes referred to as Builders Risk) – A Claims Report shall be completed when physical damage occurs to any part of the construction works, from whatever cause.

  Original to Owner's Representative(s)
  Two copies to Construction Manager
  One copy for Contractor's Records

- Automobile Insurance – A Claims Report shall be completed when there is any accident/incident involving an automobile.

  Original and one copy to Owner's Representative(s)
  Two copies to Construction Manager
  One copy for Contractor's Records

EXHIBIT D-1
PERFORMANCE AND PAYMENT BONDS

1. At, or prior to, Service Provider's execution of the Agreement, Service Provider must, at its own expense, deliver to the City a Performance and a Payment Bond each in an amount equal to one hundred percent (100%) of the first year's contract value as specified in the Agreement, naming the City as co-obligee and issued by a surety company or companies in such form as approved by the City's Attorney as attached hereto at **Exhibit D-1**. The bonds must be renewed annually at one hundred percent (100%) of the then current year's contract value as specified in the Agreement. The bonds must be kept in full force and effect during the Term and any renewals. In lieu of a Performance Bond, Service Provider may submit to the City an Irrevocable Letter of Credit in a form acceptable to City, in its sole discretion.

2. The bonds must be issued as security for the faithful performance of this Agreement, including, maintenance and guarantee provisions, its covenants, stipulations and agreements of the Agreement, the payment of all bills and obligations arising out of the performance its obligations under the Agreement, which bills and obligations might or would in any manner become a claim against the City, and guaranteeing all services and work set forth in the Agreement against faulty materials or poor workmanship, or both, in accordance with any warranty provisions of the Agreement.

3. The surety company issuing the bonds must give the City notice in writing by registered mail at least sixty (60) days prior to an anniversary date of the bonds of its intention not to renew or to terminate the bonds.

4. A Corporate Surety that is satisfactory to City, authorized to do business in the State of Georgia, and listed in the latest issue of U.S. Treasury Circular 570 must execute the bonds.

5. An agent of the Surety residing in the State of Georgia must execute the bonds. The date of the Bonds must be the same as the date of execution of the Agreement by City. The Surety must appoint an agent for service in Atlanta, Georgia upon whom all notices must be shown on each Bond. The person executing the Bonds on behalf of the Surety must file with the Bonds a general power of attorney unlimited as to amount and type of Bonds covered by such power of attorney, and certified to by an official of said Surety. The Bonds must be on forms provided by City. The Agreement will not be executed by City until after the approval of the Bonds by City's Attorney.

EXHIBIT D-1

ATTACHMENT 1

Performance Bond

INSTRUCTIONS

1. **This form is required for use in connection with the Agreement identified on its face. There shall be no deviation from this form without approval by the City.**

2. **The full legal name and business address of the Principal shall be inserted in the space designated "Principal" on the face of the form. The bond shall be signed by an authorized person. Where such person is signing in a representative capacity (e.g., an attorney-in-fact), but is not a member of the firm, partnership, or joint venture, or an office of the corporation involved, evidence of this authority must be furnished.**

3. **Corporation executing the bond as surety must be among those appearing on the U.S. Treasury Department's most current list of approved sureties and must be acting within the amounts and limitations set forth therein.**

4. **Corporate surety shall be duly authorized by the Commissioner of Insurance of the State of Georgia to transact surety business in the State of Georgia.**

5. **Do not date this bond. The City will date this bond the same date or later than the date of the Agreement.**

6. **The Surety shall attach a duly authorized power-of-attorney authorizing signature on its behalf of any attorney-in-fact.**

7. **Corporations executing the bond shall affix their corporate seals. Individuals shall execute the bond opposite the word "Seal."**

8. **The name of each person signing this bond shall be typed or printed in the space provided.**

Performance Bond

KNOW ALL MEN BY THESE PRESENTS:

That _____ as principal ("Principal),
(Legal Name and Address)

and _____ as surety ("Surety"), are held and firmly bound unto the
(Legal Title and Address of Surety)

CITY OF ATLANTA as Obligee ("Owner"), in the amount of _____DOLLARS

($_____), to which payment Principal and Surety bind themselves, their heirs, executors, administrators,

successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into an Agreement with the Owner bearing date of _____ and

in the same monetary amount of this bond for: **FC-8746, Taxiway Pavement Replacement - 2016** accordance with

drawings and specifications prepared by: _____which said
(Full Name and Title)

Contract and Task Order are incorporated herein by reference and made a part hereof, and is hereinafter referred

to as the Contract.

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall promptly and faithfully perform and comply with the terms and conditions of said contract; and shall indemnify and save harmless the Owner against and from all cost, expenses, damages, injury or loss to which said Owner may be subjected by reason of any negligent act or omission, including patent infringement, misconduct, want of care or skill, default or failure of performance on the part of said Principal, his agents, subcontractors, materialmen or employees, in the execution or performance of said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

(1) The said Surety to this bond, for value received, hereby stipulates and agrees that no change or changes, extension of time or extensions of time, alteration or alterations or addition or additions to the terms of the Contract or to the work to be performed thereunder, or the specifications or drawings accompanying same, or the exercise of the Owner's right to do work, shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change or changes, extension of time or extensions of time, alteration or alterations or addition or additions to the terms of the Contract or to the Work or to the specifications or drawings. In addition the Surety to this bond, for value received, hereby agrees to the provisions of the Agreement for increases in the penal amount of this bond and waives notice from the Owner of any such changes, as set forth in the Contract Documents.

(2) If pursuant to the Contract Documents the Principal shall be declared in default by the Owner under the aforesaid Contract, the Surety shall promptly perform this bond agreement in accordance with its terms and conditions. It shall be the duty of the Surety to give an unequivocal notice in writing to the Owner, within twenty-five (25) days after receipt of a declaration of default, of the Surety's election to either remedy the default or defaults promptly or to perform the Contract promptly, time being of the essence. In said notice of election, the Surety shall indicate the date on which the remedy or performance will commence, and it shall then be the duty of the Surety to give prompt notice in writing to the Owner immediately upon completion of (a) the remedy and/or correction of each default, (b) the remedy and/or correction or each item of defective work, (c) the furnishing of each omitted item of work, and (d) the performance of the Contract. The Surety shall not assert its Principal as justification for its failure to give notice of election or for its failure to promptly remedy the default or defaults or perform the Contract.

(3) It is expressly agreed by the Principal and the Surety that the Owner, if he desires to do so, is at liberty to make inquiries at any time of subcontractors, laborers, materialmen, or other parties concerning the status of payments for labor, materials, or services furnished in the prosecution of the work.

(4) No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the legal successors of the Owner.

(5) For the purposes of this bond, the name and address of the Authorized Agent of the Owner to whom correspondence and telecommunications may be addressed and/or with whom business concerning this bond may be conducted will be as follows:

Mr. Frank Rucker
1255 South Loop Road
College Park, GA 30337

(6) Further, this bond shall be the Performance Bond furnished under O.C.G.A. §§ 36-91-70, et seq. and shall be subject to increase in the penal amount of the bond pursuant to such statutes of the Agreement.

Approved as to form: **_____** **Senior Assistant City Attorney**	**Contractor**
Corporate Surety: **_____** **Surety Name (Type)** **By:_____** **Attorney-In-Fact (Sign)** **Name:_____** **Attorney-In-Fact (Type)** **(Seal)**	 **Signature:_____** **__** **Name:_____** **__** **Title:_____** **___** **ATTEST:** **_____** **_** **SECRETARY/ASST. SECRETARY** **[Affix Corporate Seal]**

EXHIBIT D-1

ATTACHMENT 2

Payment Bond

INSTRUCTIONS

1. **This form is required for use in connection with the Agreement identified on its face. There shall be no deviation from this form without approval by the City.**

2. **The full legal name and business address of the Principal shall be inserted in the space designated "Principal" on the face of the form. The bond shall be signed by an authorized person. Where such person is signing in a representative capacity (e.g., an attorney-in-fact), but is not a member of the firm, partnership, or joint venture, or an office of the corporation involved, evidence of this authority must be furnished.**

3. **Corporation executing the bond as surety must be among those appearing on the U.S. Treasury Department's most current list of approved sureties and must be acting within the amounts and limitations set forth therein.**

4. **Corporate surety shall be duly authorized by the Commissioner of Insurance of the State of Georgia to transact surety business in the State of Georgia.**

5. **Do not date this bond. The City will date this bond the same date or later than the date of the Agreement.**

6. **The Surety shall attach a duly authorized power-of-attorney authorizing signature on its behalf of any attorney-in-fact.**

7. **Corporations executing the bond shall affix their corporate seals. Individuals shall execute the bond opposite the word "Seal."**

8. **The name of each person signing this bond shall be typed or printed in the space provided.**

Payment Bond

KNOW ALL MEN BY THESE PRESENTS:

That_____as Principal ("Principal) and
(Legal Title and Address)

_____as Surety ("Surety") are held and firmly bound unto the
(Legal Name and Address of the Surety)

CITY OF ATLANTA as Obligee ("Owner") in the amount of: _____DOLLARS
(Insert Contract Price)

($_____), to which payment Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents. WHEREAS, the Principal has entered into an Agreement with the Owner bearing date of _____ and in the same monetary amount of this bond for **FC-8746, Taxiway Pavement Replacement - 2016** in accordance with the drawings and specifications prepared by: _____ which said Contract and Task
(Here insert Full Name and Title)

Order *are* incorporated herein by reference and made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and materials supplied in the prosecution of the work provided for in said Contract, then this obligation shall be void, otherwise it shall remain in full force and effect subject, however, to the following conditions:

(1) The said Surety to this bond, for value received, hereby stipulates and agrees that no change or changes, extension of time or extensions of time, alteration or alterations or addition or additions to the terms of the contract or to the work to be performed thereunder, or the specifications or drawings accompanying same, or the exercise of the Owner's right to do work, shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change or changes, extension of time or extensions of time, alteration or alterations or addition or additions to the terms of the contract or to the Work or to the specifications or drawings. In addition the Surety to this bond, for value received, hereby agrees to the provisions of the Contract for increases in the penal amount of this bond and waives notice from the Owner of any such changes.

(2) A claimant is defined as any subcontractor and any person supplying labor, materials, machinery or equipment in the prosecution of the work provided for in said Contract and as provided in O.C.G.A §§ 36-91-90, et seq.

(3) Every person entitled to the protection hereunder and who has not been paid in full for labor or materials furnished in the prosecution of the work referred to in said bond shall have the rights and obligations set forth in O.C.G.A §§ 36-91-90, et seq.

(4) No action can be instituted on this bond after one year from the completion of the Contract and acceptance of the Project by the proper public authorities.

(5) Further, this bond shall be the Payment Bond furnished in compliance with O.C.G.A. §§ 36-91-90, et seq. and shall be subject to increase in the penal amount of the bond pursuant to such statutes of the Agreement.

Approved as to form: **_____** **Senior Assistant City Attorney**	**Contractor**
Corporate Surety: **_____** **Surety Name (Type)** **By:_____** **Attorney-In-Fact (Sign)** **Name:_____** **Attorney-In-Fact (Type)** **(Seal)**	**Signature:_____** **__** **Name:_____** **__** **Title:_____** **__** **ATTEST:** **_____** **__** **SECRETARY/ASST. SECRETARY** **[Affix Corporate Seal]**

CITY OF ATLANTA
DEPARTMENT OF AVIATION
HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROJECT NUMBER FC-8746

TAXIWAY PAVEMENT REPLACEMENT 2016
EXHIBIT "E" - SCOPE OF WORK AND TECHNICAL SPECIFICATIONS

01) SCOPE OF WORK

The Pavement Evaluation 2010 and 2013 identified Taxiways L6 and F3 as well as portions of Taxiway E for partial pavement replacement based on many factors including the age, PCI Index, and the number and frequency of repairs. Portions of Taxiway E identified for replacement include the section from Ramp 2 to Taxiway E5 and from Taxiway D to Delta TOC entrance. A total of 38,000 square yards of pavement is to be replaced. Work includes concrete pavement, centerline lights, and subgrade repair.

02) CONSTRUCTION

CONTRACTOR shall perform the work in accordance with the furnished specifications and instructions.

03) TECHNICAL SPECIFICATIONS

The following specifications and technical documents form a part of the contract:

CITY OF ATLANTA
DEPARTMENT OF AVIATION
HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROJECT NUMBER FC-8746
TAXIWAY PAVEMENT REPLACEMENT 2016
EXHIBIT E - LIST OF TECHNICAL SPECIFICATIONS

DOA STANDARD SPECIFICATIONS

PART I - SPECIAL PROVISIONS
Item SP-1 Mobilization
Item SP-2 Project Contingency
Item SP-3 Cancelled or Delayed Runway or Taxiway Closure Periods
Item SP-4 Traffic Control
Item SP-5 Utility Coordination, Scheduling, and Relocation
Item SP-6 Watering for Dust Control
Item SP-7 As-built Documents and Survey
Item SP-8 Aircraft Movement Area (AMA) Escorting
Item SP-9 Airfield Personnel Qualifications

PART II - EARTHWORK
Item P-101 Bituminous Pavement Crack Repair
Item P-150 Removal of Pavements and Miscellaneous Items
Item P-152 Excavation and Embankment
Item P-153 Controlled Low Strength Material (CLSM)
Item P-156 Temporary Air & Water Pollution, Soil Erosion, and Siltation Control

PART III – FLEXIBLE BASE COURSES
Item P-209 Crushed Aggregate Base Course

PART IV - RIGID PAVEMENT
Item P-401 Bituminous Pavement
Item P-402 Hot Mix Recycled Asphaltic Concrete
Item P-432 Mill Asphaltic Concrete Pavement

PART V - RIGID PAVEMENT
Item P-501 Portland Cement Concrete Pavement
Item P-502 Grind Concrete Pavement

PART VI - MISCELLANEOUS
Item P-602 Bituminous Prime Coat
Item P-603 Bituminous Tack Coat
Item P-605 Joint Sealing Filler
Item P-615 Site Concrete
Item P-621 Pavement Markings and Marking Removal
Item P-629 Coal Tar Sealer/Rejuvenator
Item P-630 Thermoplastic Coal Tar Emulsion Sealcoat

PART VII - DRAINAGE AND UTILITIES
Item D-701 Pipe for Storm Drains
Item D-705 Pipe for Underdrains
Item D-751 Manholes, Catch Basins, and Inlets

PART VIII - TURFING

Item T-901	Seeding
Item T-904	Sodding
Item T-905	Topsoil
Item T-908	Asphalt Spray Mulching

PART IX - UTILITIES

Item U-150	Utility Casings

PART X – AIRFIELD ELECTRICAL

Item L-100	Airport Lighting Systems
Item L-108	Airport Underground Cable
Item L-110	Airport Underground Electrical Duct
Item L-111	Underground Electrical Manholes
Item L-112	Airfield Electrical Installation Testing
Item L-116	Directional Bore
Item L-120	In-pavement Taxiway Centerline Lights
Item L-121	Medium Intensity Taxiway Edge Lights
Item L-122	Internally Lighting Taxi Guidance Signs
Item L-124	Removal of and Connecting to Existing Equipment
Item L-125	Temporary Wiring and Fixtures for Continuity of Lighting During Nighttime and Inclement Weather

SECTION SP-1 MOBILIZATION

01) DESCRIPTION

a) This item shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various items on the project site.

b) This item is also intended to compensate the Contractor for all costs incurred in providing security and SIDA escorting as set forth in these specifications; for providing necessary warning devices; all City radios as set forth in these specifications and plans; for providing all temporary fencing and gates required at access routes and the removal of the same at the completion of the project; and to provide final clean-up and restoration of the area.

c) Security Checkpoint The Contractor will be required to set up a security checkpoint at the entrance of the SIDA as shown on the drawings. Contractor shall be responsible for all upkeep, including but not limited to, maintenance of electrical and mechanical systems, trash removal, cleaning, etc. The Contractor shall pay for Uniformed Security Guards provided by the City to man the checkpoint while being used.

d) Contractor's Operations When the Contractor is working in the Air Operations Area (AOA) adjacent to or on live runways, taxiways, aprons, or traveling along the NLVR, all operations shall be in accordance with the "Air Operation Area Control" and "Airport Security Requirements" sections of the contract documents.

e) Staging Area The Contractor shall be provided a staging area and material stockpile area. Its limits shall be as agreed by the City. The staging area shall be considered to have public access and be fenced. All required utilities for the Contractor's batch plants and staging area shall be arranged and promptly paid for by the Contractor directly with the appropriate utility agency. Utility arrangements are subject to the City's approval. No separate payment shall be made for any item required for the Contractor to enclose and set up his operational areas. Contractor shall restore the site to its original condition, to the satisfaction of the City upon completion of the contract work. Grassing is required as a part of the restoration. No separate payment shall be made for any restoration work.

f) City Radios The Contractor shall also furnish a minimum of three Motorola APX6000 P25 portable, two-way, hand-held radios equipped to operate on the City's frequency. These radios shall be monitored at all times to ensure proper coordination and safety. The Contractor shall maintain the radios in operating condition during the contract. The radios shall be configured and programmed to interface with Atlanta Airport systems and surrounding jurisdictions. They shall be furnished complete with the following Motorola accessories:

Item	Model No.
IMPRES Li-Ion 4300mAh Battery	NNTN7033
IMPRES Single-Unit Rapid Rate Charger	WPLN7080
Remote Speaker Microphone	PMMN4083
Carry Holder	PMLN5709

The contractor shall utilize Atlanta Communications to purchase and program the radios. Contact phone number is (404) 875-9316.

The radios shall be issued in the following manner:

1. One radio at the security Guard Booth
2. One for each escort vehicle

The Contractor is advised that normal delivery time is approximately 4 weeks. All of the above radios shall be turned over to DOA Engineering in good working order at the completion of the work.

02) BASIS OF PAYMENT

a) Partial payments will be made as follows:

Month after Issuance of the NTP	Cumulative Percent of the Price to be Paid
1	50%
2	75%
3	95%

The final five percent (5%) of the amount bid for Mobilization shall be paid after demobilization and final cleanup of the Contractor staging/storage area and the entire jobsite.

The amount bid for Mobilization shall not exceed seven percent (7%) of the total amount bid for the Contract.

b) Payment will be made under:

Item SP-1-1- Mobilization - Per Lump Sum.

END OF SECTION SP-1

SECTION SP-2

PROJECT CONTINGENCY

01) DESCRIPTION

A. This item shall consist of miscellaneous work to be accomplished at the direction of the Engineer. It shall include items of work consistent with and related to the project which are not shown on the plans but which may be necessary to the successful completion of the contract. It is expected that work under this item will be accomplished utilizing construction items established under the other sections of these specifications.

02) GENERAL PROCEDURES

A. All work performed under this section shall comply with the various sections of these specifications which are appropriate to the specific items involved. This work shall be further described, by the Engineer, in written form and/or on modifications to the contract drawings or on supplemental drawings. In any event, no work will be allowed under this section without the prior approval of the Engineer.

03) MEASUREMENT AND PAYMENT

A. Measurement and payment for work accomplished under this section shall be in accordance with the various sections of these specifications corresponding to the specific items of work involved and the contract unit price bid and accepted for these items.

B. In the event that work is proposed by the City using parties other than the Contractor, the Contractor shall be allowed a maximum markup of five percent (5%) for administration and coordination costs over and beyond the proposed cost of the work.

04) BASIS OF PAYMENT

A. Payment will be made under:

Item SP-2-1 – Project Contingency - Allowance

END OF SECTION SP-2

SECTION SP-3
CANCELLED OR DELAYED RUNWAY OR TAXIWAY CLOSURE PERIODS

01) DESCRIPTION

These items shall provide a means for compensating the Contractor in the event that a previously scheduled runway or taxiway nightly closure is either cancelled or delayed. These items of payment shall be eligible for measurement and payment only under the following conditions:

(a) The Contractor has given the Engineer sufficient evidence of ability to mobilize personnel, equipment, and materials in the area of the runway or taxiway closure at the time of the closure beginning.

(b) The effective time of the closure is reduced by the amount of the delay. If a closure is delayed less than 30 minutes, and/or the closure is extended, no compensation will be made.

(c) The delay of closure is during a period of time when conditions are conducive to the construction operation intended. In other words, delays of closures due to adverse weather will not be considered for compensation other than a possible contract time extension.

02) METHOD OF MEASUREMENT

(a) Contractor suspension time shall be measured by the work period (7 hours per period). It shall be defined as suspension of the entire work period, with an advance notice to the Contractor of at least two hours prior to the scheduled start time.

(b) Contractor standby time shall be measured by the minute for each minute the Contractor is delayed access to a scheduled runway or taxiway closure meeting the conditions described above under Description. This condition may last for a maximum of 120 minutes (2 hours) after the schedule start time.

(c) Contractor down-time shall be defined as the period of time between the end of the standby time and the normal end of the closure period where notice is given, when no work is able to be performed for the entire closure period. This item shall be measured by the work period (5 hours).

03) BASIS OF PAYMENT

(a) Payment will be made at the contract unit price per minute or per work period depending on the item description above. This payment shall be full compensation for mobilizing and having prepared to work all personnel and equipment, for all personnel, equipment, overhead, profit and all incidentals affected by the delay or cancellation. In accepting this payment, the Contractor agrees that there can be no right to claim for any additional compensation related to delays or agrees that there can be no right to claim for any additional compensation related to delays or cancelled closures. Claims for possible time extensions on a per contract day basis would still be applicable.

(b) It should be noted that the pay items included in this Section are based on each event regardless of the number of crews being used by the Contractor. No additional compensation shall be given to the Contractor if multiple crews are being used on a particular closure.

(c) Payment will be made under:

Item SP-3-1- Suspension Time (7 hour closure) - Per Period

Item SP-3-2- Standby Time - Per Minute

Item SP-3-3- Down-Time (5 hour closure) - Per Period

END OF SECTION SP-3

SECTION SP-4 TRAFFIC CONTROL

01) DESCRIPTION

(a) This work consists of providing maintenance of traffic control devices including flagmen to insure roadway and Taxiway/Apron safety by providing for safe orderly and predictable movement of traffic through all adjacent public roads, the airfield, and the areas to be constructed. All traffic controls devices shall be as required by the *Manual on Uniform Traffic Control Devices* (MUTCD), latest edition, FAA Advisory Circular-AC No: 150/5370-2F, *Operational Safety On Airports During Construction*, Special Provision Section 150-*Traffic Control* of the *State of Georgia Standard Specifications for the Construction of Transportation Systems*, State, and local agencies, or as shown by the construction drawings, whichever is more stringent.

(b) Contractor shall submit to Engineer for his approval a comprehensive plan detailing how traffic will be maintained under this Contract. Construction affecting traffic shall not commence until this plan is approved.

(c) The traffic control plan shall include all required devices, including but not limited to; signage, striping, flagger locations, barrels, and cones to meet the requirements of the Manual on Uniform Traffic Control Devices (latest edition). Taper lengths, distances between traffic control measures, and dimensions between signs must be shown.

02) MATERIAL

(a) Material shall conform to the requirements of Special Provision Section 150-Traffic Control of State of Georgia Standard Specifications for the Construction of Transportation Systems, and the FAA Advisory Circular listed above.

03) CONSTRUCTION

a) Construction shall conform to the requirements of Special Provision Section 150-Traffic Control of the State of Georgia Standard Specifications for the Construction of Transportation Systems.

b) Contractor shall furnish and install construction signage, traffic barriers, barricades, and permanent traffic control signage. Requirements are shown on the Phasing Plans of the construction drawings.

c) Low Profile Barricades. The Contractor will furnish Low Profile Barricades and lights to be used in various phases during construction. Contractor shall be responsible for assembling the lights on the barricades and maintaining and moving barricades as necessary during contract. Contractor shall also maintain all lights and shall be responsible for any repairs or replacement needed during contract. See plans for more information and details.

04) METHOD OF MEASUREMENT

(a) The activities to maintain traffic control as specified shall be paid as lump sum. The relocation of items used to perform the maintenance of traffic throughout the various phases of construction shall be included in this item.

05) BASIS OF PAYMENT

(a) Payment will be made at the proposed lump sum price to complete maintenance of traffic. The price shall be full compensation for performing maintenance of traffic as required by the Contract, including furnishing all materials as required, labor, equipment, tools and incidentals to complete the item.

(b) Partial payments shall be made as follows:

1) Fifteen percent (15%) of the Traffic Control item will be paid when the Comprehensive Traffic Plan and scheduling plan has been approved.

2) Seventy-five percent (75%) of the Traffic Control item will be prorated on each partial payment in respect to the percent complete of all work on the Contract.

3) The final ten percent (10%) of the Traffic Control item will be paid when all work is complete.

Each partial payment shall be described in a payment schedule submitted by the Contractor and approved by the Engineer. The Contractor's payment schedule shall be based on the approved baseline schedule. After approval, the payment schedule shall not be adjusted unless there is a change to the baseline schedule impacting the performance of Traffic Control work.

(c) Payment will be made as follows:

Item SP-4-1 Traffic Control - Per Lump Sum

END OF SECTION SP-4

SECTION SP-5

UTILITY COORDINATION, SCHEDULING, AND RELOCATION

1 DESCRIPTION

(a) This section covers locating all existing utilities, coordinating with utility companies and scheduling activities to maintain, relocate or abandon all utilities within the project site

(b) This section covers payments to utility companies for the relocation of utilities.

2 GENERAL PROCEDURES

(a) All work performed under this section shall comply with the various sections of these specifications which are appropriate for each specific item of work. Anticipated coordination durations shall be shown on the preliminary schedule submitted with the bid.

(b) Contractor shall record and document all original utility locations and dimensions as well as all new or reinstalled utility locations and dimensions as described in Section SP-7 As-Builts.

(c) Contractor shall contact each owner of utilities within the project site to coordinate the relocation of utilities as required by the construction documents and to schedule the work of the utility companies. Utility owners include, but are not necessarily limited to, Atlanta Gas Light Company, AT&T, Georgia Power Company, City of Atlanta Watershed Management, FAA, City of Atlanta Department of Information Technology (DIT), and City of Atlanta DOA for fueling, sanitary, and drainage.

(d) The Contractor shall prepare and submit to the Engineer for approval a Utility Coordination and Scheduling Plan. No utility relocation work may begin prior to approval of the Plan. The Plan shall provide the following information:

1) Identify all potential utility conflicts and crossings.

2) Describe in general terms how the various types of conflicts will be eliminated or mitigated, and how crossings will be protected, to ensure no disruption of utility service.

3) Provide a utility phasing schedule, coordinated with the baseline schedule and the Construction Phasing Plan, showing all utility relocation activities and impacts, if any, on the planned road work.

4) Provide contact names and telephone numbers for each utility.

5) Provide a schedule for pre-construction and coordination meetings with each utility.

(e) Contractor shall engage each utility company for the relocation of that utility company's facilities. If any utility owner elects to have the Contractor relocate its facilities, the cost of that relocation shall be covered by this section; however, the cost of the relocation work paid to the Contractor shall be in accordance with Part GC-39 "Pricing of Adjustments" of the Contract.

3 METHOD OF MEASUREMENT

(a) Location of existing utilities as well as coordinating and scheduling activities to maintain, relocate or abandon utilities shall be treated as a lump sum, and will not be measured directly for payment.

4 BASIS OF PAYMENT

(a) Payment will be made at the proposed lump sum price to complete utility coordination and scheduling.

(b) Partial payments for utility coordination and scheduling shall be made as follows:

1) Fifteen percent (15%) of the contract item will be paid when the complete Utility Coordination and Scheduling Plan has been approved.

2) The remaining eighty-five percent (85%) of the utility coordination and scheduling item will be prorated on each partial payment in respect to the percent complete of the utility coordination and scheduling effort. Each partial payment shall be described in a payment schedule submitted by the Contractor and approved by the Engineer. The Contractor's payment schedule shall be based on the approved baseline schedule. After approval, the payment schedule shall not be adjusted unless there is a change to the baseline schedule impacting the performance of utility coordination and scheduling work.

(c) Payment for the physical relocation of utility facilities will be made under a Contract allowance.

1) Payment for utility relocation shall be made at the actual cost to each utility company for all work required to relocate that utility company's facilities.

(d) Payment will be made under:

Item SP-5-1 – Utility Coordination & Scheduling – Per Lump Sum

END OF SECTION SP-5

SECTION SP-6

WATERING FOR DUST CONTROL

01) DESCRIPTION

This item shall consist of furnishing water for the purpose of dust control on the Airfield Pavement areas, roads, construction site, safety areas, staging areas, and other locations when directed by the Engineer. The Contractor shall be required to have sufficient number of pieces of equipment available on the project site to ensure that dust does not impact the operations of the airport.

02) CONSTRUCTION METHODS

Water, when required, shall be applied at the locations, in the amounts, and during the hours, including nights, as directed by the Engineer. An adequate water supply shall be provided by the contractor. The equipment used for watering shall be of ample capacity and of such design as to assure uniform application of water in the amounts directed by the Engineer.

03) METHOD OF MEASUREMENT

Watering shall be measured for payment by the hour regardless of the number of pieces of equipment required to properly control the dust starting, as directed by the Engineer, from the beginning of the watering operations at the point of delivery on the project, until the Engineer determines that watering may cease.

04) BASIS OF PAYMENT

(a) Payment shall be made at the contract unit price per hour for watering. This price shall be full compensation for furnishing all materials, labor, equipment, tool and incidentals necessary to complete the item.

(b) Payment will be made under:

Item SP-6-1 – Watering for Dust Control – Per Hour

END OF SECTION SP-6

SECTION SP-7

AS-BUILT DOCUMENTS AND SURVEY

01) DESCRIPTION

(a) General: Do not use As-Built plans and specification documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Owner's reference during normal working hours.

(b) Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.

2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.

3. As-built Survey: Provide one reproducible copy of topographic survey of the project area after construction has been completed bearing seal of the Professional Land Surveyor in responsible charge. The survey shall be tied to the Primary or Secondary Airport Control Points (PACS or SACS). Provide survey results electronically as described in DWG format (AutoCAD 2012 or earlier). Data should be provided in 3D format (northing, easting, elevation, or Y, X, Z) based on the Airport Grid coordinate system and gathered at a minimum as follows:

   a. Paved Areas: points @ 25’ foot cross-sections , plus at low and high point stations.
   b. Graded Areas – data points on 25’x25’ grid
   c. Ditches – Three point profile: centerline and each edge of bank. Additional points as needed to define ditch.
   d. Survey shall be of an accuracy 0.1 ft on pavement and 0.2 ft on soil.
   e. Newly installed above ground feature asbuilt locations including signs, lights, manholes, inlets, buildings/shelters, electrical equipment (transformers, racks, etc), navaids, and antennas. These features shall be clearly identified on the CAD survey file using labels or layer names.

4. Note related Change Order numbers where applicable.

5. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.

6. Upon completion, submit the complete set of record drawings, complete stamped survey as-built drawing, and electronic CAD survey files to the Owner for the Owner's records.

7. CAD files shall meet the following requirements:

a. Use of DOA CAD Airport Grid template to ensure coordinate system compatibility.
b. For utilities, adherence to the layering conventions embedded in the DOA CAD templates, use of the block library embedded in each template and all key utility data (inverts, line diameters, etc.) entered into the object tables assigned to each utility feature block
c. All labels on separate labels/annotation layers - no annotations on the data layers.
d. Linear features should be polylines.

(c) Record Specifications: Maintain one complete copy of the Project Manual (Specifications and Contract), including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show variations in actual Work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.

1. Upon completion of the Work, submit record Specifications to the Owner for the Owner's records.

(d) Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.

1. Upon completion of mark-up, submit complete set of record Product Data to the Owner for the Owner's records.

(e) Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Owner for the Owner's records.

02) METHOD OF MEASUREMENT

(b) The activities to provide As-built documents shall be paid as lump sum.

03) BASIS OF PAYMENT

(c) Payment will be made at the proposed lump sum price to complete and deliver the asbuilt documents. The price shall be full compensation for performing the asbuilt survey and for delivering one conformed set of redlined asbuilt documents and a set of electronic CAD files as specified herein. This price shall include all materials as required, labor, equipment, tools and incidentals to complete the item. Final payment will not be made until Engineer of Record verifies the Contractor's asbuilt documents and survey meet the requirements specified herein.

(b) Payment will be made as follows:

Item SP-7-1 – As-Builts – Per Lump Sum

END OF SECTION SP-7

SECTION SP-8 AIRCRAFT MOVEMENT AREA (AMA) ESCORTING

01) DESCRIPTION

a) This item is intended to compensate the Contractor for all costs incurred in providing aircraft movement area (AMA) escorting and airfield crossing guards as set forth in these specifications. All references to AMA escorts in this specification shall include airfield crossing guards.

b) When the Contractor is working in the AMA, adjacent to or on active runways and/or taxiways, the Contractor shall arrange for airfield escorting services with an independent Department of Aviation approved contractor ("Escorting Contractor"). The Escorting Contractor must be a separate business entity from the Contractor and must be engaged solely for the purpose of providing escorting services under the Contract and may not provide any other services under the Contract. Contractor may not contract/subcontract with other business entities providing additional services under the Contract unrelated to escort services for the purpose of also providing escort services. For example, if Contractor has engaged the services of ABC Company to provide paving under the Contract, it may not use ABC Company to provide escort services.

c) Only DOA-certified AMA escorts shall provide airfield escorting of construction vehicles to and from the construction site. The Contractor shall be responsible for employing sufficient personnel to conduct airfield escorting. Failure to have sufficient AMA-certified airfield escorts on-duty may delay or cancel construction activities located on the AMA.

d) Prequalification. AMA Escorts shall possess one of the following: (1) previously or currently hold an ATL AMA badge for more than 1 year; (2) previously or currently hold an ATL Crossing Guard License; (3) employed or previously employed by the FAA as an Air Traffic Controller at ATL; (4) hold a current FAA Pilots License for more than 1 year; or (5) perform airfield safety inspections in compliance with FAA Advisory Circulars or through State Certification Program for more than 1 year. Regardless of qualifications, a candidate will be disqualified if the candidate has been (1) involved in an airfield "surface incident" or "runway incursion" as defined by the FAA; (2) received a suspension or revocation of their AMA or Airfield Crossing Guard License; or (3) is unable to pass the examination.

e) Training. The company contracted to provide airfield escorting shall submit potential candidates to the Construction Manager for DOA-Airside Operations Division review and acceptance. Sufficient time should be taken into consideration for qualification review and training. The approved airfield escorting company shall schedule training for potential AMA escorts through the DOA-Airside Operations training course prior to providing airfield escorting duties.

The AMA escort vehicle drivers shall be trained and familiar with requirements of Hartsfield-Jackson Atlanta International Airport within the SIDA and AMA and communicating on both the City radio frequency and the FAA tower frequencies. Each candidate shall successfully pass a written exam accessing their knowledge of the aircraft movement area prior to receiving AMA driving privileges and receive an AMA badge prior to entering the AMA.

f) Badging Requirements. AMA Escorts shall be badged and trained in accordance with Exhibit "G", Airport Security Requirements for security and ramp driver safety training and receive an ATL SIDA badge with a driving ("D") and escorting ("E"), if applicable, designation. Airfield Crossing Guards shall meet same requirements.

g) Aircraft Movement Area Escort Vehicles. AMA escort vehicles shall have:
   1. A high-intensity yellow strobe light mounted on the uppermost part of the vehicle structure in accordance with FAA AC 150/5210-5C;
   2. Continuous two-way ground control radio communications with the Air Traffic Control Tower; and
   3. A City Motorola radio to escort vehicles and equipment to and from the sites. See Section SP-1 for description of City radios.

All airfield escort vehicles shall be in compliance for insurance, marking and access in accordance with this contract. The airfield escort vehicle shall be distinctively marked and not mistaken for other construction support vehicles.

h) Ground Control Radios. The Contractor shall be required to obtain and maintain 2-way radios equipped to operate on the ground control frequency used by the FAA's Air Traffic Control Tower. This frequency shall be monitored at all times by the contractor's vehicle escorts while controlling construction traffic across aircraft movement areas to assure proper coordination and safety. The Contractor shall supply one ground control radio for each escort vehicle. Contractor shall utilize Atlanta Communications to purchase and program radios. Contact for Atlanta Communications can be found in SP-1 paragraph 01)e.

These radios shall become the property of the City upon completion of the project. Contractor shall submit ground control radios to the Engineer. The Contractor is advised that normal delivery time is approximately 4-6 weeks.

Ground control radios shall meet the following requirements:

1. Radio units for communication with the FAA Air Traffic Control Tower shall be ICOM-A110 or approved equal. Radio should be specifically designed for vehicle mounting and providing a minimum of 30 watts PEP transmit power from a 12 volt power supply. Radios must be capable of operating at full output across the aviation band spectrum. Power connections to the radio must be modified for use with a 12 volt vehicle power outlet.

2. External antennas must be a vehicle magnetic mount type with the antenna element tuned specifically for efficient operation across the aviation band spectrum. The antenna unit must include sufficient coaxial cable length to allow connection to the radio in a normal installation position inside the vehicle and must include a connector compatible with the antenna connector on the chosen radio unit. Contractor must supply one antenna unit per radio purchased.

i) Prior to conducting any airfield escorting duties, DOA will establish an approved construction haul route to be utilized by the escorts to escort the contractors' vehicles to the construction site. Escorts may not alter, amend or create construction haul routes. Escorts are not authorized to close any portion of the AMA for any purpose. All requests shall be made through the project's Construction Manager.

02) BASIS OF PAYMENT

a) Partial payments will be made as follows:

Month after Issuance of the NTP	Cumulative Percent of the Price to be Paid
1	16%
2	33%
3	50%
4	No Additional Payment
5	No Additional Payment
6	No Additional Payment
7	66%
8	84%
9	100%

b) Payment will be made under:

Item SP-8-1 – Aircraft Movement Area (AMA) Escorting – Per Lump Sum.

END OF SECTION SP-8

SECTION SP-9 AIRFIELD PERSONNEL QUALIFICATIONS

01) DESCRIPTION

a) This section defines the required qualifications for the Contractor's personnel working on the following items:

   a. Airfield striping and marking
   b. Airfield joint sealing
   c. Airfield electrical work

02) PERSONNEL QUALIFICATIONS

a) Striping and Marking Personnel Qualifications:

The striping shall be performed by personnel that have experience performing airfield projects of similar scope and magnitude as what is required in this contract. Refer to Specification P-621 for technical requirements.

- The Project Manager shall have a minimum of five (5) years' experience overseeing airfield striping operations.
- The Superintendent shall have a minimum of three (3) years' experience overseeing crews performing airfield work.
- Each operator and/or technician shall have a minimum of one (1) year of experience performing airfield striping.

A resume shall be submitted for the Project Manager and Superintendent. For each of the other personnel, the Contractor shall provide a list of airports where the person worked, dates of work, and references. Information must be provided as a submittal for review and approval prior to the start of work in the field. Failure to provide required documentation will result in a schedule delay to the Contractor and removal of the subcontractor from the project. The Contractor may submit multiple people for approval to allow for flexibility in meeting schedules.

b) Joint Sealing Personnel Qualifications:

The joint sealing shall be performed by personnel that have experience on airfield projects of similar scope and magnitude as what is required in this contract. Refer to Specification P-605 for technical requirements.

- The Foreman shall have a minimum 5 years' experience directing joint sealing operations.
- The Sawman shall have a minimum 2 years' experience.
- Laborers and Joint Strikers shall have a minimum of one year experience running tools pertaining to joint sealing.

A resume shall be submitted for the Foreman. For each of the other personnel the Contractor shall provide a list of airports where the person worked, dates of work, and references. Information must be provided as a submittal for review and approval prior to the start of work in the field. Failure to provide required documentation will result in a schedule delay to the Contractor and removal of the subcontractor from the project. The Contractor may submit multiple people for approval to allow for

flexibility in meeting schedules.

c) Electrical Personnel Qualifications:

Electrical work on the airfield shall be performed by personnel that have experience on airfield projects of similar scope and magnitude as what is required in this contract. Refer to Electrical Specifications "L-" series for technical requirements. All personnel in a field supervisory position and/or crew leader shall have a minimum of 3 years' experience with the following:

- Medium Voltage Constant Current Series circuits.
- Installation of airfield lights (Runway Guard, Taxiway Centerline, Taxiway Edge, Clearance Bar, Runway Centerline, Runway Edge and Touch down Zone) including setting light base cans and proper torqueing of fixtures.
- Troubleshooting and installation experience with airfield lighting system equipment such as Constant Current Regulators, Airfield Lighting Control and Monitoring System, Land and Hold Short Power and Control Units and Brite Control System.
- Performing Insulation Grounding Resistance testing.

A resume shall be submitted for key personnel. The Contractor shall provide a list of airports where the person worked, dates of work, and references. Information must be provided as a submittal for review and approval prior to the start of work in the field. Failure to provide required documentation will result in a schedule delay to the Contractor and removal of the subcontractor from the project. The Contractor may submit multiple people for approval to allow for flexibility in meeting schedules.

03) METHOD OF MEASUREMENT

03) This item shall not be measured for payment.

04) BASIS OF PAYMENT

a) No payment shall be made for this item.

END OF SECTION SP-9

SECTION P-101
BITUMINOUS PAVEMENT CRACK REPAIR

01) DESCRIPTION

a) This item shall consist of repair of cracked bituminous pavements. The work shall be accomplished in accordance with these specifications and the applicable drawings.

02) EQUIPMENT

a) All equipment shall be specified hereinafter or as approved by the Engineer. The equipment shall not cause damage to the pavement to remain in place.

03) MATERIALS

a) JOINT SEALERS. Joint sealing materials shall meet the requirements of the following tests and/or specifications:

   a. ASTM D 3581 - Joint Sealant, Hot-Applied, Jet-Fuel-Resistant Type, for Portland Cement Concrete and Tar-Concrete Pavements
   b. ASTM D 6690 - Joint and Crack Sealants, Hot-Applied, for Concrete and Asphalt Pavements
   c. Fed. Spec. SS-S-200 – Sealing Compounds, Two-Component, Elastomeric, Polymer Type, Jet-Fuel-Resistant, Cold Applied.

b) Each lot or batch of sealing compound shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, the safe heating temperature, and shall be accompanied by the manufacturer's certification stating that the compound meets the requirements of this specification.

04) CONSTRUCTION

a) CRACK PREPARATION. All joints and cracks in bituminous pavements shall be cleaned of joint and crack sealer, debris, and vegetation. If vegetation is a problem a soil sterilant shall be applied.

b) CRACK FILLING. Cracks and joints wider than 3/8 in shall be filled with a mixture of emulsified asphalt and aggregate up to a level shown in the Plans. The aggregate shall consist of limestone, volcanic ash, sand, or other material that will cure to form a hard substance. The combined gradation shall be as shown in Table 1.

Table 1

Sieve Size	Percent Passing
No. 4	100
No. 8	90-100
No. 16	65-90
No. 30	40-60
No. 50	25-42
No. 100	15-30
No. 200	10-20

Up to 3% cement can be added to accelerate the set time. The mixture shall not contain more than 20% natural sand without approval in writing from the Engineer. The proportions of asphalt emulsion and aggregate shall be determined in the field and may be varied to facilitate construction requirements. Normally, these proportions will be approximately one part asphalt emulsion to five parts aggregate by volume. The material shall be poured into the joints or cracks or shall be placed in the joint or crack and compacted to form a voidless mass. Any material spilled outside the width of the joint shall be removed from the surface prior to constructing the overlay. Where concrete overlays are to be constructed, only the excess joint material on the surface and vegetation in the joints need to be removed.

c) INSTALLATION OF SEALANTS. Sealants shall be installed in accordance with the following requirements:

Hot Poured Sealants. The joint sealant shall be applied uniformly solid from bottom to top and shall be filled without formation of entrapped air or voids. A backing material shall be placed as shown on the plans and shall be nonadhesive to the concrete or the sealant material. The heating kettle shall be an indirect heating type, constructed as a double boiler. A positive temperature control and mechanical agitation shall be provided. The sealant shall not be heated to more than 20°F below the safe heating temperature. The safe heating temperature can be obtained from the manufacturer's shipping container. A direct connecting pressure type extruding device with nozzles shaped for insertion into the joint shall be provided. Any sealant spilled on the surface of the pavement, structures and/or lighting fixtures, shall be removed immediately.

The use of a backup material or bond breaker in the bottom of the joint to be filled is recommended to control the depth of the sealant, to achieve the desired shape factor, and to support the sealant against indentation and sag. Backup materials and bond breakers should be compatible with the sealant, should not adhere to the sealant, should be compressible without extruding the sealant, and should recover to maintain contact with the joint faces when the joint is open.

Jute, paper, or other moisture absorbing material shall not be used for the backing material. The backing material shall be rubber, butyl rubber, or other approved material that will not react with the joint sealer and will not form a gas when the hot joint sealer is applied.

d) TIME OF APPLICATION. The pavement temperature shall be above 50°F at the time of installation of the hot poured joint sealing material.

05) METHOD OF MEASUREMENT

a) Bituminous pavement crack repair shall be measured by the linear foot of repair and sealant in place, completed, and accepted.

06) BASIS OF PAYMENT

a) Payment for bituminous pavement crack repair shall be made at the contract unit price per linear foot. The price shall be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Item P-101-1 Bituminous Pavement Crack Repair – Per Linear Foot

END OF ITEM P-101

SECTION P-150 REMOVAL OF PAVEMENTS AND MISCELLANEOUS ITEMS

01) DESCRIPTION

a) This section consists of miscellaneous demolition and removal items, which will consist of the breaking up and removal of pavements. This scope also includes the removal and disposal of all types of storm drains, light poles, signs, and drainage structures of any description.

b) The contractor shall accomplish the demolition and disposal in accordance with all local, state, and federal regulations and laws in regard to hazardous or toxic materials and shall obtain any permits required to accomplish the work.

02) CONSTRUCTION

a) Pavement removal shall consist of breaking up and removal of all types of bituminous and concrete pavements, driveways, sidewalks including base courses, as indicated on the plans or as directed by the Engineer. Removed pavement shall become property of the Contractor and shall be disposed of off airport property. Any damage to pavement to remain shall be repaired at no cost to the Owner and in a manner acceptable to the Engineer or Owner.

b) Existing pipes 15” in diameter or greater shall be removed. Salvaged pipe shall become the Contractor’s property and shall be disposed of off airport property.

c) Removal and reinstallation of light posts and all signage shall consist of entire removal of the items and appurtenances, including posts, anchors, incidentals and storage of all materials. These items shall be reinstalled as indicated on the Plans.

d) Removal of drainage structures involves the demolition and removal of such items as inlets, manholes, slope drain inlets or outlets where so indicated on the plans. Frames, grates, or other hardware appurtenant to the items to be removed shall remain the property of the City and be delivered to the Department of Aviation maintenance area or disposed of off airport property as directed by the Engineer.

03) METHOD OF MEASUREMENT

a) Removal of pavements and base courses will be measured by the square yard, with no distinction made as to pavement type or thickness.

b) Removal of pipes including underdrains and grouting of abandoned pipes with diameters less than fifteen inches will not be measured for payment.

c) Removal and relocation of light poles and signs shall be measured for payment per each sign unit or light pole assembly removed and reinstalled.

d) Removal of miscellaneous concrete structures, including headwalls, slope drain inlets or outlets, and bollards shall not be counted or measured for payment.

04) BASIS OF PAYMENT

a) Payment shall be made at the Contract unit price for removal of pavements and base courses.

This price shall be full compensation for sawing, breaking up, hauling, removal, and all incidental work necessary to complete the removal.

b) Payment shall be made at the Contract unit price for sign and light pole removal and relocation. This price shall be full compensation for all labor, tools, equipment and incidentals necessary to complete the work.

c) Separate payment will not be made for structure removal.

Payment will be made under:

Item P-150-1 Removal of Pavement and Base Courses, Variable Thickness – Per Square Yard

Item P-150-2 Remove and Relocate Sign – Per Each

Item P-150-3 Remove and Relocate Light Pole – Per Each

END OF SECTION P-150

SECTION P-152 EXCAVATION AND EMBANKMENT

01) DESCRIPTION

(a) This section consists of furnishing borrow, excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct embankments and other facilities in accordance with these specifications and in conformity with the lines and grades established by the Engineer as shown on the plans.

(b) All suitable materials taken from excavation of any contract item shall be used in the formation of the embankment, subgrade, and for backfilling as indicated on the plans, or as directed by the Engineer.

1) When on-site material is not sufficient to construct the embankment, the Contractor shall furnish material from his own off-Airport borrow site(s). In general the borrow material supplied shall be of such soil type and gradation that the material has the capacity of being tested in accordance with AASHTO T-180 and meets the stability requirements as specified under Section P-152, 03), g), 11).

(c) Classifications:

1) All material that is excavated and used for embankment shall be classified as "In-Place Embankment", “Borrow Excavation”, "On Site Excavation", "Backfill", “Rock Excavation or as “Trench Rock Excavation”.

2) In-Place Embankment shall include onsite excavation and offsite borrow excavation, hauling, manipulation, placement, grading, and compaction of all materials necessary to construct embankments as set forth on the plans and in these specifications.

3) Borrow Excavation shall consist of material approved by the Engineer and furnished by the Contractor from the Contractor’s off Airport borrow site(s).

4) Backfill shall include the excavation of unsuitable material, obtaining suitable replacement, hauling, placing and compaction of suitable material required to replace any unsuitable material which has been removed and disposed of. Unsuitable material may be placed on the finished slopes of the embankment when approved by the Engineer and deemed able to support vegetation. Deleterious materials such as wood, rubber, metal, paper, drywall, plastic, trash and other similar materials shall be disposed of off Airport property in a legal manner at no additional cost to the City.

5) Unsuitable material shall include strippings and other materials that will not meet the compaction requirements for In-Place Embankment. Organic composition will generally be considered the basis for designating a material unsuitable. Excess moisture content will not be considered a basis for designating a material unsuitable. If there is any dispute over the suitability of materials, the Engineer's opinion shall be final. Removal of unsuitable material will be as specified per Section P-152, 01), (c), 4).

6) The existing ground line shall be that surface which is defined by cross sections taken after all stripping and clearing and grubbing, and removal of pavement operations have been completed.

7) Trench Rock Excavation shall include rock in the various pipe and utility trenches. The Contractor shall expose and determine the extent of rock in trenches. The rock removal shall be accomplished at such time so as to not damage or disturb completed work.

8) Rock Excavation shall include all solid rock embedded in deposits, in unstratified mass, and conglomerate deposits which are so firmly cemented they present all characteristics of solid rock and which cannot be moved without drilling or blasting. This classification includes rock removed for the construction of underground structures such as manholes and vaults.

9) Excess embankment shall include materials remaining after embankments are complete and excavation has been completed to the grades shown on the plans.

10) Selective grading shall include the excavation, hauling, placement, and compaction including subgrade preparation, of all materials required to construct the areas as directed by the Engineer to final grades.

02) MATERIALS

(a) Geotextiles.

1) Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

i. Survivability: Class 2; AASHTO M 288.
ii. Grab Tensile Strength: 247 lbf; ASTM D 4632.
iii. Sewn Seam Strength: 222 lbf; ASTM D 4632.
iv. Tear Strength: 90 lbf; ASTM D 4533.
v. Puncture Strength: 90 lbf; ASTM D 4833.
vi. Apparent Opening Size: No. 60 sieve, maximum; ASTM D 4751.
vii. Permittivity: 0.02 per second, minimum; ASTM D 4491.
viii. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

03) CONSTRUCTION METHODS

(a) General. The rough excavation shall be carried to the necessary depth to obtain the specified depth of subgrade densification. Should the Contractor, through negligence or other fault, excavate below the designated lines and grades, the excavation shall be replaced with approved materials, in an approved manner and condition, at the Contractor's expense. The Engineer shall have complete control over the excavation, moving, placing, and disposition of all material and shall determine the suitability of material to be placed in embankments. All material determined unsuitable shall be disposed of off airport property or as directed by the Engineer. Topsoil shall be utilized as directed in Section P-152, 03), (f) contained hereinafter.

1) Before beginning excavation, grading, and embankment operations in any area, the area shall have all sediment control devices in place, be completely cleared and grubbed or stripped of all vegetation, and approved by the Engineer to proceed.

2) The Contractor shall inform and satisfy himself as to the character, quantity, and distribution of all material to be excavated. No payment will be made for any excavated material which is used for purposes other than those designated

3) Those areas outside of the pavement areas in which the top layer of soil material becomes compacted, due to hauling or to any other activity of the Contractor, shall be scarified and disced to a depth of 4 inches, as directed, to loosen and pulverize the soil.

All materials that would be deleterious to the establishment of grass shall not be incorporated into the top 4 to 6 inches of areas to be grassed. The Contractor shall remove any such material prior to commencement of the grassing operation.

4) If it is necessary to interrupt existing surface drainage, sewers or underdrainage, conduits, utilities, or similar underground structures, or parts thereof, the Contractor shall be responsible for and shall take all necessary precautions to protect and preserve or provide temporary services. When such facilities are encountered, the Contractor shall notify the utility owner as provided for elsewhere in these specifications, who shall arrange for their removal, if necessary. The Contractor shall, at its own expense, satisfactorily repair all damage to such facilities or structures which may result from any of his operations during the period of the contract.

(b) Excavation.

Excavation shall be performed as indicated on the contract plans to the lines, grades, and elevation shown, or as directed by the Engineer, and shall be made so that the requirements for formation of embankments can be followed. All unsuitable material encountered within the limits indicated shall be removed and disposed of as directed by the Engineer. During the process of excavation, the grade shall be maintained so that it will be well drained at all times. When directed, temporary drains and drainage ditches shall be installed to intercept or divert surface water which may affect the work.

1) If, at the time of excavation, it is not possible to place any material in its proper section of the permanent construction, it shall be stockpiled in approved areas for later use. Any stockpiling or re-hauling of material will be done at no additional cost to the City.

2) *For areas to be paved*, after all indicated areas have been excavated to the line, grades, and elevations shown, the Contractor shall follow the requirements of Section P-152, 03), (j) as contained hereinafter.

3) The Contractor shall excavate to the limits as indicated and/or implied on the plans. Widening or narrowing of the section and raising or lowering of the grade to avoid haul will not be permitted. The City reserves the right to make minor adjustments or revisions in lines or grades, if found necessary, as the work progresses due to discrepancies in the plans or to obtain satisfactory construction.

4) The disposition of existing structures and utilities shall be as indicated on the drawings, and as specified in other sections of these specifications.

5) In cut areas *not requiring paving*, the existing ground shall be compacted to a minimum depth of six (6) inches and to a density of not less than 90% of the maximum density, at optimum moisture, as determined by AASHTO T-180. Any unsuitable materials encountered shall be removed and paid for as specified herein.

6) No payment or measurement for payment will be made for suitable materials removed, manipulated, and replaced in order to obtain density. Any removal, manipulation, aeration, replacement, and recompaction of suitable materials necessary to obtain the required density shall be considered incidental to the excavation and embankment operations, and shall be performed by the Contractor at no additional cost to the project.

7) Stones or rock fragments larger than 2 inches in their greatest dimension will not be permitted in the top 6 inches of a pavement subgrade.

8) In cuts, all loose or protruding rocks on the back slopes shall be barred loose or otherwise removed to line or finished grade of slope. All cut and fill slopes shall be uniformly

dressed to the slope, cross section, and alignment shown on the plans or as directed by the Engineer.

9) Blasting, when necessary, will be permitted only when proper precautions are taken for the protection and safety of all persons, the work, and the property. All damage done to the work or property shall be repaired at the Contractor's expense. All operations of the Contractor in connection with transportation, storage, and use of explosives shall be approved by the Engineer. Any approval given will not relieve the Contractor of his responsibility in blasting operations. If any portion of the Work is over excavated by blasting, that portion will be restored to the plan elevations by filling with suitable material by the Contractor at no additional cost to the City.

10) Blasting for trench rock excavation shall be controlled by limiting particle velocity to 1"-2" per second at nearby structures. The use of a recording seismograph will be required for all detonations. The use of electrical detonation will not be allowed.

11) No measurement of trench rock excavation will be made until the Contractor demonstrates to the satisfaction of the Engineer that the material encountered must be drilled and blasted. Contractor must demonstrate that a crawler tractor having a minimum Flywheel Horsepower rating of 440 at 2100 RPM, or approved equal, and equipped with a single tooth ripper compatible with this type and size equipment will not penetrate the material. The specifications of the equipment used by the Contractor for this purpose shall be submitted to the Engineer for approval.

(c) Borrow Excavation

Borrow excavation shall consist of the excavation, loading and hauling of material from the Contractor's off Airport borrow area(s). The Contractor shall be totally responsible for paying for and obtaining all permits and meeting all requirements of all Local, State, and Federal Authorities for excavating borrow and hauling the material to the construction site. All cost associated with obtaining and supplying the borrow material shall be included in the cubic yard unit cost of "In-Place Embankment".

1) The borrow excavation shall be handled and placed as specified in these specifications for excavation and embankment.

2) In general the borrow material supplied shall be of such soil type and gradation that the material has the capability of being tested in accordance with AASHTO T-180 and meets the stability requirements as specified under Section P-152, (03), (g), (11).

3) To maintain the construction schedule, an appropriate portion of the Contactor's borrow material shall consist of a granular type of material that can be placed and compacted during wet conditions.

(d) Ditch Excavation.

1) Ditch excavation shall consist of excavating the drainage ditches to the templates, lines, and grades shown on the plans or as directed by the Engineer. The work shall be performed in proper sequence with the other construction. The location of all ditches shall be established on the ground. All satisfactory materials shall be placed in the taxiway or roadway embankments; all unsatisfactory materials shall be disposed of off Airport Property. The Engineer shall decide whether or not material from a given location is satisfactory. All necessary handwork shall be performed to secure a finish true to line, elevation, and cross-section, as designated.

2) Ditches constructed on the project shall be maintained to the required cross-section and shall be kept free of silt, debris, or obstructions until the project is accepted. Seeding and mulching of the slopes shall be done as soon as practical after the completion of the excavation. All work shall be in accordance with the Georgia Soil and Water Conservation Commission's *Manual for Erosion and Sediment Control in Georgia.*

3) No separate payment shall be made for ditch excavation. Payment for all excavated material shall be made at the contract unit price for *applicable items in the Measurement and Payment sections of this section.*

(e) Embankment areas shall be stripped or cleared and grubbed and existing pavement broken up and removed before existing cross sections are taken. Existing ground cross sections shall be taken before construction of the embankment will be permitted to start.

1) Immediately prior to the placing of the fill materials, the entire area upon which the embankment is to be placed, except where limited by rock, shall be scarified and broken by means of a disc harrow or plow, or other approved equipment, to a depth of 6 inches. Scarifying shall be done approximately parallel to the axis of the fill. All roots, debris, large stones, or objectionable material that would cause interference with the compaction of the foundation or fill shall be removed from the area and disposed of as directed by the Engineer. A thin layer (approximately 3 inches) of the fill material shall be spread over the scarified foundation and the whole area compacted as required in the specifications.

2) Where embankments are to be placed on existing slopes steeper than 3-to-1, horizontal benches shall be constructed. The benches shall be of a width sufficient to allow the placement of a maximum of three lifts of compacted embankment material between successive benches.

3) No direct payment shall be made for the ditch excavation performed under this section. The necessary clearing and grubbing, removal of pavement and the yardage removed will be paid for under the respective items of work as provided for elsewhere within the contract documents.

(f) Stripping shall include the removal of all vegetation and organic matter from areas not cleared and grubbed. Grass shall be removed to a depth of approximately 3 inches. No stripping will be required in areas that have been cleared and grubbed. All material excavated during the stripping operation shall be stockpiled at the work site, and is to be distributed over the finished grading of the side slopes and infields. The Contractor is to take this into account during the excavation and embankment operations. Payment for stripping operations is *incidental to the items in the Measurement and Payment sections of this section.*

(g) Formation of Embankments. Embankments shall be formed of satisfactory materials placed in successive horizontal layers of not more than 8 inches in loose depth for the full width of the cross section.

1) The grading operations shall be conducted, and the various soil strata shall be placed, to produce a soil structure as shown on the typical cross section or as directed. All materials entering the embankment shall be reasonably free of organic matter such as leaves, grass, roots, and other objectionable material. Soil, granular material, shale, and any other material permitted for use in embankment shall be spread in successive layers as specified.

2) Operations on earthwork shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing weather, or other unsatisfactory conditions in the field. The Contractor shall drag, blade, or slope the embankment to provide proper surface drainage.

3) The material in the layers shall be of the proper moisture content before rolling to obtain the prescribed compaction. Wetting or drying of the material and manipulation when necessary to secure a uniform-moisture content of within ±3 points of optimum moisture throughout the layer shall be required. Should the material be too wet to permit proper compaction or rolling, all work on all portions of the embankment thus affected shall be delayed until the material has dried to the required moisture content. Sprinkling shall be done with approved equipment that will sufficiently distribute the water. Sufficient equipment to furnish the required water shall be available at all times. Samples of all embankment materials for testing, both before and after placement and compaction, will be taken at frequent intervals. From these tests, corrections, adjustments, and modifications of methods, materials, and moisture content will be made to construct the embankment.

4) Rolling operations shall be continued until the embankments are compacted to not less than 90 % of the maximum density, at moisture content within ±3 points of optimum, as determined by AASHTO T-180 except as modified in Section P-152, 03), (j). Any areas inaccessible to a roller shall be consolidated and compacted by mechanical tampers.

5) During construction of the embankment, the Contractor shall route his equipment at all times, both when loaded and when empty, over the layers as they are placed and shall distribute the travel evenly over the entire width of the embankment. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay, or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

6) In the construction of embankments, starting layers shall be placed in the deepest portion of the fill and the outer areas of the fill to form a surface parallel to the finished grade lines. This surface shall drain away from any buildings and towards the location of the proposed drainage systems. The layers shall be constructed approximately parallel to the finished grade line and the drainage systems constructed as the embankment placement progresses.

7) Stone or fragmentary rock larger than 2 inches in their greatest dimension will not be allowed in the top 4 feet of the embankment. All fill material placed in the top 4 feet of the embankment shall be capable of being tested in accordance with AASHTO T-180. *In this project, the Contractor shall not use any rock fragments greater than 6 inches in diameter below 4 feet of the top of embankment.*

   If the Contractor proposes to use fill material below 4 feet of the top of the embankment that cannot be tested in accordance with AASHTO T-180 due to the size and amount of rock, the Contractor shall obtain approval from the Engineer prior to the placement of the material. To obtain the approval from the Engineer, the Contractor shall submit a plan for approval that describes the soil/rock mix fill material proposed to be used, including the type and gradation of the material, and how this material shall be brought up in layers to fill voids with the finer materials to form a dense, compacted mass of low compressibility. If the plan is approved, the Contractor shall then be required to demonstrate to the satisfaction of the Engineer in a test section the ability to consolidate and compact the embankment with a suitable mix of rock and finer material before proceeding with the use of this material. Rock or boulders from the project site shall not be disposed of outside of the excavation or

embankment areas, except at places and in the manner designated by the Engineer. Rock may be incorporated into the embankment provided that the larger sections are well separated and soil is worked and blended with the rock. No rock or broken pavement materials larger than 6 inches shall be placed in the embankments within ten feet (10') of the toe of slope or the slope face.

8) When rock, from on the Airport project site, is of such size that the material cannot be placed in layers of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment in layers as approved by the Engineer. The Contractor shall demonstrate to the Engineer in a test section the ability to consolidate and compact this material to the satisfaction of the Engineer before proceeding with use of this material. These lifts shall not be constructed above an elevation 4 feet below the finished subgrade.

9) Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material.

10) The Contractor shall be responsible for the stability of all embankments made under this contract and shall conduct all testing required at each borrow source and at the embankment to determine the angle of internal friction and the cohesion soil strength based on the ninety percent (90%) modified density within ±3 points of optimum moisture content as determined by AASHTO T-180 specification. Higher densities may be required on some soils to increase the soil strength in order to meet the stability requirements for the embankments. Borrow source material shall conform to the safe zone combination illustrated in the chart shown in Appendix 1 (P-152).

11) Following site demolition, prior to placement of embankment, the exposed ground surface shall be densified by rolling with a large, vibratory roller (CAT-CB564D or similar) making at least 2 complete passes in two perpendicular directions (4 total passes). Following densification, the site shall be proof rolled under the observation of the geotechnical engineer. Proofrolling shall be conducted with a fully loaded, tandem axle dump truck or similar pneumatic tired vehicle of about 30 tons gross weight. The purpose of proofrolling will be to detect weak or soft surficial zones that may require additional treatment prior to placement of embankment.

No embankment shall be placed until the required stripping, pavement removal, or unsuitable material removal, whichever the case may be, has been completed and the Contractor has taken cross-sections as directed by the Engineer.

(h) Selective Grading Selective grading shall consist of fine grading of areas where the existing ground is generally within +/- two feet of the grades shown in the plans or as directed by the Engineer.

Infield areas on this project will involve selective grading in a cut condition. Other than compaction requirements, cut areas shall meet the requirements specified under Section P-152, 03), (b) Excavation. Compaction requirements will be based on a proofroll observation procedure. Following stripping and excavation to proposed elevation minus topsoil and sod depths, the exposed ground surface shall be densified by rolling with a large, vibratory roller (CAT-CB564D or similar) making at least 2 complete passes in two perpendicular directions. Following densification, the site shall be proof rolled under the observation of the geotechnical engineer. Proofrolling shall be conducted with a fully loaded, tandem axle dump truck or similar pneumatic tired vehicle of about 30 tons gross weight. If excessive pumping of the soil is observed, the Engineer will decide whether the Contractor should remediate the insitu soil by various means. These means may include, but not be limited to, adding moisture to obtain optimum moisture content (no additional cost to Owner), scarifying and drying soil in rows (no additional cost to the Owner), chemical additives (paid for as material per ton), or borrow material (paid for as backfill). No additional payment for this remediation will be

granted except for that noted in parentheses. The Engineer and Owner have sole discretion on which remediation method to choose.

Embankment areas shall meet the requirements specified under Section P-152, 03), (g) Formation of Embankments. The exact limits of selective grading shall be established by the Engineer with the Contractor in the field prior to any operations by the Contractor in the areas designated.

(i) Equipment. The Contractor, unless otherwise specified, may use any type of earth-moving, compaction, and watering equipment he may desire or has at his disposal, provided the equipment is in a satisfactory condition and is of such capacity that the construction schedule can be maintained as planned by the Contractor and as approved by the Engineer in accordance with the total calendar days or working days bid for the construction. The Contractor shall furnish, operate, and maintain such equipment as is necessary to control uniform density, layers, section, and smoothness of grade.

(j) Preparation and Protection of the Top of the Subgrade.

1) Preparation of subgrade for all areas where pavement is to be placed under this contract *will consist of excavation and recompaction, as well as a proofrolling operation to ensure that at least 12 inches of subgrade is compacted* to a density of not less than 95% of the maximum density, at optimum moisture, as determined by AASHTO T-180. Payment for this work is to be included in the contract unit price for "Preparation of Subgrade". *All subgrade areas under proposed PCC pavement will be prepared in this manner. The areas under shoulder pavement shall be compacted at the density specified in Section P-152.*

2) After stripping, excavation, and confirmation survey, the Contractor shall then proof-roll the bottom of the excavation with a fully loaded, tandem axle dump truck or similar pneumatic tired vehicle of about 30 tons gross weight to identify weak or soft areas in the presence of a geotechnical engineer. If the proofrolling operation yields no visible soil movement and the results have been approved by the Engineer, the excavated area shall be compacted to a density of not less than 95% of the maximum density, at optimum moisture, as determined by AASHTO T-180. If during proof-rolling there are any irregularities or depressions that develop, these shall be corrected by loosening the material at these places and adding, removing, or replacing material until the surface is smooth and uniform and is proof-rolled to the satisfaction of the Engineer. Where rock cuts are made and refilled with selected material, any pockets created in the rock surface shall be drained toward the nearest proposed underdrain.

If moderate shoving continues to occur during the proof-rolling operations described above, the Contractor may be directed by Engineer to scarify the area, reshape, modify moisture, and recompact the excavated area to meet compaction requirements.

If severe shoving is observed in certain areas during proof-rolling operation and the geotechnical engineer deems underlying material as unsuitable, contractor shall undercut the amount specified by the Engineer to a maximum of 12 additional inches. Unsuitable materials shall be disposed of off airport by the Contractor. Undercut areas shall be replaced with a layer of surge stone followed by separation filter fabric followed by crushed aggregate base. This layer of crushed aggregate base shall meet Specification P-209. Contractor shall continue filling the remaining void with crushed aggregate base. It is recommended that the Contractor provide a ready supply of crushed aggregate base material during subgrade preparation in order to facilitate work during the critical taxiway and runway closures. Separation fabric shall be incidental to cost of installation and shall meet the requirements specified in Section 02) (a) above. The removal and replacement of the unsuitable area and all crushed

aggregate base and surge stone shall be paid for as "Backfill".

The Contractor shall notify the Engineer if any undercut areas require undercutting below the invert elevation of the nearest proposed underdrains. In these cases, the Engineer will need to lower the underdrains and issue revised underdrain elevations.

3) After grading operations are complete, all loose stones larger than two (2) inches in their greatest dimension shall be removed from the surface of all proposed graded paving areas and disposed of as directed by the Engineer.

4) After all drains, structures, ducts, and other underground appurtenances, except transverse and longitudinal underdrains along the edges or under the pavement have been completed, when all manipulation and shaping is complete, and subgrade has reached the bottom elevation of the base course, the subgrade is to be proof rolled by completely covering it twice (two passes) with a pneumatic tired roller weighing at least fifty (50) tons with four (4) tires of equal bearing pressure and 90 pounds per square inch of tire pressure. Any irregularities or depressions that develop under proof rolling shall be corrected by loosening the material at these places and adding, removing, or replacing material until the surface is smooth and uniform. Any portion of the area that is inaccessible to a roller shall be compacted with mechanical tampers. The material shall be sprinkled with water during compaction operations as directed by the Engineer.

Earthwork constructed under this contract and scheduled for paving under future contracts shall be proof rolled as specified above. There shall be no specific payment for this work and the cost thereof included in the unit price bid for "In-place Embankment".

5) Payment for proofrolling and correcting irregularities, and subgrade compaction described in Section 03) shall be included in the contract unit price for "Preparation of Subgrade".

6) When completed, the subgrade shall be true to the lines, grades, and cross-sections shown on the plans or as directed by the Engineer. At all times, the top of the subgrade shall be kept in such condition that it will drain readily and effectively. The Contractor shall take all precautions necessary to protect the subgrade from damage. This includes limiting of hauling over the finished subgrade to that which is essential for construction purposes. All ruts or rough places that develop in a completed subgrade shall be smoothed and recompacted. No subbase, base, surface course, or pavement shall be placed on the subgrade until the subgrade has been approved by the Engineer.

(k) Haul. No payment will be made separately or directly for haul on any part of the work. All hauling will be considered a necessary and incidental part of the work and its cost shall be considered by the Contractor and included in the contract unit price for the pay items of work involved.

(l) Tolerances. In those areas upon which a subbase or base course is to be placed, the top of the subgrade shall be of such smoothness that, when tested with a 16 foot straightedge applied parallel and at right angles to the center-line, it shall not show any deviation in excess of 1/2 inch, or shall not be more than 0.04 foot from true grade as established by grade hubs or pins. Any deviation in excess of these amounts shall be corrected by loosening, adding, or removing materials, reshaping, and recompacting.

On all other areas outside the pavement, base or subbase limits, the surface shall be of such smoothness that it will not vary more than 0.10 of a foot from true grade as established by grade hubs. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

(m) Testing. Compaction tests will be made for each 500 s.y. on each layer of each area of embankment or backfill and each 200 s.y. of each area on finished subgrade. Sufficient soil classification tests shall be made each 200 s.y. to accurately determine the classification of the top two feet of finished subgrade. Elevations of finished grades of the subgrade under the pavement area shall be checked to insure proper thickness and grades of base and surface to be placed thereon.

(n) Testing Procedures. The maximum density shall be determined by the appropriate method shown below:

1) Where all of the material passes a No. 4 sieve, use AASHTO T-180, Method A (or B).

2) Where the material contains particles larger than a No. 4 sieve, use AASHTO T-180, Method C (or D).

3) Where the material contains particles larger than 3/4 inch, follow the replacement procedure given in the note under Method C of AASHTO T-180.

The field density shall be determined in accordance with AASHTO T-191, ASTM D-1556, ASTM D-2937 or ASTM D-2922. ASTM D-2922 may be used if a minimum of every tenth test is run in accordance with AASHTO T-191, ASTM D-1556 or ASTM D-2937, for calibration. AASHTO T-224 shall determine the correction for coarse particles in the soil compaction tests.

The field moisture content shall be determined in accordance with AASHTO T-217, or ASTM D-2216.

(o) Conditioning of Soil Cement or Cement Treated Base – This effort includes the preparation of a smooth soil cement platform to install new PCC pavement. The Contractor shall be responsible for working the soil cement or cement treated base surface which may include milling to achieve a smooth surface. In addition, replacement of damaged and/or deficient soil cement stabilized base course with low slump, low strength concrete will be required as directed by the Engineer. Low slump, low strength concrete shall meet the requirements as defined in Section P-501.

1) Small areas of damaged or deficient soil cement stabilized base course shall be cut out and replaced with low slump low strength concrete. Removal of unsuitable material shall be incidental to the cost of low slump, low strength concrete.

04) METHOD OF MEASUREMENT

(a) The quantity for “Selective Grading” to be paid for shall be the number of square yards measured in the field based on required area to be graded per the Plans including within the limits of new pavement. Any areas outside this perimeter used as haul routes or otherwise disturbed by the Contractor shall not be paid for under any circumstances but will still require appropriate grading, dressing, topsoil, and seeding or sodding at no cost to the Owner. In addition, measurement will not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

(b) No specific measurement for payment will be made for Excavation, other than the rock items listed below and for “Excess Embankment”. Excess Embankment to be paid for shall be the number of

cubic yards of excess material that is not needed on site and shall be hauled off to a stockpile area on airport property as designated by the Airport or hauled offsite as determined by the Airport.

(c) The quantity of "Subgrade Preparation" to be paid for shall be the number of square yards measured in its final position in areas of new pavement on subgrade.

(d) Work in paved areas on subbase materials is not included in any P-152 pay items and is incidental to pavement pay items.

(e) No specific measurement for payment will be made for “Borrow Excavation”.

(f) The quantity of Rock or Trench Rock Excavation authorized and accepted by the Engineer to be paid for shall be the number of cubic yards measured. The quantity shall be computed by the average end area method using cross-sections taken before excavation of rock starts and after it is finished. The area used for calculations shall not exceed the neat line pay limits shown on the plans, where applicable. The measurement will include overbreakage unless caused by the negligence of the Contractor. Measurement will be made as “Trench Rock Excavation” for rock removed from pipe or utility trenches and as “Rock Excavation” for various structures such as manholes or vaults.

(g) The quantity of excess embankment to be authorized for payment shall be based on documented truck counts, after the Engineer and Contractor have agreed upon a volume of cubic yards per truck.

(h) The quantity of "Backfill” to be paid for shall be the number of cubic yards measured in their final position. The quantity shall be computed by the average end area method using cross-sections taken by the Contractor after any unsuitable material has been removed and final cross-sections taken by the Contractor upon completion of backfill operations. Backfill material shall include any suitable material, fabric, surge stone, and/or Crushed Aggregate Base that may be required to fill unsuitable excavation void areas.

(i) “Strippings” shall not be measured separately for payment.

05) BASIS OF PAYMENT

(a) Payment shall be made at the contract unit price per square yard for "Selective Grading". This price shall be full compensation for all on site excavation, loading and hauling to various site locations and the formation, shaping, compaction, and proofrolling of material, preparations and completions of ditches and dikes, hauling and disposal of material, and for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the item.

(b) No payment shall be made for "On Site Excavation". The cost of this work shall be included in the unit price for “Selective Grading” in non-paved areas and “Subgrade Preparation” in paved areas.

(c) Payment for “Excess embankment” shall be made at the contract unit price per cubic yard. This price shall be full compensation for handling of excess material that must be trucked to a Stockpile site on or off airport property, and any hauling, and placing of backfill and for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

(d) Payment shall be made at the contract unit price per cubic yard for "Backfill”. This price shall be full compensation for excavation of unsuitable material, replacing and placing suitable soil or Crushed Aggregate Base as backfill, hauling, installing separation fabric, installing surge stone, and for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item. No payment shall be made for excavation of suitable material.

(e) Payment shall be made at the contract unit price per square yard for "Subgrade Preparation". This price shall be full compensation for preparing subgrade, proofrolling, reworking subgrade with onsite soil, compacting, and shaping the subgrade as specified above in P-152, and for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

(f) Payment shall be made at the contract unit price per cubic yard for "Trench Rock Excavation". This price shall be full compensation for blasting, excavation, loading and hauling to the final location and for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

(g) Payments shall be made at the contract unit price per cubic yard for "Rock Excavation". This price shall be full compensation for blasting, excavation, loading and hauling to the final location and for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

(h) It should be noted that the quantity for "Backfill" is based on a 5% assumption.

(i) Payment will be made under:

Item P-152-1 Selective Grading - Per Square Yard

Item P-152-2 Rock Excavation – Per Cubic Yard

Item-P-152-3 Trench Rock Excavation – Per Cubic Yard

Item P-152-4 Backfill - Per Cubic Yard

Item P-152-5 Excess Embankment - Per Cubic Yard

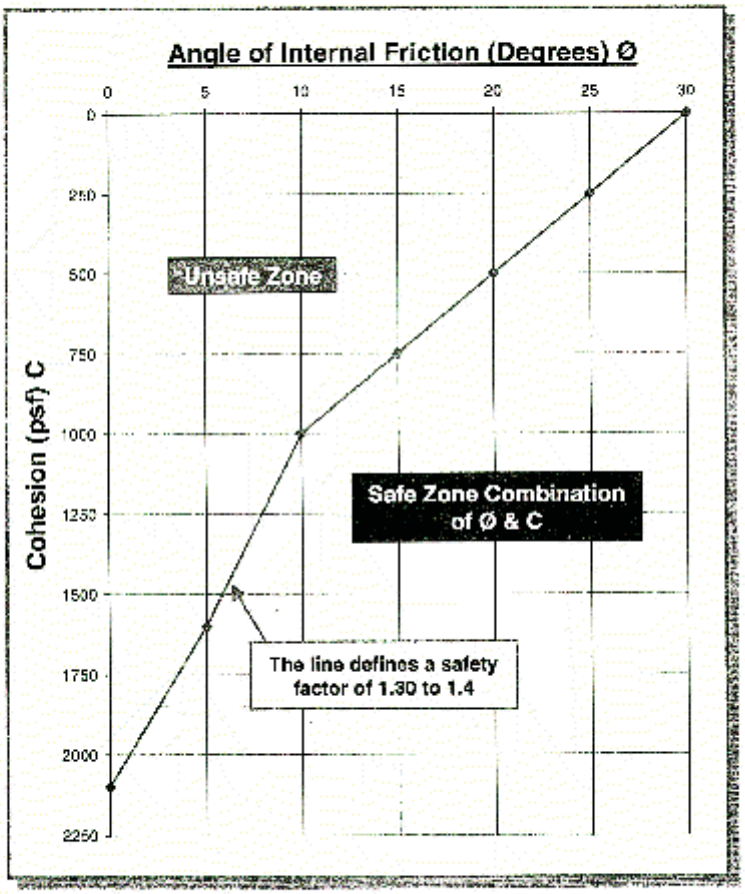
Item P-152-6 Subgrade Preparation- Per Square Yard

TESTING AND MATERIAL REQUIREMENTS

Testing and short title	Material and short title
AASHTO T-180	-- Moisture Density Relation
None	-- None
AASHTO T-191, ASTM D-1556, D-2937 or D-2922, AASHTO T-224	-- Field Density
AASHTO T-217 or ASTM D-2216	-- Moisture Content

END OF SECTION P-152

Appendix 1


Angle of Internal Friction (Degrees) Ø
0
5
10
15
20
25
30
Cohesion (psf) C
0
250
500
750
1000
1250
1500
1750
2000
2250
Unsafe Zone
Safe Zone Combination of Ø & C
The line defines a safety factor of 1.30 to 1.4

SECTION P-153 CONTROLLED LOW-STRENGTH MATERIAL (CLSM)

01) DESCRIPTION

(a) This item shall consist of furnishing, transporting, and placing a controlled low-strength material (CLSM) as flowable backfill in trenches or at other locations shown on the plans or as directed by the Engineer.

02) MATERIALS

(a) Portland Cement. Portland cement shall conform to the requirements of ASTM C 150 - Type I, II. If for any reason, cement becomes partially set or contains lumps of caked cement, it shall be rejected. Cement salvaged from discarded or used bags shall not be used.

(b) Fly Ash. Fly Ash shall conform to ASTM C- 618, Class C or F.

(c) Fine Aggregate (Sand). Fine aggregate shall conform to the requirements of ASTM C 33 except for aggregate gradation. Any aggregate gradation which produces performance characteristics of the CLSM specified herein will be accepted, except as follows.

Sieve Size Percent	Passing by weight
3/4 inch (19.0 mm)	100
No. 200 (0.075 mm)	0 – 12

(d) Water. Water used in mixing shall be free of oil, salt, acid, alkali, sugar, vegetable matter, or other substances injurious to the finished product.

03) MIX DESIGN

(a) PROPORTIONS. The contractor shall submit, to the Engineer, a mix design including the proportions and source of materials, admixtures, and dry cubic yard batch weights. The mix shall contain a minimum of 75 pounds of cement and 250 pounds fly ash per cubic yard, with the remainder of the volume composed of sand, water, and any approved admixtures.

(b) Compressive Strength. CLSM shall be “excavatable” and designed to achieve a 28-day compressive strength of 50 to 100 psi when tested in accordance with ASTM C 39. There should be no significant strength gain after 28 days. Test specimens shall be made in accordance with ASTM C- 31 except that the samples will not be rodded or vibrated and shall be air cured in their molds for the duration of the cure period.

(c) Consistency. Consistency of the fresh mixture shall such that the mixture may be placed without segregation. A desired consistency may be approximated by filling an open-ended three inch diameter cylinder, six inches high to the top, with the mixture and the cylinder immediately pulled straight up. The correct consistency of the mixture will produce an approximate eight inch diameter circular-type spread without segregation. Adjustments of the proportions of materials should be made to achieve proper solid suspension and flowable characteristics, however the theoretical yield shall be maintained at one cubic yard for the given batch weights.

04) CONSTRUCTION METHODS

(a) Placement. CLSM may be placed by any reasonable means from a mixing unit into the space to be filled. Agitation is required during transportation and waiting time. Placement shall be performed in such a manner that structures or pipes are not displaced from their desired final position and intrusion of CLSM into undesirable areas is avoided. The material shall be brought up uniformly to the fill line shown on the plans or as directed by the Engineer. Each placement of CLSM shall be as continuous an operation as possible. If CLSM is placed in more than one layer, the base layer shall be free of surface water and loose or foreign material prior to placement of the next layer.

(b) Limitations of Placement. CLSM shall not be placed on frozen ground. Mixing and placing may begin when the air temperature is at least 35 degrees F and rising. At the time of placement, CLSM shall have a temperature of at least 40 degrees F. Mixing and placement shall stop when the air temperature is 40 degrees F and falling or when the anticipated air temperature will be 35 degrees F or less in the 24 hour period following proposed placement.

05) CURING AND PROTECTION

(a) Curing. The air in contact with the CLSM should be maintained at temperatures above freezing for a minimum of 72 hours. If the CLSM is subjected to temperatures below 32 degrees F, the material may be rejected by the Engineer if damage to the material is observed.

(b) Protection. The CLSM shall not be subject to loads and shall remain undisturbed by construction activities for a period of 48 hours or until a compressive strength of 15 psi is obtained. The Contractor shall be responsible for providing evidence to the Engineer that the material has reached the desired strength. Acceptable evidence shall be based upon compressive tests made in accordance with paragraph 03) (b).

06) MATERIAL ACCEPTANCE

(a) Acceptance of CLSM delivered and placed as shown on the plans or as directed by the Engineer shall be based upon mix design approval and batch tickets provided by the Contractor to confirm that the delivered material conforms to the mix design. The Contractor shall verify by additional testing, each 100 cubic yards of material used or per day worked. Verification shall include confirmation of material proportions and tests of compressive strength to confirm that the material meets the original mix design and the requirements of CLSM as defined in this specification. Adjustments shall be made as necessary to the proportions and materials prior to further production.

07) METHOD OF MEASUREMENT

(a) No measurement will be made for CLSM. The cost of furnishing and installing shall be considered as a subsidiary obligation in the completion of the construction.

08) BASIS OF PAYMENT

(a) No separate measurement is made under this section. Include cost of this item in related items.

TESTING REQUIREMENTS

ASTM C 31 Making and Curing Concrete Test Specimens in the Field

ASTM C 39 Compressive Strength of Cylindrical Concrete

MATERIAL REQUIREMENTS

ASTM C 33 Specification for Concrete Aggregates

ASTM C 150 Specification for Portland Cement

ASTM C 618 Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

ASTM C 595 Specification for Blended Hydraulic Cements

END OF SECTION P-153

SECTION P-156 TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION AND SILTATION CONTROL

01) DESCRIPTION

This section shall consist of all work necessary to protect the environment and control erosion and sedimentation at the project site for the duration of the contract in accordance with the provisions of these specifications and the Contractor's approved protection and control plan.

02) CONSTRUCTION METHODS

A. Environmental Protection. The Contractor shall comply with all Federal, State, and local laws and regulations controlling pollution of the environment. He shall take necessary precautions to prevent soil erosion, pollution of streams, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

1. Storm Water Discharge.

All discharged storm water, associated with construction activities, to the waters of the State of Georgia shall be in accordance with the limitations, monitoring requirements and other conditions set forth in the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p.416 as amended), The Federal Clean Water Act (33 U.S.C. 1251 et seq., as amended) and the Rules and Regulations promulgated to these acts. These requirements include preparation of a detailed, phased erosion control plan prepared by the Contractor, stamped and sealed by a Georgia Registered Engineer *who is also a Level II Certified Design Professional as registered with the Georgia Soil and Water Conservation Commission*. Site Disturbance cannot proceed until this plan is prepared and approved.

2. Soil Erosion.

Prior to construction, submit to Engineer, for acceptance: schedules and methods for accomplishment of temporary erosion and pollution control work, through the various construction phases of the project; proposed method of erosion control on haul roads and borrow sites and plan for disposal of waste materials or erosion control details for other potential sources of pollution.

Include provisions for the periodic removal or accommodation of accumulated sediments in storm sewers, ditches and channels constructed under this contract and similar downstream existing facilities, to the extent necessary to maintain adequate drainage of the construction site and areas upstream thereof and also as required to prevent construction sediments from exiting the airport boundaries via existing water courses.

Plans will also be submitted to the Engineer for acceptance detailing the removal of all sediments from the storm sewers, sediment traps and basins, ponds, and channels constructed under this Contract, as a part of the Contractor's final cleanup, prior to acceptance.

The Contractor will be required to complete all permanent erosion control features at the earliest practicable time. Temporary pollution and erosion control measures shall be used to correct unforeseen conditions that occur during construction or those that are needed prior to completion of permanent measures. These shall include possible use of temporary grass cover and check dams for erosion control. In the event of unforeseen conditions as described above, supplementary payment may be granted if, in the opinion of the Engineer, the conditions were completely outside of the contractors' control. This may include unusually severe weather conditions (greater than a 25-year storm event), or conditions created by airport operations or other contractors.

In the event that temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls in a timely manner, such work will be performed by the Contractor at his own expense. This work is considered a part of the Contractor's obligation to maintain his approved erosion control plan, and is included in the lump sum pay item for Sediment and Erosion Control. In case of repeated failures on the part of the Contractor to control erosion/pollution, right is reserved by the Engineer to employ outside assistance to provide the necessary corrective measures. Such incurred costs, plus related engineering costs, will be charged to the Contractor and appropriate deductions made from the Contractor's progress payments. The erosion control features installed by the Contractor shall be acceptably maintained by the Contractor during the time that construction work is being performed.

3. Pollutants such as fuels, lubricants, bitumen, raw sewage and other harmful materials shall not be discharged into or near rivers, streams and impoundments or into natural or manmade channels leading thereto. Wash water or waste from concrete mixing or curing operations will not be allowed to enter live streams.

4. Burning of combustible materials will not be allowed within the project limits.

03) MATERIALS

A. Silt Fence.

1. Posts.
   a. Steel posts may be used. Otherwise, posts shall be wood, at least 3 inches in diameter, and at least 6 feet long and straight enough to provide a fence without notable misalignment.
2. Wire Fabric.
   a. Wire fence fabric shall be at least 32 inches high and shall have at least 6 horizontal wires. Vertical wires shall be spaced 12 inches apart. The top and bottom wires shall be at least 10 gauge. All other wires shall be at least 12 gauge.
3. Filter Fabric.

   Burlap. Burlap shall weigh at least 6.7 ounces per square yard, and shall have a minimum width of 36 inches.

   Synthetic Fabrics. The fabric shall be composed of strong rot-proof synthetic fibers forming a fabric of either the woven or non-woven type. Either type of fabric shall be free of any treatment or coating which might significantly alter its physical properties after installation. The fabric shall contain stabilizers and/or inhibitors to make the filaments resistant to deterioration resulting from exposure to sunlight or heat. The fabric shall be pervious sheet of synthetic fibers oriented into a stable network so that the fibers retain their relative position with respect to each other. The dyes of the fabric shall be finished to prevent the outer yarn from pulling away from the fabric. The fabric

shall be free of defects or flaws which significantly affect its physical and/or filtering properties. Sheets of fabric may be sewn or bonded together. No deviation from any physical requirements will be permitted due to the presence of the seam. During all periods of shipment and storage, the fabric shall be wrapped in a heavy-duty protective covering which will protect the fabric from sunlight, mud, dust, dirt, and debris. The fabric shall not be exposed to temperatures greater than 140°F. After the protective covering has been removed, the fabric shall not be left uncovered under any circumstances for longer than 3 days.

The fabric shall meet the following physical requirements:

Physical Property	Test Method	Requirements
Tensile Strength	ASTM D4632	Warp-120 Fill-100 for Type A&B 180 for Type C
Elongation	ASTM D4632	40% max.
AOS (Apparent Opening Size)	ASTM D4751	No. 30 Sieve, Max
Flow Rate (Gal/Min/Sq.Ft.)	GDT-87	25 for Type A&B 70 for Type C
Ultraviolet Stability	ASTM D4632 After 300 hours weathering in accordance with D4355	80
Bursting Strength	ASTM D3786 Diaphragm Bursting Strength Tester.	175-psi min.

The Contractor shall furnish certified test reports with each shipment of material attesting that the fabric meets the requirements of this provision.

4. Installation and Removal.

The silt fence shall be constructed at the locations shown on the plans or at locations directed by the Engineer.

Posts shall be installed so that no more than 3 feet of the post shall protrude above the ground. Fabric shall be attached to the wire fence fabric by wire or other acceptable means.

The Contractor shall maintain the silt fence and shall remove and dispose of silt accumulation at the silt fence when so directed by the Engineer. Fabric shall be removed and replaced whenever it has deteriorated to such extent that it reduces the effectiveness of the silt fence.
Silt fence shall remain in place unless the Engineer directs that it be removed. Silt fence that has been removed will remain the property of the Contractor and may be used at other locations provided it is in a condition acceptable to the Engineer.

B. Filter Stone.

1. Filter stone shall consist of quarry stone that is sound, tough, dense, resistant to the action of air and water, and suitable in all other respects for the purpose intended. The stone shall meet the requirements of #467 stone or #57 as indicated on the plans and as specified in ASTM Standard C-33. The gradation requirements of #467 and #57 stone are as follows:

#467 Stone
Percent of Total Passing, by Weight

Size	2"	1-1/2"	3/4"	3/8"	#4	#200
Percent Passing	100	95-100	35-70	10-30	0-5	0-1

#57 Stone
Percent of Total Passing, by Weight

Size	1-1/2”	1"	1/2"	#4	#8	#200
Percent Passing	100	95-100	25-60	0-10	0-5	0-1

C. Ditch Liner.

1. Ditch liner shall be organic material fiber blankets for ditches and channels which shall be installed and shall be capable of meeting the requirements of the Georgia Department of Transportation Standard Specifications Section 713.

D. Matting for Erosion Control.

1. Erosion control mats or blankets for steep slopes (steeper than 3:1) shall be composed of materials such as excelsior, coconut, or bituminous treated roving installed over previously seeded areas, in accordance with the requirements of Georgia Department of Transportation Standard Specifications Section 713, except that hydraulically applied wood fiber blanket, type II shall not be allowed.

E. *Inlet Sediment Traps.*

1. Inlet Sediment Traps shall be installed prior to ground disturbance per the details in the Plans and removed at project completion.

04) METHOD OF MEASUREMENT

A. Sediment/Erosion Control is a lump sum and shall not be directly measured for payment. This lump sum will include development and implementation of the Contractor’s erosion control plan and all phased or interim measures to implement that plan. The erosion control measures shown on the contract drawings represent the final condition of the project, and only those items and associated quantities indicated on the plans will be measured for payment under the respective unit price items listed below.

B. The length of silt fence and block filter to be measured shall be the length as shown on the plans, actually placed and approved by the Engineer.

C. Filter stone shall be measured by the cubic yard, in the approximate quantity shown on the plans or directed by the Engineer, actually placed and accepted.

D. Sediment excavation, where required to protect basins and streams, or as directed by the Engineer, will not be measured for payment.

E. No separate measurement will be made for sediment and erosion control at borrow sites.

F. Inlet protection and slotted board dam shall be measured for payment per each item properly installed, maintained, and then removed at project completion and inclusive of the reestablishment of grass.

05) BASIS OF PAYMENT

A. Payment will be made at the contract lump sum price bid for Sediment/Erosion Control. This price shall be full compensation for design, permitting and conformance with the requirements of Section P-156 (02)(A)(1). This price shall be full compensation for furnishing and installing all materials required to complete the Contractor's phased erosion control plan, including additional silt fences, temporary slope drains, construction entrance/exits, washed filter stone, check dams and other related and incidental items.

Partial payments shall be made as follows:

1. Fifteen percent (15%) of the contract item will be paid when the complete Erosion/Sediment plan has been approved.

2. Seventy-five percent (75%) of the contract item will be prorated on each partial payment in respect to the percent complete of all work on the contract.

3. The final ten percent (10%) will be paid when all work is complete and all reports have been submitted.

B. The unit price items listed in the following paragraphs apply only to final erosion control measures as shown on the plans or as directed by the engineer.

C. Payment will be made at the contract unit price per linear foot for "Silt Fence" and "Block Filter". This price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the item.

D. No payment will be made for "Sediment Excavation".

E. Payment shall be made at the contract unit price per each Inlet Sediment Trap and Slotted Board Dam installed and then removed at project completion.

F. Payment will be made under:

Item P-156-1 Sediment/Erosion Control - Per Lump Sum

Item P-156-2 Inlet Sediment Trap - Per Each

Item P-156-3 Block Filter – Per Linear Foot

Item P-156-4 Slotted Board Dam – Per Each

END OF SECTION P-156

SECTION P-209 - CRUSHED AGGREGATE BASE COURSE

01) DESCRIPTION

This section shall consist of base courses composed of crushed aggregates constructed on the prepared subgrade in accordance with these specifications and shall conform to the dimensions and typical cross section shown on the plans and with the lines and grades established by the Engineer.

02) MATERIALS

a) The aggregate shall be crushed stone. The fine aggregate shall be screenings from crushed stone.

1) The crushed aggregate shall have a percent of wear not more than 47 at 500 revolutions, as determined by AASHTO T-96 (Los Angeles Rattler Test).

2) The crushed aggregate shall not show evidence of disintegration nor show a total loss greater than 12% when subjected to 5 cycles of the sodium sulphate accelerated soundness test using AASHTO T-104.

3) The coarse aggregate portion, defined as the material retained on the No. 4 sieve and larger, shall contain not more than 15 percent, by weight, of flat or elongated pieces as defined in ASTM D 693 and shall have at least 90 percent by weight of particles with at least two fractured faces and 100 percent with at least one fractured face. The area of each face shall be equal to at least 75 percent of the smallest midsectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 to count as two fractured faces.

4) All material passing the No. 4 mesh sieve produced in the crushing operation of stone shall be incorporated in the base material unless there is an excessive amount which, if included, would not meet the gradation requirements.

5) The crushed aggregate shall meet the requirements of the gradations given in the following table when tested in accordance with AASHTO T-11 and T-27.

TABLE 1

Requirements for Gradation of Aggregate

Sieve Designation (Square Opening)	Percentage by Weight Passing Sieves
1-1/2 Inch	100
3/4 Inch	60-90
No. 10	28-45
No. 60	5-30
No. 200	0-12

6) The gradations in the table represent the limits which shall determine suitability of aggregate for use from the sources of supply. The final gradations decided on within the limits designated in the table shall be well graded from coarse to fine and shall not

vary from the low limit on one sieve to the high limit on the adjacent sieves or vice versa.

7) The amount of the fraction of material passing the No. 200 mesh sieve shall not exceed one half the fraction passing the No. 40 mesh sieve.

8) The portion of the base aggregate, including any blended material, passing the No. 40 mesh sieve shall have a liquid limit of not more than 25 and a plasticity index of not more than 6 when tested in accordance with AASHTO T-89 and T-90.

b) Additional Fine Material: If additional fine material, in excess of that naturally present in the base course material, is necessary for correcting the gradation to the limitations of the specified gradation, or for the satisfactory bonding of the base material, or for changing the soil constants of the material passing the No. 40 mesh sieve, it shall be uniformly blended and mixed with the base course material at the crushing plant or by an approved plant. There shall be no reworking of the base course material in-place to obtain the specified gradation. The additional fine material for this purpose shall be obtained from the crushing of stone, and when used, shall be of a gradation as necessary to accomplish the specified gradation in the final mixed base course material.

c) The above tests, described under this section, MATERIALS, shall be performed on each source of supply prior to delivery. Gradation tests shall be obtained during the stockpiling and during the production and placement operations at the minimum of one (1) per day of operations.

03) CONSTRUCTION METHODS

a) Operation at Sources of Supply. All work involved in clearing and stripping quarries and pits, including the handling of unsuitable material, shall be performed by the Contractor at his own expense. The base material shall be handled in a manner that shall secure a uniform and satisfactory product.

b) Equipment. All equipment necessary for the proper construction of this work shall be on the project, in first-class working condition, and approved by the Engineer before construction is permitted to start.

c) Preparing Underlying Course. The underlying course shall be checked and accepted by the Engineer before placing and spreading operations are started. Any ruts or soft, yielding places caused by improper drainage conditions, hauling, or any other cause, shall be corrected and rolled to the required compaction before the base is placed thereon.

Grade control shall be accomplished by grade stakes, steel pins, or forms placed in lanes parallel to the centerline and at intervals sufficiently close that string lines or check boards may be placed between the stakes, pins, or forms. Forms of grade control shall be removed before placing surface course.

To protect the underlying course and to insure proper drainage, the spreading of the base shall begin along the centerline of the pavement on a crowned section or on the high side of the pavement with a one-way slope.

d) Plant Mix. The base material shall be uniformly blended during crushing operations or mixed in an approved plant. The type of plant may be either a central proportioning and mixing plant or a traveling plant. The plant shall blend and mix the materials to meet these specifications and to secure the proper moisture content for compaction.

e) Placing and Spreading.

1) Central Plant. The crushed aggregate base material that has been proportioned in a

crushing and screening plant or proportioned and processed in a central mixing plant, shall be placed on the prepared underlying course and compacted in layers of the thickness shown on the plans. The depositing and spreading of the material shall commence where designated and shall progress without breaks. The material shall be deposited and spread in lanes in a uniform layer and without segregation of size to such loose depth that, when compacted, the layer shall have the required thickness. The base aggregate shall be spread by spreader boxes or other approved devices or methods that shall spread the aggregate in the required amount to avoid or minimize the need for rehandling the material and to prevent the rutting of the underlying course. The spreader boxes or other devices shall be equipped with strike-off templets or screens that can be adjusted or controlled to secure the required thickness of the material. Dumping from vehicles in piles on the underlying course which will require rehandling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

2) Traveling Plant. If a traveling plant is used for mixing, the base material shall be placed on the underlying course in such condition to provide a base mixture conforming to the specified gradation and moisture content, and in such quantity to develop the thickness of the layer of the base and the density after compaction. The material shall be shaped to a uniform section. The Engineer shall examine the mixture to determine that the mixing is complete and satisfactory and that the proper moisture content is maintained before compaction is started. No spreading shall be done except when authorized. Care shall be taken that no material from the underlying course is mixed with the base material.

If necessary, the base course shall be bladed until a smooth, uniform surface is obtained that is true to line, grade, and cross section and until the mix is in condition for compacting.

3) Method of Placing. The base course shall not be constructed in layers less than 3 inches or more than 6 inches and meet specified compaction requirements. The aggregate, as spread, shall be of uniform gradation with no segregation or pockets of fine or coarse materials. Unless otherwise permitted by the Engineer, the aggregate shall not be spread more than 1,000 square yards in advance of the rolling. Any necessary sprinkling shall be kept within these limits. No material shall be placed in snow or on a soft, muddy, or frozen underlying course.

When more than one layer is required, the construction procedure described herein shall apply similarly to each layer. In multi-layer construction, the base course shall be placed in approximately equal-depth layers. The previously constructed layer should be cleaned of loose and foreign material prior to placing the next layer. The surface of the compacted material shall be kept moist until covered with the next layer.

The Contractor shall make tests to determine the maximum density and the proper moisture content of the base material, and this information will be available to the Engineer. Compaction tests will be made on each 100 s.y. of each area on finished subgrade. The laboratory compactions and field density shall be determined by methods described in Item P-152. The base material shall have a satisfactory moisture content when rolling is started, and any minor variations prior to or during rolling shall be corrected by sprinkling or aeration, if necessary.

During the placing and spreading, sufficient caution shall be exercised to prevent the incorporation of subgrade, subbase, or shoulder material in the base course mixture.

f) Finishing and Compacting. After spreading, the crushed aggregate shall be thoroughly

compacted by rolling. The rolling shall progress gradually from the sides to the center of the lane under construction, or from one side toward previously placed material by lapping uniformly each preceding rear-wheel track by one-half the width of such track. Rolling shall continue until the entire area of the course has been rolled by the rear wheels. The rolling shall continue until the stone is thoroughly set, the interstices of the material reduced to a minimum, and until creeping of the stone ahead of the roller is no longer visible. Rolling operations shall continue until the base material has been compacted to not less than 100% of the maximum density at optimum moisture as determined by AASHTO T-180. Blading and rolling shall be done alternately, as required or directed, to obtain a smooth, even, and uniformly compacted base.

1) The course shall not be rolled when the underlying course is soft or yielding or when the rolling causes undulation in the base course. When the rolling develops irregularities that exceed 3/8" when tested with a 16 foot straight-edge, the irregular surface shall be loosened, refilled with the kind of material as that used in constructing the course, and rolled again as required.

In areas inaccessible to rollers, the base course material shall be tamped thoroughly with mechanical tampers.

The sprinkling during rolling, if necessary, shall be in the amount and by equipment approved by the Engineer.

2) The elevations of the top of the base course shall not vary more than 0.5 inches from the proposed elevations.

g) Surface Test. After the course has been completely compacted, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness, or failing in accuracy of grade or crown, shall be scarified, reshaped, re-compacted, and otherwise manipulated as the Engineer may direct until the required smoothness and accuracy are obtained. The finished surface shall not vary more than 3/8 inch from a 16 foot straightedge when applied to the surface parallel with, and at right angles to the centerline.

h) Thickness. The thickness of the base course shall be determined by depth tests or cores taken at intervals in such a manner that each test shall represent no more than 50 square yards. When the base deficiency is more than 1/2", the Contractor shall correct such areas by scarifying, adding satisfactory base mixture, rolling, sprinkling, reshaping, and finishing in accordance with these specifications. The Contractor shall replace, at his expense, the base material where borings have been taken for test purposes. Test results shall be recorded and transmitted to the Engineer.

i) Protection. Work on the base course shall not be accomplished during freezing temperatures nor when the subgrade is wet. When the aggregates contain frozen materials or when the underlying course is frozen, the construction shall be stopped.

1) Hauling equipment may be routed over completed portions of the base course, provided no damage results and provided that such equipment is routed over the full width of the base course to avoid rutting or uneven compaction. However, the Engineer in charge shall have full and specific authority to stop all hauling over completed or partially completed base course when, in his opinion, such hauling is causing damage. Any damage resulting to the base course from routing equipment over the base course shall be repaired by the Contractor at his own expense.

j) Maintenance. Following the completion of the base course, the Contractor shall perform all maintenance work necessary to keep the base course in a satisfactory condition. The base course shall be properly drained at all times.

04) METHOD OF MEASUREMENT

a) The quantity of crushed aggregate will not be measured separately for payment but is part of the applicable items in P-152.

05) BASIS OF PAYMENT

(b) No separate measurement is made under this section. Include cost of this item in related section P-152.

TESTING AND MATERIAL REQUIREMENTS

Testing and Short Title	Material and Short Title
AASHTO T-96 -- Abrasion	None
AASHTO T-104 -- Soundness	
AASHTO T-11 and T-27 -- Gradation	
AASHTO T-89 -- Liquid Limit	
AASHTO T-90 -- Plastic Limit and Plasticity Index	
AASHTO T-180 -- Density	
AASHTO T-19 -- Unit Weight	

END OF SECTION P-209

SECTION P-401

BITUMINOUS PAVEMENT

01) DESCRIPTION

(a) This section shall consist of base, leveling, and surface courses composed of mineral aggregate and bituminous material mixed in a central mixing plant and placed on a prepared course in accordance with these specifications and shall conform to the lines, grades, thickness and typical cross-sections shown on the plans.

1) Each course shall be constructed to the depth, typical section or elevation required by the plans and shall be rolled, finished and approved by the Engineer before the placement of the next course.

02) MATERIALS

(a) Aggregate. Aggregates shall consist of crushed stone with or without sand or other inert finely divided mineral aggregate. The portion of materials retained on the No. 8 sieve shall be known as coarse aggregate, the portion passing the No. 8 sieve and retained on the No. 200 sieve as fine aggregate and the portion passing the No. 200 sieve as mineral filler.

1) Coarse Aggregate. Coarse aggregate shall consist of sound, tough, durable particles, free from adherent films of matter that would prevent thorough coating with the bituminous material. It shall have a percentage of wear not greater than 50% for base course material and 47% for surface course material when tested in accordance with ASTM C131, nor shall the sodium sulfate soundness loss exceed 9%, after five cycles, when tested in accordance with ASTM C88.

i. Crushed aggregate shall contain at least 70% by weight of crushed pieces having 2 or more fractured faces and 85% having at least one fractured face. The area of each face shall be equal to at least 75% of the smallest midsectional 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.

ii. The aggregate shall not contain more than 8%, by weight, of flat or elongated pieces, when tested in accordance with ASTM D4791. A flat particle is one having a ratio of width to thickness greater than five, an elongated particle is one having a ratio of length to width greater than five.

2) Fine Aggregate. Fine aggregate shall consist of clean, sound, durable, angular particles produced by crushing stone that meets the requirements for wear and soundness specified for coarse aggregate. The aggregate particles shall be free from coatings of clay, silt, or other objectionable matter and shall contain no clay balls. The fine aggregate, including any blended filler, shall have plasticity index of not more than six when tested in accordance with AASHTO T-90, and a liquid limit of not more than 25 when tested in accordance with AASHTO T-89.

i. The amount of natural sand that may be used in the bituminous mixes shall have the approval of the Engineer but shall not exceed 20% of the weight of the base course aggregate nor 15% of the weight of the surface course aggregate. The natural sand shall consist of grains of quartz or other hard, durable rock, and shall be free of lumps of clay, loam, organic matter, and other foreign matter.

3) Sampling and Testing. All testing of aggregate samples shall be performed by the Contractor. Unless otherwise directed ASTM Standard D-75 shall be used in sampling of coarse aggregate and fine aggregate, and ASTM Standard C-183, Paragraphs 3 and 4, shall be used in sampling mineral filler. Sampling will be observed and supervised by the Engineer when deemed necessary. No aggregate shall be used in the production of mixtures without prior approval.

4) Sources of Aggregates. Sources of the aggregate shall be selected well in advance of the time the materials are required in the work. When the aggregates are obtained from a previously approved source or an existing source producing aggregates that has a satisfactory service record in bituminous pavement construction for at least five (5) years, samples shall be tested prior to use. An inspection of the producer's operation will be made by the Engineer if deemed necessary. When new sources are to be developed, the Contractor shall indicate the sources and shall submit his plan for operation thirty (30) days in advance of starting production. Approval of the source of aggregate does not relieve the Contractor in any way of the responsibility for delivery at the job site of aggregates that meet the requirements specified herein.

5) Samples of Aggregates. Samples of the aggregates shall be tested by the Contractor at the start of production and at intervals during production of bituminous mixtures. The samples shall be obtained at the processing plant, from railroad cars, truck, stockpiles, and other points in the process of production, transportation, and storage of aggregates. The intervals and points of sampling will be as designated elsewhere herein. The samples will be the basis of approval of specific lots of aggregates from the standpoint of the quality requirements of this paragraph. Samples of aggregates shall be obtained from the hot bins by trial runs the day before the start of production of paving mixture and from the hot bins at intervals during production of paving mixtures. The tested samples will be the basis of approval of specific lots of aggregates from the standpoint of gradation requirements specified hereinafter. Tested samples will also be the basis of approval from the standpoint of paving mixture requirements.

(b) Filler. If filler, in addition to that naturally present in the aggregate, is necessary, it shall consist of stone dust, loess, Portland cement, or other approved mineral matter. The filler material shall meet the requirements of ASTM D242.

(c) Bituminous Material.

1) The types, grades, controlling specifications and mixing temperatures for the bituminous materials are given below.

TYPE AND GRADE	SPECIFICATION	MIXING TEMPERATURE (F)
Asphalt Cement – Performance Grade PG76-22	AASHTO M-320	285^0 - $335^0{}_1$

1.) Mixing, storage, and compaction temperatures at lab, plant, and site shall be in accordance with recommendations of the binder manufacturer.

2) The Contractor shall furnish vendor's certified test reports for each tankload or equivalent of bitumen shipped to the project. The report shall be delivered to the Engineer before permission is granted for use of the material. The furnishing of the vendor's certified test report for the bituminous material shall be the basis for final acceptance.

03) COMPOSITION

(a) Composition of Mixtures. The bituminous plant mixes shall be composed of a mixture of aggregate, filler if required, and bituminous material. The several aggregate fractions shall be sized, uniformly graded, and combined in such proportions that the resulting mixture meets the grading requirements of the applicable job mix formula.

(b) Job Mix Formulas. No bituminous mixture for payment shall be produced until job mix formulas, as required, have been approved by the Engineer. The formulas shall be submitted in writing by the Contractor to the Engineer at least 30 days prior to the start of paving operations and shall indicate the definite percentage of each sieve fraction of aggregate, the percentage of bitumen, and the temperature of the completed mixture when discharged from the mixer. All test data used to develop the job formulas shall also be submitted. The job mix formula for each mixture shall be in effect until modified in writing by the Engineer. Should a change in sources of materials be made, a new job formula shall be established by the procedure specified hereinafter before the new material is used.

1) Each bituminous mixture shall be designed and shall meet the requirements hereinafter described when tested in accordance with standard Corps of Engineers test methods, described in Appendix V of the Corps of Engineers Manual EM 1110-45-302, covering Marshall procedures, bulk-impregnated specific gravity, and immersion/compression tests. The mixtures, when prepared in accordance with the standard Corps of Engineers Marshall procedures, shall have the following test properties:

For nonabsorptive aggregate. When the water absorption value of the entire blend of aggregate does not exceed 2.5% as determined in accordance with ASTM C128 and C127, the aggregate is designated as nonabsorptive. The apparent specific gravity will be used in computing the voids and voids filled with asphalt, and the mixtures shall meet the following requirements:

NONABSORPTIVE-AGGREGATE MIXTURES

Test Property	Bituminous Base Course	Bituminous Leveling Course	Bituminous Surface Course
Number of Blows	75	75	50
Stability, minimum, pounds	3000	3000	1800
Flow, 1/100 inch units	8 min., 12 max	8 min., 12 max	8 min., 16 max
Voids total mix, percent	3-5	3-5	3-5
Voids filled with bitumen, percent	50-70*	50-70*	70-80

*The Engineer may permit deviation from the limits specified for voids filled with bitumen in order to stay within the limits specified for voids total mix

For absorptive aggregate. When the water absorption value of the entire blend of aggregate exceeds 2.5% as determined in accordance with ASTM C128 and C127, the aggregate is designated as absorptive. The bulk-impregnated specific gravity determined in accordance with the standard Corps of Engineers method will be used in computing the percentages of voids total mix and voids filled with asphalt, and the mixture shall meet the following requirements:

ABSORPTIVE - AGGREGATE MIXTURES

Test Property	Bituminous Base Course	Bituminous Leveling Course	Bituminous Surface Course
Number of Blows	75	75	50
Stability, minimum, pounds	3000	3000	1800
Flow, 1/100 inch units	8 min., 12 max	8 min., 12 max	8 min., 16 max
Voids total mix, percent	3-5	3-5	2-4
Voids filled with bitumen, percent	55-75**	55-75**	75-85

**The Engineer may permit deviation from the limits specified for voids filled with bitumen in order to stay within the limits specified for voids total mix.

Immersion/Compression Tests. The composite mixture composed of the aggregate and bitumen to be used shall conform to the requirements hereinafter specified when subjected to the standard Corps of Engineers immersion test. If the index of retained stability of the specimens of the composite mixture is less than 75, the aggregates shall be rejected or the asphalt shall be treated with an approved anti-stripping agent. The amount of antistripping agent to be added to the asphalt shall be sufficient to produce an index of retained stability of not less than 75 when specimens of the mixture conforming to the proposed job mix formula using the treated asphalt are treated in accordance with the above immersion/compression
test. No additional payment will be made to the Contractor for any addition of

antistripping agent that may be required.

2) The mineral aggregate shall be of such size that the percentage composition by weight, as determined by laboratory screens, will conform to the gradation of gradations specified by Table I. Tests for gradation of the coarse and fine aggregate shall be in conformance with ASTM C117 and C136. The gradations shown represent the extreme limits that will determine suitability of aggregate for use from all sources of supply. The aggregates as finally selected for use in the work shall have a gradation within the limits designated in the table and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve, or vice versa, but shall be uniformly graded from coarse to fine. The table is based on aggregates of uniform specific gravity, and the percentages passing the various sieves will be subject to the appropriate correction by the Engineer when aggregates of varying specific gravities are used.

TABLE I - AGGREGATE - BITUMINOUS PAVEMENTS

Percentage by Weight Passing Sieves			
Sieve Size	Bituminous Base Course	Bituminous Leveling Course	Bituminous Surface Course
	1-1/2" Max	3/4" Max	3/4" Max
1-1/2 inch	100	----	----
1 inch	75-100	----	----
3/4 inch	68-87	100	100
1/2 inch	59-77	82-100	82-100
3/8 inch	53-70	75-90	75-90
No. 4	39-55	60-73	60-73
No. 10	27-42	43-57	43-57
No. 20	17-30	29-43	29-43
No. 40	13-23	19-33	19-33
No. 80	7-15	10-20	10-20
N0. 200	3-7	3-6	3-6
Bitumen Percent	4-6	5-7.5	5-7.5

The selection of either of the gradations shown for the bituminous surface course in Table I shall be such that the maximum size aggregate used shall be not more than one-half the thickness of the layer of the surface course being constructed.

3) After the job mix formula is established, the mixtures furnished for the project shall conform within the applicable following tolerances:

TABLE II - JOB MIX FORMULA TOLERANCES

Tolerance - Plus or Minus

Material	Bituminous Base Course	Bituminous Leveling Course	Bituminous Surface Course
Aggregate passing No. 4 sieve or larger	5%	4%	4%
Aggregate passing No. 10, 20, 40, and 80 sieves	4%	3%	3%
Aggregate passing No. 200 sieve	1.5%	1.5%	1.5%
Bitumen	0.25%	0.25%	0.25%
Temperature of mixing	25^0 F	25^0 F	25^0 F

The aggregate gradation may be adjusted within the limits of the tables specified herein, as directed, without adjustments in the Contract unit prices. The percentages of each sieve fraction in the job mix formula will be restricted to values such that application of the aforementioned tolerances will not cause limits in the gradation tables to be exceeded.

4) Sampling and testing of bituminous mixtures will be accomplished by representatives of the Contractor, and submitted to the Engineer for his review. Testing for conformance with the specified test properties will be done by the Contractor for all mix design submittals. In the event that the initial mix design submittal is not approved, the Contractor shall redesign the mix and resubmit it to the Engineer. Mixtures that do not conform to the specified test properties will be rejected as directed. No payment will be made to the Contractor for mixture rejected or for pavements or portions of pavement removed.

5) JOB MIX FORMULA CHECKLIST

The Contractor shall submit the following data prior to evaluation and approval of the asphaltic concrete mix design:

i) General

A) Project and project number.
B) Type of bituminous mixture.
C) Type and source of aggregates.
D) Type and source of asphaltic cement.

ii) Aggregate

A) Sieve analysis of each aggregate to be used in mixture.
B) Physical tests of aggregates.
C) Specific gravity and absorption of each type aggregate.
D) Proportion used of each type aggregate.
E) Theoretical gradation of combined proportions of aggregates.

iii) Bituminous Materials.

A) Type and penetration.
B) Specific gravity.

iv) Bitumen Content Determination

A) Resistance to plastic flow of bituminous mixtures.

1) Mixing and compacting temperatures for specimen.
2) Compactive effort (number of blows applied to specimen each, face).
3) Actual specific gravity and unit weight of each specimen.
4) Percent, asphalt cement in each specimen.
5) Theoretical specific gravity of each specimen.
6) Graph of stabilities versus asphalt cement contents.
7) Graph of flow values versus asphalt cement contents.
8) Graph of voids filled versus asphalt cement contents.
9) Graph of air voids versus asphalt cement contents.
10) Graph of unit weight versus asphalt cement contents.

v) Summation of Established Job Mix Formula

A) Combined gradation of aggregates.
B) Optimum asphalt cement content from graphs.
C) Specified job mix tolerance range.

vi) Summation of the Characteristics of the Mixture of Optimum Asphalt Cement Content

A) Stability, pounds
B) Flow value, hundredths of an inch.
C) Actual specific gravity of laboratory compacted mixture.
D) Theoretical specific gravity of laboratory mixture.
E) Total voids (air), percent, in laboratory compacted mixture.
F) Voids filled with bitumen, percent, in laboratory compacted mixture.
G) Actual unit weight, PCF, of laboratory compacted mixture.
H) Specifications for above, where applicable.

6) Test Section. Prior to full production, the Contractor shall prepare a quantity of bituminous mixture according to the job mix formula. The amount of mixture should be sufficient to construct a test section 50' long and 35' wide, or other appropriate dimensions as directed by the Engineer, placed in two lanes, with a longitudinal cold joint, and shall be of the same depth specified for the construction of the course which it represents. A cold joint is an exposed construction joint at least 4 hours old or whose mat has cooled to less than 160° F. The underlying grade or pavement structure upon which the test section is to be constructed shall be the same as the remainder of the course represented by the test section. The equipment used in construction of the test section shall be the same type and weight to be used on the remainder of the course represented by the test section.

As soon as the test section pavement cools sufficiently, samples of finished pavement, including samples that span the longitudinal joint shall be taken and tested to determine conformance to density, gradation, bitumen content, and other specified requirements.

A sample of paving mixture adequate for the preparation of four (4) test specimens shall be obtained from the truckload of mixture used for the test strip. Four specimens shall be compacted and tested in accordance with standard procedures cited previously. Determination shall be made that these data conform to final design data at the same bitumen content within reasonable tolerances before full plant production is allowed. Maximum tolerances that are

considered reasonable are shown in Table III. In no case, however, will the plant-produced mix be considered acceptable if the mix properties do not meet the requirements of design criteria.

TABLE III

Test	Tolerances
Stability	10%
Flow	2 points
Unit Weight	1.5 pounds

In the event tests indicate the pavement does not conform to specification requirements, necessary adjustments to plant operation and/or rolling procedures shall be made. Additional test sections shall be constructed and sampled to determine conformance to specification requirements as directed. In no case shall the Contractor start full production without approval of the Engineer. In the event the test sections do not conform to specification requirements, the Contractor shall remove the pavement as directed at no expense, and no payment will be made for materials and labor employed either in placement or removal of the test pavement.

The plant will not be placed in continuous operation until the variations in test properties are within allowable tolerance. Once the plant has been placed in continuous operations, test specimens shall be prepared at least two times daily. The test conducting shall include stability, flow, unit weight, voids in the total mix and percent voids filled with bitumen. Tolerances cited above are applicable for the continuation of plant production.

7) ASPHALT PLANT CONTROL

The following items will be monitored continuously during placement of asphaltic materials. The Contractor's testing laboratory shall test to obtain and record the following information and submit it to the Engineer:

i) Plant Hot Bin Gradation Analyses. (At least twice daily during normal operations.)

A) Sieve analysis of aggregates in each hot bin.
B) Proportions of aggregate types extracted from each hot bin.
C) Theoretical gradation of combined proportions of aggregates.

ii) Batch Plant Tabulations. (At least twice daily during normal operations.)

A) Weights of asphalt and each hot bin aggregate in a weigh batch plant, or
B) Data used to ascertain correct proportions of materials in a continuous mix plant.

iii) Quantitative Extraction of Bitumen From Bituminous Paving Mixtures. (At least twice daily during normal operations.)

A) Correction for the mineral aggregate passing filter ring.
B) Correction for the mineral aggregate passing filter ring with extract.

C) Total corrected amount of bitumen.
D) Mechanical analysis of extracted aggregates.

iv) Characteristics of Paving Mixture. (At least twice daily during normal operations.)

A) Resistance to plastic flow of bituminous mixture.

1) Compactive effort (number of blows applied to specimens, each face).
2) Stability of laboratory compacted mixture, pounds.
3) Flow value, hundredths of an inch.

v) Temperatures. (At least six times daily during normal operations.)

A) Aggregates, hot elevator.
B) Bitumen, storage tank.
C) Mixture in truck, plant.
D) Mixture spreader, job site.

vi) Completed Bituminous Pavement. (At least four times daily during normal operations.)

A) Field density.
B) Percent of laboratory density (show standard used).
C) Core thickness. (Additional cores for thickness measurements shall be taken at the rate of one (1) per 200 tons of pavement placed.)
D) Extraction analysis (asphalt content and aggregate gradation).

vii) Amount of Asphaltic Concrete Placed.

A) Previously placed.
B) Placed on data report.
C) Total tonnage placed.

viii) Job Mix Design Tolerances for Above, Where Applicable.

(c) Recycle Asphalt Concrete. Recycled HMA shall consist of reclaimed asphalt pavement (RAP), coarse aggregate, fine aggregate, mineral filler, and asphalt cement. The RAP shall be of a consistent gradation and asphalt content and properties. When RAP is fed into the plant, the maximum RAP chunk size shall not exceed 2 inches. The recycled HMA mix shall be designed using procedures contained in AI MS-02. The recycled asphalt concrete mix shall be designed using procedures contained in the Asphalt Institute's Manual Series Number 2 (MS-2). The percentage of asphalt in the RAP shall be established for the mixture design according to ASTM D 2172 using the appropriate dust correction procedure. The job mix shall meet the requirements of paragraph 401-3.2 RAP should only be used for shoulder surface course mixes and for any intermediate courses. The amount of RAP shall be limited to 30 percent.

In addition to the requirements of paragraph 03)(c), the job mix formula shall indicate the percent of reclaimed asphalt pavement and the percent and viscosity grade of new asphalt. The Contractor shall submit documentation to the Engineer, indicating that the mixing equipment proposed for use is adequate to mix the percent of RAP shown in the job mix

formula and meet all local and national environmental regulations. Since PG asphalt binder is specified, the Contractor shall test the job mix formula using the dynamic shear rheometer and bending beam tests.

The blend of new asphalt cement and the RAP asphalt binder shall meet the requirements in paragraph 02)(c). The virgin asphalt cement shall not be more than two standard asphalt material grades different than that specified in paragraph 02)(c).

RAP containing coal tars are not permitted.

04) CONSTRUCTION METHODS

(a) Weather and Seasonable Limitations. Bituminous mixtures shall be constructed only upon a dry surface, when the atmospheric temperature is above 40^0F, and when the weather is not foggy or rainy. The temperature requirements may be waived, but only when so directed by the Engineer.

(b) Bituminous Mixing Plant. Plants used for the preparation of bituminous mixtures shall conform to the requirements of AASHTO M-156 with the following changes:

1) Requirements for all plants.

i. Truck scales. The bituminous mixture shall be weighed on approved scales furnished by the Contractor, or on public scales at the Contractor's expense. Such scales shall be inspected and sealed as often as the Engineer deems necessary to assure their accuracy. Scales shall conform to the following requirements.

Scales for weighing materials which are required to be proportioned by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales.

Scales shall be accurate within one-half percent of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the inspector before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed one-tenth of one percent of the nominal rated capacity of the scale, but not less than one pound. The use of spring balances will not be permitted.

Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and inspector can safely and conveniently view them.

Scale installations shall have available 10 standard fifty-pound weights for testing the weighing equipment or suitable weights and devices for other approved equipment.

Scales must be tested for accuracy and serviced before use at a new site. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end. Scales "overweighing" (indicating more than correct weight) will not be permitted to operate and all materials received subsequent to the last previous correct weighing-accuracy-test will be reduced by the percentage of error in excess of one-half of one percent.

In the event inspection reveals the scales have been "underweighing" (indicating less than correct weight) they shall be adjusted.

All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning, shall be included in the amount bid.

ii. Testing laboratory. The Contractor or producer shall provide facilities for a testing laboratory for control and acceptance testing functions during periods of mix production, sampling, and testing and whenever materials subject to the provisions of these specifications are being supplied or tested. The laboratory shall provide adequate equipment, space, and utilities as required for the performance of the specified tests. The lab shall also meet the requirements of ASTM D 3666.

The plant testing laboratory shall have a floor space area of not less than 150 square feet, with a ceiling height of not less than 7-½ feet. The laboratory shall be weather tight, sufficiently heated in cold weather, air-conditioned in hot weather to maintain temperatures for testing purposes of 70 degrees F +/- 5 degrees F. The plant testing laboratory shall be located on the plant site to provide an unobstructed view, from one of its windows, of the trucks being loaded with the plant mix materials.

Laboratory facilities shall be kept clean, and all equipment shall be maintained in proper working condition. The Engineer shall be permitted unrestricted access to inspect the Contractor's laboratory facility and witness quality control activities. The Engineer will advise the Contractor in writing of any noted deficiencies concerning the laboratory facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to be adversely affecting the test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

As a minimum, the plant testing laboratory shall have:

(a) Adequate artificial lighting
(b) Electrical outlets sufficient in number and capacity for operating the required testing equipment and drying samples.
(c) Fire extinguishers (2), Underwriter's Laboratories approved
(d) Work benches for testing, minimum 2-½ feet by 10 feet.
(e) Desk with 2 chairs
(f) Sanitary facilities convenient to testing laboratory
(g) Exhaust fan to outside air, minimum 12 inch blade diameter
(h) A direct telephone line and telephone including a FAX machine operating 24 hours per day, seven days per week
(i) File cabinet with lock for Engineer
(j) Sink with running water, attached drain board and drain capable of handling separate material
(k) Metal stand for holding washing sieves
(l) Two element hot plate or other comparable heating device, with dial type thermostatic controls for drying aggregates
(m) Mechanical shaker and appropriate sieves (listed in JMF, Table 3) meeting the requirements of ASTM E-11 for determining the gradation of coarse and

fine aggregates in accordance with ASTM C 136

(n) Marshall testing equipment meeting ASTM D 6926, ASTM D 6927, automatic compaction equipment capable of compacting three specimens at once and other apparatus as specified in ASTM C 127, D 2172, D 2726, and D 2041
(o) Oven, thermostatically controlled, inside minimum 1 cubic foot
(p) Two volumetric specific gravity flasks, 500 cc
(q) Other necessary hand tools required for sampling and testing
(r) Library containing contract specifications, latest ASTM volumes 4.01, 4.02, 4.03 and 4.09, AASHTO standard specification parts I and II, and Asphalt Institute Publication MS-2.
(s) Equipment for Theoretical Specific Gravity testing including a 4,000 cc pycnometer, vacuum pump capable of maintaining 30 ml mercury pressure and a balance, 16-20 kilograms with accuracy of 0.5 grams
(t) Extraction equipment, centrifuge and reflux types and ROTOflex equipment
(u) A masonry saw with diamond blade for trimming pavement cores and samples
(v) Telephone

Approval of the plant and testing laboratory by the Engineer requires all facilities and equipment to be in good working order during production, sampling and testing. Failure to provide the specified facilities shall be sufficient cause for disapproving bituminous plant operations.

The Owner shall have access to the lab and the plant whenever Contractor is in production.

iii. Inspection of plant. The Engineer or his authorized representative shall have access, at all times, to all parts of the plant for checking adequacy of equipment; inspecting operation of the plant: verifying weights, proportions, and character of materials; and checking the temperatures maintained in the preparation of the mixtures.

iv. Storage bins and surge bins. Use of surge bins or storage bins for temporary storage of hot bituminous mixtures will be permitted as follows:

(a) The bituminous mixture may be stored in surge bins for period of time not to exceed 3 hours.

(b) The bituminous mixture may be stored in insulated storage bins for a period of time not to exceed 24 hours, provided an inert gas atmosphere is maintained in the bin during the storage period.

The bins shall be such that mix drawn from the bin meets the same requirements as mix loaded directly into trucks.

If the Engineer determines that there is an excessive amount of heat loss, segregation and/or oxidation of the mixture due to temporary storage, no overnight storage will be allowed.

(c) Hauling Equipment. Trucks used for hauling bituminous mixtures shall have tight, clean, smooth metal beds. To prevent the mixture from adhering to them, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other approved material. Petroleum products shall not be used for coating truck beds. Each truck shall have a suitable cover to protect the mixture from adverse weather. When necessary, so

that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers shall be securely fastened.

(d) Bituminous Pavers. Bituminous pavers shall be self-contained, power-propelled units with an activated screed or strike-off assembly, heated if necessary, and shall be capable of spreading and finishing courses of bituminous plant mix materials which will meet the specified thickness, smoothness, and grade. Pavers used for roadways, shoulders and similar construction shall be capable of spreading and finishing courses of bituminous plant mix material in widths shown on the plans.

The paver shall have a receiving hopper of sufficient capacity to permit a uniform spreading operation. The hopper shall be equipped with a distribution system to place the mixture uniformly in front of the screed without segregation. The screed or strike-off assembly shall effectively produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture.

The paver shall be capable of operating at forward speeds consistent with satisfactory laying of the mixture.

Automatic grade control devices shall be used. The paver shall be equipped with a control system capable of automatically maintaining the screed elevation as specified herein. The control system shall be automatically actuated from either a reference line or surface through a system of mechanical sensors or sensor-directed mechanisms or devices which will maintain the paver screed at a predetermined transverse slope and at the proper elevation to obtain the required surface. The transverse slope controller shall be capable of maintaining the screed at the desired slope within plus or minus 0.1 percent.

The controls shall be capable of working in conjunction with any of the following attachments:

1) Ski-type device of not less than 30 feet in length or as directed by the Engineer.

2) Taut stringline (wire) set to grade.

3) Short ski or shoe.

4) Laser control.

If, during construction, it is found that the spreading and finishing equipment in use leaves tracks or indented areas, or produces other blemishes in the pavement that are not satisfactorily corrected by the scheduled operations, the use of such equipment shall be discontinued and satisfactory equipment shall be provided by the Contractor.

(e) Rollers. Rollers may be of the vibratory, steel wheel, or pneumatic-tired type. They shall be in good condition, capable of reversing without backlash, and operating at slow speeds to avoid displacement of the bituminous mixture. The number, type, and weight of rollers shall be sufficient to compact the mixture to the required density without detrimentally affecting the compacted material. All rollers shall be specifically designed and suitable for compacting hot mix bituminous concrete and shall be properly used. Rollers that impair the stability of any layer of a pavement structure or underlying soils shall not be used. Depressions in pavement surfaces caused by rollers shall be repaired by the Contractor at its own expense. The use of equipment which results in excessive crushing of the

aggregate will not be permitted.

(f) Nuclear Densometer. The Contractor shall have on site a nuclear densometer during all paving operations in order to assist in the determination of the optimum rolling pattern, type of roller and frequencies, as well as to monitor the effect of the rolling operations during production paving. The Contractor shall also supply a qualified technician during all paving operations to calibrate the nuclear densometer and obtain accurate density readings for all new bituminous concrete. These densities shall be supplied to the Engineer upon request at any time during construction. No separate payment will be made for supplying the density gauge and technician.

(g) Preparation of Bituminous Material. The bituminous material shall be heated in a manner that will avoid local overheating and provide a continuous supply of the bituminous material to the mixer at a uniform temperature. The temperature of the bituminous material delivered to the mixer shall be sufficient to provide a suitable viscosity for adequate coating of the aggregate particles but shall not exceed 325ºF.

(h) Preparation for Mineral Aggregate. The aggregate for the mixture shall be dried and heated at a paving plant before entering the mixer. When introduced into the mixer, the combined aggregate shall contain no more than 0.5% moisture if asphalt, or more than 1% if tar mixtures. Water in the aggregate shall be removed by heating to the extent that there is no subsequent foaming in the mixture prior to the placing of the material. The aggregate shall be heated to the temperature designated by the job formula within the job tolerance specified. The maximum temperature and rate of heating shall be such that no permanent damage occurs to the aggregates. Particular care shall be taken that aggregates high in calcium or magnesium content are not damaged by overheating. The aggregate shall be screened to specified sizes and conveyed into separate bins ready for mixing with bituminous material.

(i) Preparation of Bituminous Mixture. Before delivery, the aggregate shall be mixed with the bituminous material at a central mixing plant. The mixture shall be prepared at a temperature shown in 02(c) above.

The dry aggregates, prepared as prescribed in 03(g) above, shall be combined in the plant in the proportionate amounts of each fraction of aggregate required to meet the specified gradation. The quantity of aggregate for each batch shall be determined, measured and conveyed into the mixer. In case of volumetric proportioning, the size of the gate openings shall be determined, and the gates locked in position.

The quantity of bituminous material for each batch or calibrated amount for continuous mixer shall be approved by the Engineer. It shall be measured by weight and introduced into the mixer at the specified temperature, using the lowest range possible for adequate mixing and spreading. For batch mixers, all mineral aggregates shall be in the mixer before the bituminous material is added. The exact temperature within the specified range shall be approved by the Engineer. In no case shall aggregate be introduced into the mixture at a temperature more than 25° F above the temperature of the bituminous material. Wet mixing time shall be the shortest time that will produce a satisfactory mixture, but not less than 25 seconds for batch plants. The wet mixing time for all plants shall be established by the Contractor, based on the procedure for determining the percentage of coated particles described in ASTM D 2489, for each individual plant and for each type of aggregate used. The wet mixing time will be set to achieve 95 percent of coated particles. To compute the mixing time in a continuous mixer, the weight of its contents at operating level is divided by the weight of the mixture delivered per second by the mixer:

$$\text{Mixing time in seconds} = \frac{\text{Pugmill dead capacity in pounds}}{\text{Output in pounds per second}}$$

The moisture content of all bituminous mixtures upon discharge shall not exceed 0.5 percent.

(j) Transporting, Spreading, and Finishing. The mixture shall be transported from the mixing plant to the point of use in vehicles described in Paragraph 03(c) above. Deliveries shall be scheduled so that spreading and rolling of all mixture prepared for one day's run can be completed during daylight, unless adequate artificial lighting is provided. Hauling over freshly placed material shall not be permitted until the material has been compacted, as specified, and allowed to cool to atmospheric temperature.

Immediately before placing the bituminous mixture, the underlying course shall be cleared of all loose or deleterious material. A power sweeper equipped with a blower shall be used, supplemented with hand brooms if necessary, or the material shall be removed by other means as directed by the Engineer.

The mixture shall be laid only upon an approved underlying course which is dry and in suitable condition, and when weather conditions are favorable. No mixture shall be placed when the air temperature in the shade and away from artificial heat is 40^0F, or lower, unless so directed by the Engineer. The Engineer may permit work to continue when overtaken by sudden rains only to provide for laying that material which is in transit from the plant, provided the mixture is within the temperature limits specified. The mixture shall be placed at a temperature between 150^0F. and 225^0F. when tar is used and between 250^0F. and 300^0F., when asphalt cement is used. When the mixture is being placed during warm weather and the Engineer has determined that satisfactory results can be obtained at lower temperatures, he may direct that the mixture be mixed and delivered at the lower temperature.

Grade control between the edges of the pavement shall be accomplished by grade stakes or steel pins placed in lanes parallel to the centerline of the pavement and at intervals sufficiently close that string lines may be stretched between stakes or pins.

Placing shall commence at the point(s) farthest from the mixing plant and progress continuously toward the plant, unless otherwise ordered by the Engineer.

Upon arrival, the mixture shall be spread to the full width by an approved bituminous paver. It shall be struck off in a uniform layer of such depth that, when the work is completed, it shall have the required thickness and shall conform to the grade and contour indicated. The speed of the paver shall be regulated to eliminate pulling and tearing of the bituminous mat. Unless otherwise directed, placing shall begin along the centerline of areas to be paved on a crowned section or on the high side of areas with a one-way slope. The mixture shall be placed in consecutive adjacent strips having a minimum width of 10 feet, except where edge lanes require strips less than 10 feet to complete the area. The longitudinal joint in one layer shall offset that in the layer immediately below by at least 2 feet; however, the joint in the top layer shall be at the centerline of the pavement. A 16-foot straightedge shall be placed across the longitudinal joints between adjacent lanes to determine if the surface conforms to the grade and contour requirements.

Transverse joints in one layer shall be offset by at least 2 feet from transverse joints in the previous layer. Transverse joints in adjacent lanes shall be offset a minimum of 10 feet.

Edges of existing bituminous pavement abutting the new work shall be saw cut and

carefully removed as shown on the drawings and painted with bituminous tack coat before new material is placed against it. Exposed vertical edges of paved strips shall be free of all accumulations of dirt or other foreign material before any mixture is spread in an adjacent lane.

In lieu of painting the contact surface, the Contractor may use a joint heater approved by the Engineer. If the spreading machine should drift from an adjacent lane during construction, the unfilled space shall be carefully filled with fresh hot mixture obtained from the truck or the hopper of the spreading machine. Stealing mixture from that already spread to fill up these areas shall not be permitted.

In areas where, because of irregularities or unavoidable obstacles, the use of mechanical spreading and finishing equipment is impractical, the mixture may be hand spread.

When hand spreading is permitted, the mixture shall be dumped on approved dump sheets outside of the area upon which it is to be spread, and then distributed into place immediately with hot shovels. It shall be spread with hot rakes in a uniformly loose layer to the full width required and of such depth that, when the work is completed, it will have the required thickness and will conform to the grade and surface contour shown on the plans. Areas of segregation in the surface course, as determined by the Engineer, shall be removed and replaced at the Contractor's expense. The area shall be removed by saw cutting and milling a minimum of 2 inches deep. The area to be removed and replaced shall be a minimum width of the paver and a minimum of 10 feet long.

Paving during nighttime construction shall require the following:

a. All paving machines, rollers, distribution trucks and other vehicles required by the Contractor for his operations shall be equipped with artificial illumination sufficient to safely complete the work.

b. Minimum illumination level shall be twenty (20) horizontal foot candles and maintained in the following areas:

(1) An area of 30 feet wide by 30 feet long immediately behind the paving machines during the operations of the machines.

(2) An area 15 feet wide by 30 feet long immediately in front and back of all rolling equipment, during operation of the equipment.

(3) An area 15 feet wide by 15 feet long at any point where an area is being tack coated prior to the placement of pavement.

c. As partial fulfillment of the above requirements, the Contractor shall furnish and use, complete artificial lighting units with a minimum capacity of 3,000 watt electric beam lights, affixed to all equipment in such a way to direct illumination on the area under construction.

d. In addition, the Contractor shall furnish portable floodlight units as required to perform the work.

e. If the Contractor places any out of specification mix in the project work area, the Contractor is required to remove it at its own expense, to the satisfaction of the Engineer. If the Contractor has to continue placing non-payment bituminous concrete, as directed by the Engineer, to make the surfaces safe for aircraft operations, the Contractor shall do so to the satisfaction of the Engineer. It is the Contractor's responsibility to leave the

facilities to be paved in a safe condition ready for aircraft operations. No consideration for extended closure time of the area being paved will be given. As a first order of work for the next paving shift, the Contractor shall remove all out of specification material and replace with approved material to the satisfaction of the Engineer. When the above situations occur, there will be no consideration given for additional construction time or payment for extra costs.

(k) Compaction of Mixture. After spreading, the mixture shall be thoroughly and uniformly compacted with power rollers, as directed by the Engineer. Rolling of the mixture shall begin as soon after spreading as it will bear the roller without undue displacement or hair checking. Rolling shall be initiated with the drive wheel toward the paving machine. The sequence of rolling for the first paving lane should be to first roll the lower edge (with reference to the transverse slope) of the lane and then roll the upper edge. The interior of the lane should then be rolled from the lower side toward the upper with overlapping roller paths. On adjoining paving lanes rolling shall begin by overlapping the joint (with the previous lane) by 6 to 8 inches and then rolling the outside edge of the new lane. The interior is rolled from the outside edge toward the compacted joint with overlapping wheel paths. Alternate paths of the roller shall be of slightly different lengths.

The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture. Any displacement occurring as a result of reversing the direction of the roller, or from any other cause, shall be corrected at once by rakes and fresh mixture.

Sufficient rollers shall be furnished to handle the output of the plant. Rolling shall continue until all roller marks are eliminated, the surface is of uniform texture and true to grade and cross section, and a field density is obtained of at least 98% and not more than 100% of the density of laboratory specimens (prepared by the method herein before referenced) molded from a sample taken from the same truck-load as the in-place density sample.

The Contractor shall utilize a nuclear device to monitor rolling patterns and density during compaction. Acceptance testing is to be performed as described elsewhere herein.

The Contractor will obtain a test core for each 200 tons of asphalt construction for thickness measurements. Test cores may be procured at joints if directed. The holes for the cores shall be refilled with like material that same day.

To prevent adhesion of the mixture to the roller, the wheels shall be kept properly moistened, but excessive water will not be permitted. Pneumatic tired rollers may not require the use of water. In areas not accessible to the roller, the mixture shall be thoroughly compacted with hot hand tampers. Tampers shall weigh not less than 275 pounds, have a tamping plate width not less than 15 inches, be rated at not less than 4,200 vibrations per minute, and be suitably equipped with a standard tamping plate wetting device.

Any mixture which becomes loose and broken, mixed with dirt, or in any way defective shall be removed and replaced with fresh hot mixture and immediately compacted to conform to the surrounding area. This work will be done at the Contractor's expense. Skin patching shall not be allowed, unless specifically approved by the Engineer.

(l) Joints. The formation of all joints shall be made in such a manner as to ensure a continuous bond between old and new sections of the course. All joints shall present the same texture, density, and smoothness as other sections of the course.

The roller shall not pass over the unprotected end of the freshly laid mixture except when

necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course, in which case the edge shall be cut back to its full depth and width on a straight line to expose a vertical face. In both methods all contact surfaces shall be given a tack coat of bituminous material before placing any fresh mixture against the joint.

Longitudinal joints which are irregular, damaged, uncompacted, or otherwise defective shall be cut back to expose a clean, sound surface for the full depth of the course.

All contact surfaces shall be cleaned and dry, and then given a tack coat of bituminous material prior to placing any fresh mixture against the joint. The cost of this work and tack coat shall be considered incidental to the cost of the bituminous course.

(m) Shaping edges. While the surface is being compacted and finished, the Contractor shall carefully trim the outside edges of the pavement to the proper alignment. Edges so formed shall be leveled while still hot with the back of a rake or a smoothing iron and thoroughly compacted by tampers or by other satisfactory methods.

(n) Surface Tests. Tests for conformity with specified crown and grade shall be made by the Contractor immediately after initial compression. Any variation shall be corrected by the removal or addition of materials and by continuous rolling.

The finished surface shall not vary more than 1/4 inch for the surface course when tested with a 16 foot straightedge applied parallel with, or at right angles to, the centerline.

After the completion of final rolling, the smoothness of the course shall again be tested; humps or depressions exceeding the specified tolerances or that retain water on the surface shall be immediately corrected by removing the defective work and replacing with new material, as directed by the Engineer. This shall be done at the Contractor's expense.

The finished surfaces of bituminous courses shall not vary from the grade line, elevations and cross sections shown on the Contract drawings by more than 1/4 inch. The Contractor shall correct pavement areas varying in excess of this amount by removing and replacing the defective work. No additional payment shall be made for this corrective work. Skin patching will not be permitted.

(o) Sampling Pavement. Core samples for determination of composition, compaction, thickness, and density of completed pavements shall be obtained by the Contractor. The size, number, and locations of the samples will be as directed by the Engineer. Samples shall be taken for each day or fraction thereof and shall be neatly cut with a saw, core drill, or other approved equipment. The Contractor shall furnish all tools, labor, and materials for replacing pavement at no additional payment. If the pavement is deficient in composition, compaction, or thickness satisfactory correction shall be made.

(p) Bituminous and Aggregate Material Contractor's Responsibility. Tests of the bituminous and aggregate material that the Contractor proposes to use, together with a statement of their source and character, must be submitted and approval must be obtained before use of such material begins. The Contractor shall require the manufacturer or producer of the bituminous and aggregate materials to furnish material subject to this and all other pertinent requirements of the Contract. Only those materials which have been tested and approved for the intended use shall be accepted.

1) The Engineer or his authorized representative shall have access, at all times, to

all parts of the paving plant for the purpose of inspecting the equipment, the conditions and operations of the plant, for the verification of weights or proportions and character of materials, and to determine the temperatures maintained in the preparation of the mixtures.

2) The Contractor shall furnish vendor's certified tests for each carload or equivalent of bitumen shipped to the project. The report shall be delivered to the Engineer before permission is granted for use of the material. The furnishing of the vendor's certified test report for the bituminous material shall not be interpreted as a basis for final acceptance. All such test reports shall be subject to verification by testing sample materials received for use on the project.

(q) Survey. Contractor shall survey finished grade of asphalt prior to installing subsequent pavement layers. Survey shall be provided to CM and Engineer to confirm grades. Survey grid shall not exceed 25 feet in any direction.

05) METHOD OF MEASUREMENT

(a) The tonnage of plant mix bituminous pavements to be paid for shall be the number of tons of bituminous mixture of the gradations specified herein and used in the accepted work. The bituminous pavement materials shall be weighed after mixing and no deduction shall be made for the weight of bituminous material in the mixtures.

No payment will be made for materials placed in excess of 1/4" additional thickness above the plan requirements. Deductions will be made for excesses and/or deficiencies in thickness based on the individual lots of 50 tons of bituminous material placed, as determined by the cores. All bituminous material placed outside the neatlines of the section shown on the plans will be deducted, with the exception of a one-to-one wedge at the free edge(s).

(b) No distinction will be made between bituminous base courses placed using recycled pavements and those placed using all new materials.

06) BASIS OF PAYMENT

(a) Payment shall be made at the respective Contract unit prices per ton for bituminous leveling and bituminous base course. The prices shall be full compensation for furnishing all materials, for all preparation, mixing, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

(b) Payment will be made under:

Item P-401-1 Bituminous Leveling Course - Per Ton

Item P-401-2 Bituminous Base Course – Per Ton

TESTING REQUIREMENTS

AASHTO T-19	Slag
AASHTO T-30	Mechanical Analysis of Extracted Aggregate
AASHTO T-89	Liquid Limit

AASHTO T-90	Plastic Limit and Plasticity Index
AASHTO T-101	Swell
ASTM C-29	Unit Weight of Aggregate
ASTM C-88	Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C-117 and C-136	Gradation
ASTM C-127 and C-128	Specific Gravity
ASTM C-131	Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine
ASTM C-136	Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C-183	Sampling Hydraulic Cement
ASTM C-189	Hydraulic Cement, Sampling
ASTM D-75	Aggregate Sampling
ASTM D-423	Liquid Limit of Soils
ASTM D-424	Plastic Limit and Plasticity Index of Soils
ASTM D-995	Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures
ASTM D-1075	Effect of Water on Cohesion of Compacted Bituminous Mixtures
ASTM D-1188	Bulk Specific Gravity of Compacted Bituminous Mixtures Using Paraffin-Coated Specimens
ASTM D-1559	Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
ASTM D-1664	Test Method for Coating and Stripping of Bitumen-Aggregate Mixtures
ASTM D-2172	Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
ASTM D-2489	Degree of Particle Coating of Bituminous-Aggregate Mixtures
ASTM D-2726	Bulk Specific Gravity of Compacted Bituminous Mixtures Using Saturated Surface-Dry Specimens

ASTM D-2950	Density of Bituminous Concrete in Place by Nuclear Method
ASTM D-3665	Random Sampling of Paving Materials
ASTM D-3666	Inspection and Testing Agencies for Bituminous Paving Materials
E-1110-45-302	Appendix V - Corps of Engineers Manual

The Asphalt Institute's Manual No. 2 (MS-2) - Mix Design Methods for Asphalt Concrete

MATERIAL REQUIREMENTS

AASHTO M-320	Performance Graded Asphalt Binder
ASTM D-242	Mineral Filler for Bituminous Paving Mixtures
ASTM D-490	Tar
ASTM D-946	Asphalt Cement for Use in Pavement Construction

END OF SECTION P-401

SECTION P-402 - HOT MIX RECYCLED ASPHALTIC CONCRETE

1. DESCRIPTION

A. Work under this section consists of producing and placing a hot mix recycled asphaltic concrete that incorporates Reclaimed Asphalt Pavement (RAP), virgin aggregate, hydrated lime, and neat asphalt cement.

B. Hot mix recycled asphaltic concrete production and placement, along with all materials, equipment and accepted plant mixtures, except as specifically noted or modified herein, shall be in accordance with Section 400 of the Georgia Department of Transportation Standard Specifications.

2. MATERIALS

A. Materials to be used in this work shall be in accordance with Section 402.2 of the Georgia Department of Transportation Standard Specifications, and all pertinent sections referenced therein.

3. CONSTRUCTION REQUIREMENTS

A. Construction of this item shall be in accordance with the applicable technical requirements, including testing, of section 402.3 of the Georgia Department of Transportation Standard Specifications.

4. EQUIPMENT

A. Equipment used in this work shall be in accordance with Section 402.3.02 of the Georgia Department of Transportation Standard Specifications.

5. METHOD OF MEASUREMENT

A. Recycled asphaltic concrete paving items, completed and accepted, will be measured by the ton in accordance with Section 402.4 of the Georgia Department of Transportation Standard Specifications.

6. BASIS OF PAYMENT

A. Payment will be made at the contract unit price per ton for each asphaltic concrete paving item listed below. This price shall be full compensation for furnishing and placing all materials, for all approved additives, for all cleaning and repairing or preparation of surfaces, for all hauling and crushing, mixing, processing, spreading, rolling and compaction, and all other operations, labor, tools and incidentals necessary to complete the item, including stockpiling.

B. Payment will be made under:

Item 402-1 - Recyc Asph Conc 12.5 MM Superpave, Gp. 1 or 2, Incl Bit Matl & H Lime - Per Ton

Item 402-2 - Recyc Asph Conc 25 MM Superpave, Gp. 1 or 2, Incl Bit Matl & H Lime – Per Ton

END OF SECTION P-402

SECTION P-432

MILL ASPHALTIC CONCRETE PAVEMENT

DESCRIPTION

Work under this section consists of milling existing asphaltic concrete pavements for the purpose of providing clearance for overlay or for any other purpose deemed necessary due to existing conditions. The work shall be performed in accordance with these specifications and plan sections or details.

EQUIPMENT

Equipment to be used in this work shall be in accordance with Section 432.02 of the Georgia Department of Transportation Standard Specifications.

CONSTRUCTION

Construction under this section, shall be in accordance with Section 432.02 through 432.05 of the Georgia Department of Transportation Standard Specifications

04) METHOD OF MEASUREMENT

Milling of asphaltic concrete pavement will be measured by the square yard, in accordance with Section 432.06 and 109.01 of the Georgia Department of Transportation Standard Specifications.

05) BASIS OF PAYMENT

(a) Payment will be made at the contract unit price per square yard for milling asphaltic concrete pavement. This price will full compensation for furnishing all equipment, milling, hauling and disposal and for satisfactory completing the item in all other respects.

(b) Payment will be made under:

Item P-432-1 Mill Bituminous Pavement, 2” Depth– Per Square Yard

END OF SECTION P-432

SECTION P-501 PORTLAND CEMENT CONCRETE PAVEMENT

01) DESCRIPTION

(a) This work shall consist of pavements composed of Portland Cement Concrete, with or without reinforcement as specified, constructed on a prepared subgrade or subbase course in accordance with these specifications and shall conform to the thickness and typical cross sections shown on the plans and with lines and grades established by the Contractor.

(b) The Contractor will be required to construct a test section of approximately 300 linear feet in length at the proposed plan width. This test section is to be paved prior to proceeding with the production paving utilizing the equipment, methods, and materials the Contractor has submitted for the work to be constructed under this contract.

The test section shall be checked by the Contractor in the presence of the Engineer to verify acceptability and compliance with the tolerances and other contract requirements. Work not meeting the requirements will be removed and/or corrected by methods approved by the Engineer.

(c) This section shall also include the replacement of damaged and/or deficient soil cement stabilized base course, capping of underdrain trenches, concrete fill in the trench above the longitudinal underdrain with low slump, low strength concrete. Mix design and placement methods shall be in general accordance with the requirements of this section.

02) MATERIALS

The quality testing specified under Section 430 or referred elsewhere in other sections of the Georgia Department of Transportation Specifications will be performed for each source of supply. Gradation will be performed at the frequency of one per day for each material for each day of the stockpiling or production. All aggregates, including sand and stone, for use in concrete shall be tested for alkali-aggregate reaction in accordance with either ASTM C1260 or ASTM C1293. Expansions less than 0.08% at 14 days in the caustic soak solution in ASTM C1260 or less than 0.04% at one year in ASTM C1293 shall indicate that the aggregate is considered non-deleteriously reactive. Aggregates at or above these limits shall be considered potentially deleteriously reactive. Use of aggregates at or above these limits (i.e., aggregates that are potentially deleteriously reactive) shall require testing of the proposed concrete mix design to demonstrate control of deleterious expansion from ASR. The tests to demonstrate control of the mix shall be either a modified version of ASTM C1260 or ASTM C1293. The modification is that any mineral admixtures in the mix design shall be included in the cementitious portion of the batch of materials to be tested, and at the same weight percentages as designed for use in the concrete mixture being evaluated. Furthermore, in the case of ASTM C1260, the caustic soak storage solution shall be modified to incorporate the lithium admixture as described in the FHWA Publication No. FHWA-RD-03-047, pages 61 – 62. Lithium admixture is required regardless of the level of aggregate activity. See paragraph 02)(i) for the amount of lithium to be added to the concrete mix design. Expansions less than 0.08% at 28 days in the caustic soak solution in the modified ASTM C1260 or less than 0.04% at two years in the modified ASTM C1293 shall be indicative of control of deleterious expansions from ASR. Aggregates shall also be tested for alkali-carbonate reaction in accordance with the criteria stated in ASTM C33. Aggregates shown to be alkali-carbonate reactive shall not be used.

(a) Fine Aggregate. Fine aggregate for concrete shall be natural sand and shall conform to the requirements of ASTM C33 and AASHTO M-6 and shall meet the gradation requirements of Table I.

TABLE I

Gradation For Fine Aggregate

Sieve Designation (Square Openings)	Percentage by Weight Passing Sieve
3/8 Inch	100
No. 4	95-100
No. 16	45-80
No. 30	25-55
No. 50	10-30
No. 100	2-10

(b) Coarse Aggregate. Coarse aggregate for concrete shall conform to the requirements of ASTM C33 and AASHTO M80. Coarse aggregate shall be furnished in the two separate sizes as shown in Table II. The coarse aggregate shall show no more than 47% wear when tested in accordance with ASTM C131 and/or ASTM C535.

TABLE II

Gradations From 1-1/2 Inch to No. 4

Sieve Designation (Square Openings)	Percentage By Weight Passing Sieves (AASHTO T-27)						
	2"	1-l/2"	1"	3/4"	3/8"	No. 4	No. 8
1-1/2" to 3/4"	100	90-100	20-55	0-15	0-5	-	-
3/4" to No. 4	-	-	100	90-100	10-55	0-10	0-5

(c) Cement. The cement used shall be portland cement conforming to one of the following specifications:

Portland Cement ..... ASTM C150, Type I or Type II

Cement supplied for use in concrete shall be of the low alkali type, the total alkali content to be less than 0.40%.

If for any reason cement becomes partially set or contains lumps of caked cement, it shall be rejected. Cement salvaged from discarded or used bags shall not be used.

(d) Premolded Joint Filler. Premolded joint filler for expansion joints shall conform to the requirements of AASHTO M 213 and shall be punched to admit the dowels where called for on the plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint, unless otherwise specified by the Engineer. When the use of more than one piece is authorized for a joint, the abutting ends shall be fastened securely and held accurately to shape by stapling or other positive fastening means satisfactory to the Engineer.

(e) Joint Sealer. The joint sealer for the joints in the concrete pavement shall be as specified in Section P-605 Joint Sealing Filler.

(f) Dowel and Tie Bars. Dowel and tie bars shall conform to the requirements of AASHTO M

31 or AASHTO M 42, except that rail steel shall not be used for tie bars that are to be bent or re-straightened during construction. Tie bars shall be deformed bars. Dowel bars shall be plain round bars of the size specified and shall be free from burring or other deformation restricting slippage in the concrete. Before delivery to the construction site, one-half of the length of each dowel bar shall be painted with one coat of paint.

(g) Water. Water used in mixing or curing shall be as clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product as possible. Water will be tested in accordance with and shall meet the suggested requirements of AASHTO T-26. Water known to be of potable quality may be used without testing. Where the source of water is relatively shallow, the intake shall be so enclosed as to exclude silt, mud, grass, or other foreign materials.

(h) Cover Materials For Curing. Curing materials shall be liquid membrane-forming compounds for curing concrete and shall conform to ASTM C 309, Type 2, Class B. Apply at the rate of no more than 125 square feet per 1 gallon.

(i) Admixtures. The use of any material added to the concrete mix shall be approved by the Engineer. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below for the admixtures for which approvals are desired. In addition, the Engineer may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests will be made of samples taken by the Engineer from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

Pozzolanic admixtures shall be fly ash meeting the requirements of ASTM C-350 or raw or calcined natural pozzolans meeting the requirements of ASTM C-402.

Air-entraining admixtures shall meet the requirements of AASHTO M 154 or ASTM C-260. Concrete to be tested for approval shall be made with the cement and aggregate to be used in the work and shall contain an air content of 4% to 6% by volume of the concrete mixture, as determined by ASTM C-231.

Water-reducing, set-controlling mixture shall meet the requirements of ASTM C-494, Type A, water-reducing or Type D, water-reducing and retarding and shall be added to all mixes. Type A shall be added when temperatures are below 65°F., and Type D when temperatures are above 65°F. Water-reducing admixtures shall be added at the mixer separately from air-entraining admixtures in accordance with the manufacturer's printed instructions. The water-reducing, set-controlling and retarding admixtures shall not contain calcium chloride or chloride containing compounds as a functional ingredient."

Lithium admixtures shall be required in all PCC mixes and shall meet the specifications described in the AASHTO Guide Specification for Highway Construction, Section 56X, Portland Cement Concrete Resistant to Excessive Expansion from Alkali Silica Reaction, section 713.04 (lithium nitrate aqueous admixture).

The quantity of lithium admixture required will be 0.6 gallons per cubic yard of concrete using the following:

- Low alkali cement (0.4% or less alkali)
- Aggregates that have expansions less than 0.08% at 14 days in the caustic soak solution in ASTM C1260
- Low CaO Class F fly ash

There are aggregates in the Atlanta region that meet the expansion requirements. It is the contractor's responsibility to perform ASTM C1260 on the aggregates prior to stockpiling on site to determine that they meet the requirements if these locally available aggregates are not used. If the aggregates do not meet the requirements then it is the contractor's responsibility (at the contractor's cost) to put the proper amount of lithium admixture in the mix to account for expansions above 0.04%.

The Contractor shall perform these tests on the samples obtained from the actual materials to be delivered or already delivered to the site for use. These tests must be performed prior to their actual usage and no later than 60 days from the date of usage.

(j) Fly Ash. Fly ash shall be used as an additive in concrete to promote workability and plasticity. Fly ash shall be used as a partial replacement for portland cement in concrete in accordance with the following:

1) The quantity of fly ash in the mix shall not exceed 25% of the weight of total cementitious material (i.e., portland cement plus fly ash).

2) The fly ash shall conform to ASTM C-618, Type F, except that the loss on ignition shall not exceed 3%. The fly ash should have a maximum of 1.5% available alkali and a maximum 6% CaO.

3) Separate facilities must be provided for the fly ash such that it will be stored in the same fashion as cement and batched and weighed to the same degree of accuracy as required for cement. The same scales may be used for weighing both cement and fly ash provided they are handled as a separate operation.

4) The Contractor shall assume full responsibility for obtaining concrete having the minimum strength requirements set forth in the specifications.

5) A minimum of five and one-half (5½) bags of portland cement, at 94#/bag, per cubic yard of concrete shall be used in the mix.

(k) Steel Reinforcement. Deformed welded wire fabric conforming to the requirements of AASHTO M-55 or M-221 shall be used where specified on the plans.

(l) Epoxy-Resin. Epoxy-resin used to anchor dowels and tie bars shall be as specified in the Plans.

03) CONSTRUCTION METHODS

(a) Equipment. Equipment and tools necessary for handling materials and performing all parts of the work shall be approved by the Engineer as to design, capacity, and mechanical condition. The equipment shall be at the job site sufficiently before the start of construction operation for examination and approval.

1) Batching Plant and Equipment.

i) General. The batching plant shall include bins, weighing hoppers, and scales for the fine aggregate and for each size of coarse aggregate. If bulk cement is used, a bin, hopper, and separate scale for cement shall be included. The weighing hoppers shall be properly sealed and vented to preclude dusting during operation.

ii) Bins and Hoppers. Bins with adequate separate compartments for fine aggregate and for each required size of coarse aggregate shall be provided in the batching plant. Each compartment shall discharge efficiently and freely into the weighting hopper. Means of control shall be provided so that, as the quantity desired in the weighing hopper is approached, the material may be added slowly and shut off with precision. A port or other opening for removing an overload of any one of the several materials from the hopper shall be provided. Weighing hoppers shall be constructed to eliminate accumulations of tare materials and to discharge fully.

iii) An automatic recording device capable of recording all of the individual ingredients of the mix shall be installed at the point of manufacture of the concrete.

iv) Scales. The scales for weighing aggregates and cement shall be of either the beam or the spring less dial type. They shall be accurate within 0.5% throughout their range of use. When beam-type scales are used, provision, such as "tell-tale" dial, shall be made for indicating to the operator that the required load in the weighing hopper is being approached.

A device on the weighing beams shall clearly indicate critical position. Poises shall be designed to be locked in any position and to prevent unauthorized change. The weight beam and "tell-tale" device shall be in full view of the operator while charging the hopper, and he shall have convenient access to all controls.

Scales shall be inspected and sealed as often as the Engineer may deem necessary to assure their continued accuracy. The Contractor shall have on hand not less than ten 50-pound weights for frequent testing of all scales.

2) Mixers

i) General. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. Each mixer shall have attached in a prominent place a manufacturer's plate showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades.

A device, accurate within 3% and satisfactory to the Engineer, shall be provided at the mixer for determining the amount of air-entraining agent that is added to each batch requiring such admixture.

Mixers shall be examined daily for the accumulation of hard concrete or mortar and the wear of blades.

ii) Mixers at construction sites. Mixing shall be in an approved mixer capable of combining the aggregates, cement, and water into a thoroughly mixed and uniform mass within the specified mixing period, and of discharging and distributing the mixture without segregation on the prepared grade. The mixer shall be equipped with an approved timing device which will automatically lock the discharge lever when the drum has been charged and release it at the end of the mixing period. The device shall be equipped

with a bell or other suitable warning device adjusted to give a clearly audible signal each time the lock is released. In case of failure of the timing device, the mixer may be used for the balance of the day while it is being repaired, providing that each batch is mixed 90 seconds. The mixers shall be cleaned at suitable intervals. The pickup and throwover blades in the drum(s) shall be repaired or replaced when they are worn down 3/4 inch or more. The Contractor shall have available at the job site a copy of the manufacturer's design, showing dimensions and arrangements of blades in reference to original height and depth, or provide permanent marks on blades to show points of 3/4 inch wear from new conditions. Drilled holes of 1/4 inch diameter near each end and at the midpoint of each blade are recommended.

iii) Central plant mixers. Mixers for central plant mixing (plant mixer, revolving drum type mixer, single opening revolving truncated drum mixer, and a revolving drum charging at one end and discharging at the other end) shall have attached thereto, in a prominent place by the manufacturer, a metal plate or plates on which is plainly marked the various uses for which the equipment is designed, the normal capacity (in cubic feet) of the drum or container in terms of the volume of mixed concrete, and the speed of rotation of the mixing drum or blades. Central plant mixers shall be equipped with an acceptable timing device that will not permit the batch to be discharged until the specified mixing time has elapsed. The water system for a central mixer shall be either a calibrated measuring tank or a meter and shall not necessarily be an integral part of the mixer.

The mixers shall be cleaned at suitable intervals. They shall be examined daily for changes in condition due to accumulation of hard concrete or mortar or to wear of blades. The pickup and throwover blades shall be replaced when they have worn down 3/4 inch or more. The Contractor shall provide the Engineer with a copy of the manufacturer's design showing dimensions and arrangement of blades in reference to original height and depth.

iv) Truck Mixers and Truck Agitators. Truck mixers used for mixing and hauling concrete, and truck agitators used for hauling central mixed concrete, shall conform to the requirements of AASHTO M 157.

v) Non-agitator Trucks. Non-agitating hauling equipment shall conform to the requirements of AASHTO M 157.

3) Finishing Equipment.

i) Finishing machine. The finishing machine shall be self propelled and equipped with at least two oscillating type transverse screeds.

ii) Vibrators. Vibrators, for full width vibration of concrete paving slabs, may be either the surface pan type or the internal type with either immersed tube or multiple spuds. They may be attached to the spreader or the finishing machine, or they may be mounted on a separate carriage. They shall not come in contact with the joint, load transfer devices, subgrade, or side forms. The frequency of the surface vibrators shall be not less than 3,500 impulses per minute and the frequency of the internal type shall be not less than 5,000 impulses per minute for tube vibrators and not less than 7,000 impulses per minute for spud vibrators.

When spud internal vibrators are used adjacent to forms, they shall have a frequency of not less than 3,500 impulses per minute.

4) Concrete Saw. When sawing of joints is elected or specified, the Contractor shall provide sawing equipment adequate in number of units and power to complete the sawing to the required dimensions and at the required rate. The Contractor shall provide at least one standby saw in good working order. An ample supply of saw blades shall be maintained at the site of the work at all times during sawing operations.

The Contractor shall provide adequate artificial lighting facilities for night sawing. All of this equipment shall be on the job both before and at all times during concrete placement. Immediately after the initial sawing, the Contractor shall flush out the slurry in the joint with water and install a backer rod slightly larger in diameter than the width of the saw cut, at the bottom of the saw cut. The length of the backer rod shall be extended approximately 6" beyond the slab edge for future overlap of the adjacent slab.

5) Forms. Straight side forms shall be made of metal having a thickness of not less than 7/32” and shall be furnished in sections of not less than 10 feet in length. Forms shall have a depth equal to the prescribed edge thickness of the concrete, without horizontal joint, and a base width equal to the depth of the forms. Flexible or curved forms of proper radius shall be used for curves of 100 foot radius or less. Flexible or curved forms shall be of a design acceptable to the Engineer. Forms shall be provided with adequate devices for secure settings so that when in place they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Flange braces shall extend outward on the base not less than two-thirds the height of the form. Forms with battered top surfaces, and bent, twisted, or broken forms shall be removed from the work. Repaired forms shall not be used until inspected and approved. Built-up forms shall not be used, except as approved by the Engineer. The top face of the form shall not vary from a true plane more than 1/8 inch in 10 feet, and the upstanding leg shall not vary more than ¼ inch. The forms shall contain provisions for locking the ends of abutting sections together tightly for secure setting.

6) Slip Form Paver. The use of a slip form paver is mandatory except for the limited number of odd shaped pavement slabs. Slip form paving equipment shall be equipped with traveling side forms of sufficient dimensions, shapes and strength to support the concrete laterally for a sufficient length of time during placement to produce pavement of the required cross section.

i) Slip form paving equipment shall also be equipped with automatic screed controls referenced to pre-erected grade lines (utilizing a staked string line on both sides of the paver).

ii) The slip form paver shall be operated and manned by personnel experienced and trained on the operation of the equipment.

iii) The slip form paver shall, when arriving at the job site and at each time the paver is transported from one location to another, be thoroughly inspected and checked, by an experienced person, preferably the manufacturer's representative, for misalignment, warping, breakage, or inadvertent changes in the setting of various control elements. This shall include inspecting the configuration of the main screeds when in paving position.

Such inspection shall be accomplished in accordance with the recommendations of the manufacturer of the slip form paver used on the project.

iv) The slip form paver shall be of a type that would permit vertical adjustment for side tracks so that where there is existing pavement, the machine can operate with one track placed on the existing pavement and the other placed on the subgrade.

v) The slip form paving machine shall be approved by the Engineer prior to starting the paving operations. It shall be self-propelled and be designed for the specific purpose of placing, consolidating, and finishing concrete pavement slabs true to grade and cross section in one complete pass without the use of fixed forms. The slip form paving machine shall be equipped with electronically controlled devices to control the grade and alignment of the finished surface from wire lines on both sides of the machine regardless of the condition of the subgrade the machine is traveling upon. The machine shall be equipped with means for spreading the concrete to a uniform depth before it enters the throat of the machine. The machine shall vibrate the concrete either externally or internally with sufficient intensity to consolidate the concrete throughout its entire depth and width.

(b) Form Setting. Forms shall be set sufficiently in advance of the concrete placement. After the forms have been set to correct grade, the grade shall be thoroughly tamped, either mechanically or by hand, at both the inside and outside edges of the base of the forms. Forms shall be staked into place with not less than 3 pins for each 10 foot section. A pin shall be placed at each side of every joint. Form sections shall be tightly locked and shall be free from play or movement in any direction. The forms shall not deviate from true line by more than 1/4 inch at any point. Excessive settlement or springing of forms under the finishing machine will not be tolerated. Forms shall be cleaned and oiled prior to the placing of concrete.

The alignment and grade elevations of the forms shall be checked and corrections made by the Contractor immediately before placing the concrete. When any form has been disturbed or any grade has become unstable, the form shall be reset and rechecked.

(c) Conditioning of Underlying Course. Ruts or depressions caused by hauling or usage of other equipment shall be filled, as they develop, with suitable material to the satisfaction of the Engineer. A multiple-pin template weighing not less than 1,000 pounds (per 20 foot machine) or other approved template shall be provided and operated on the forms immediately in advance of the placing of the concrete. If the mixer is operated upon the grade, the template shall be operated between the mixer and the spreader; in any case, it shall be propelled only by hand and plates shall be adjustable so that they may be set and maintained at the correct contour of the underlying course. The adjustment and operation of the template shall be such as will provide an accurate retest of the grade before placing the concrete thereon. All excess material shall be removed. If the grade is found to be below the true elevation, the depressions shall be filled with approved material and thoroughly compacted to the proper cross section by rolling or tamping with a hand tamp.

1) The template shall be maintained in accurate adjustment, at all times by the Contractor, and should be checked daily.

2) The work described under the foregoing paragraphs does not contemplate a regular subgrading operation, but rather a final accurate check of the underlying

course.

The Contractor shall survey the underlying course/base prior to PCC installation. This survey shall be incidental to construction and shall be delivered to the Engineer.

(d) Handling, Measuring and Batching Materials. The batch plant site, layout, equipment, and provisions for transporting material shall assure a continuous supply of material to the work. Stockpiles shall be built up in layers of not more than 3 feet in thickness. Each layer shall be completely in place before beginning the next, which shall not be allowed to "cone" down over the next lower layer. Aggregates from different sources and of different gradings shall not be stockpiled together.

1). Aggregates shall be handled from stockpiles or other sources to the batching plant in such manner to secure the specified grading of the material. Aggregates that have become segregated or mixed with earth or foreign material shall not be used. All aggregates produced or handled by hydraulic methods, and washed aggregates, shall be stockpiled or binned for draining at least 12 hours before being batched. Rail shipments requiring more than 12 hours will be accepted as adequate binning only if the car bodies permit free drainage. In case the aggregates contain high or nonuniform moisture content, storage or stockpile periods in excess of 12 hours may be required by the Engineer.

2). The fine aggregate and each size of coarse aggregate shall be separately weighed into hoppers in the respective amounts set by the job mix. Cement shall be measured by the sack or by weight. Separate scales and hoppers, with a device to indicate positively the complete discharge of the batch of cement into the batch box or container, shall be used for weighing the cement. Ninety-four pounds of bulk cement shall be considered one sack. Batches involving fractional sacks shall not be allowed, except when bulk cement is used.

3). When mixing is at the site of the work, aggregates shall be transported from the batching plant to the mixer in batch boxes, vehicle bodies, or other containers of adequate capacity and construction to properly carry the volume required. Partitions separating batches shall be adequate and effective to prevent spilling from one compartment to another while in transit or while being dumped. When bulk cement is used, the Contractor shall use a suitable method of handling the cement from weighing hopper or transporting container or into the batch itself for transportation to the mixer, such as a chute, boot, or other approved device, to prevent loss of cement. The device shall be arranged to provide positive assurance of the actual presence in each batch of the entire cement content specified.

4). Bulk cement shall be transported to the mixer in tight compartments capable of carrying the full amount of cement required for the batch, or if permitted, between the fine and coarse aggregate. When cement is placed in contact with the aggregates, batches may be rejected unless mixed within 1-1/2 hours of such contact. Cement in original shipping packages may be transported on top of the aggregates, each batch containing the number of sacks required by the job mix.

5). Batches shall be delivered to the mixer separately and intact. Each batch shall be dumped into the mixer without loss of cement, and when more than one batch is carried on the truck, it shall be dumped without spilling of material from one batch compartment into another. Batching shall be conducted so that the results in the weights of each material required will be within a tolerance of 1% for cement and 2% for aggregates.

6). Water may be measured either by volume or by weight. The accuracy of measuring the water shall be within ±1% of required amounts. Unless the water is to be weighed, the water-measuring equipment shall include an auxiliary tank from which the measuring tank shall be filled. The measuring tank shall be equipped with an outside tap and valve to provide checking of the setting, unless other means are provided for readily and accurately determining the amount of water in the tank. The volume of the auxiliary tank shall be at least equal to that of the measuring tank.

Methods and equipment for adding air-entraining agent or other admixtures to the batch, when required, shall be approved by the Engineer. All admixtures shall be measured into the mixer with an accuracy of ±3%.

(e) Proportions.

1). At least thirty (30) days prior to the start of concrete paving operations and after approval of all material to be used in the concrete, the Contractor shall submit the proportions of the material to produce the specified flexural strength of 650 psi at 28 days and 735 psi at 90 days. During the mix design process, additional beams shall be made to determine the strength at 24 hours, 36 hours and 48 hours. The Contractor shall submit for approval the job mix formula, at his expense, to the Engineer at least thirty (30) days prior to construction. The proportioning shall be approved in writing by the Engineer to the Contractor. Should a change in sources of materials be made, or if different sources of materials are to be used, proportions for these materials shall also be approved in writing by the Engineer before said materials are incorporated into the mix. The approved mix shall be a workable concrete designed for a one (1) inch slump, with one-half (½) inch as the minimum and one and one-half (1-1/2) inches as the maximum allowable in any specimen and an air content of 4% to 6%. If the Contractor proposes to place concrete by methods other than slip forming that requires a higher slump, the slump may be increased to a maximum of 2-1/2" provided the Contractor has had a mix designed and approved to the criteria specified herein.

The mix design for the low slump, low strength base course replacement shall follow the general requirements of this section. The concrete shall be designed for a 1" to 2" slump, 5% to 7% air content and a 7 day compressive strength of 2000 psi. The low slump concrete shall be used to repair base material as well as for capping the underdrain trenches, duct banks, and conduit trenches in the base materials.

The mix design procedure shall include testing for gradation, specific gravity, fineness modulus, dry rodded unit weight, abrasion, compressive and tensile strengths of cement, slump, air, yield, strength, time of set, shrinkage, and statistical analysis. Sufficient beams shall be cast during the mix design process to adequately determine the strengths at 3 days, 7 days, 14 days, 28 days, and 90 days to insure compliance with the requirements of the contract documents. The use of maturity meters *shall* be used to monitor and determine the concrete strength. The meters shall be intelliRock Maturity Meters supplied by Engius of Stillwater, Oklahoma. Curves shall be developed during the mix design process and further proved during the concrete placement.

During construction, the Contractor shall make at least seven (7) beams for each 200 cubic yards, or fraction thereof, placed. Each individual three (3), seven (7) twenty-eight (28) day, and ninety (90) day flexural strength test, consisting of the average of two (2) beam breaks, shall represent that amount of concrete each

side of the test location midway to the adjacent test locations or to end of lane, whichever is applicable. Only one beam shall be made for the ninety-day flexural strength test. The quantity of concrete represented by each test shall be as near as practical to the specified frequency. Beams shall be tested at three (3) and seven (7) twenty-eight (28) and ninety (90) days. The flexural strength average of any four (4) consecutive strength tests, tested at the end of twenty-eight (28) days, shall have an average flexural strength equal to or greater than the specified flexural strength. When the maturity meter curves have been developed to an acceptable level, the frequency of casting test beams will be modified to one set per 500 cubic yards. This shall apply to each approved mix design specifically. When the test specimens fail to conform to the requirements for strength, the Engineer shall have the right to order changes in the concrete sufficient to increase the strength to meet these requirements.

In order to monitor quality control the Contractor shall make test beams and the Contractor shall provide the concrete and adequate facilities for sampling, making, (including the beam molds), storing, curing, and breaking the beams in accordance with the ASTM specifications, at facilities set up by the Contractor at the worksite. Complete records shall be maintained on a daily basis, showing the location, age, test results, standard deviation, consecutive four (4) average, remarks and other data necessary to monitor quality control.

Should any portion of the concrete pavement fail to meet the requirement of the average four (4) consecutive twenty-eight (28) day flexural strength tests, the following shall apply:

i) Twenty-eight (28) day strengths shall be adjusted for any variation from design strengths in proportion to the square of the thickness as follows:

$$fs_{adjusted} = \frac{t^2_{actual}}{t^2_{design}} \times fs_{actual}$$

Where: t_{actual} = actual pavement thickness

t_{design} = design thickness

fs_{actual} = actual 28 day flexural strength

$fs_{adjusted}$ = adjusted 28 day flexural strength

ii) If the concrete pavements fail to meet the strength tests after adjustment for thickness, the unit price shall be adjusted for that quantity of concrete as defined by the 200 cubic yards, or 500 cubic yards represented by the beam specimens.

TABLE III

Adjusted Deficiency in Flexure Strength-PSI	Proportional Part of Contract Price Allowed
650 psi and above	100%
649 psi to 645 psi	90%
644 psi to 640 psi	80%
639 psi to 635 psi	70%
634 psi to 630 psi	60%
629 psi to 625 psi	50%

Any adjusted deficiency below 625 psi shall be removed or, if approved by the Engineer, may be left in place without payment.

(f) Mixing Concrete. The concrete may be mixed at the work site in a central mix plant or in truck mixers. The mixer shall be of an approved type and capacity. Mixing time shall be measured from the time all materials, except water, are emptied into the drum. Ready--mixed concrete shall be mixed and delivered in accordance with the requirements of AASHTO M-157.

1). When mixed at work site or in a central mixing plant, the mixing time shall be not less than 50 seconds nor more than 90 seconds. Four seconds shall be added to the specified mixing time if timing starts the instant the skip reaches its maximum raised position. Mixing time ends when the discharge chute opens. Transfer time in multiple drum mixers is included in mixing time. The contents of an individual mixer drum shall be removed before a succeeding batch is emptied therein.

2). The mixer shall be operated at the drum speed as shown on the manufacturer's nameplate on the approved mixer. Any concrete mixed less than the specified time shall be discarded by the Contractor at his expense. The volume of concrete mixed per batch shall not exceed the standard rating plate on the mixer, except that an overload up to 10% above the mixer's nominal capacity may be permitted, provided concrete test data for strength, segregation, and uniform consistency are satisfactory, and provided no spillage of concrete takes place.

3). The batch shall be charged into the drum so that a portion of the mixing water shall enter in advance of the cement and aggregates. The flow of water shall be uniform and all water shall be in the drum by the end of the first 15 seconds of the mixing period. The throat of the drum shall be kept free of such accumulations as may restrict the free flow of materials into the drum.

4). Mixed concrete from the central-mixing plant shall be transported in truck mixers, truck agitators, or nonagitating trucks having special bodies. The time elapsing from the time water is added to the mix until the concrete is deposited in place at the work site shall not exceed 30 minutes when the concrete is hauled in nonagitating trucks, nor 60 minutes when the concrete is hauled in truck mixers or truck agitators.

5). Retempering concrete by adding water will not be permitted. Concrete that is not within the specified slump limits at the time of placement shall not be used. Admixtures for increasing the workability or for accelerating the set will be permitted only when specifically specified for in the contract.

(g) Limitations of Mixing. No concrete shall be mixed, placed or finished when the natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

1). Unless authorized in writing by the Engineer, mixing and concreting operations shall be discontinued when a descending air temperature in the shade and away from artificial heat reaches 40°F., and shall not be resumed until an ascending air temperature in the shade and away from artificial heat reaches 35°F.

2). When concreting is authorized during cold weather, the aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be so arranged as to preclude the possible occurrence of overheated areas which might injure the materials. Unless otherwise authorized, the temperature of the mixed concrete shall be not less than 50°F.,

and not more than 80°F., at the time of placement in the forms.

3). If the air temperature is 35°F., or less at the time of placing concrete, the Engineer may require the water and/or the aggregates to be heated to not less than 70°F., nor more than 150°F. Concrete shall not be placed on frozen subgrade nor shall frozen aggregates be used in the concrete.

4). Sufficient cold weather protection shall be provided to cover and protect the freshly placed concrete for a period of a minimum of five (5) days.

6) Placement of concrete during hot weather shall be controlled by various means to maintain the concrete temperature at the time of placement in the forms to 85°F.

The temperature of the various materials and the final concrete may require the use of several simultaneous cooling methods including covering the aggregate stockpiles, sprinkling the aggregates, chilled water, substituting crushed ice for a portion of the mixing water, and/or any other method to maintain the temperature of the concrete at the time of placement to a maximum of 85° F.

(h) Placing Concrete. The concrete shall be deposited on the thoroughly moistened grade in such a manner as to require as little rehandling as possible. Unless truck mixers, truck agitators, or non-agitating hauling equipment are equipped with means for discharge of concrete without segregation of the materials, the concrete shall be unloaded into an approved spreading device and mechanically spread on the grade in such a manner as to prevent segregation of the materials. Placing shall be continuous between transverse joints without the use of intermediate bulkheads. Necessary hand spreading shall be done with shovels, not rakes. Workmen shall not be allowed to walk in the freshly mixed concrete with boots or shoes coated with earth or foreign substances.

1). Concrete shall be thoroughly consolidated against and along the faces of all forms and along the full length and on both sides of all joint assemblies by means of vibrators inserted in the concrete. Vibrators shall not be permitted to come in contact with a joint assembly, the grade, or a side form. In no case shall the vibrator be operated longer than 15 seconds in any one location.

2). Concrete shall be deposited as near to expansion and contraction joints as possible, without disturbing them but shall not be dumped from the discharge bucket or hopper onto a joint assembly unless the hopper is well centered on the joint assembly.

3). Should any concrete materials fall on or be worked into the surface of a completed slab, they shall be removed immediately by approved methods.

4). The concrete pavements shall be placed using a slip form paver, operating on a staked string line.

5). Slip form paving equipment shall spread, consolidate, screed, and float-finish the freshly placed concrete in such a manner that a minimum of finishing with a hand float will be required to provide a dense, homogenous and true smooth-riding surface.

i) The concrete shall be distributed uniformly into final position by the slip form paver without delay.

ii) The concrete, for the full paving width, shall be effectively consolidated by internal vibration with transverse vibrating units or a series of equally spaced longitudinal vibrating units. If a series of longitudinal vibrating units are used, they shall be equally spaced at intervals not to exceed 2.5 feet, measured center to center. The outside vibrators shall be spaced to be within 6" of paving edge.

iii) The term "internal vibration" specified in the above paragraph shall be construed to mean vibration by means of vibrating units located within the specified thickness of pavement section and minimum distance ahead of the screed equal to the pavement thickness.

iv) The rate of vibration of each vibrating unit shall be not less than 6,000 and nor more than 10,000 vibrations per minute, and the amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete along the entire length of the vibrating unit and for a distance of at least one (1) foot therefrom. The Contractor shall furnish a tachometer or other suitable device for measuring and indicating the actual frequency of vibrations. That part of the equipment which is supported on the existing pavement shall be equipped with protective pads on crawler tracks or rubber-tired wheels on which the bearing surface shall be offset to run a sufficient distance from the edge of pavement to avoid breaking or cracking the pavement edge. That part of the equipment which is supported on the shoulder subgrade shall have crawler type tracks (rubber-tired wheels will not be permitted).

v) The vibrators and tamping elements shall be automatically controlled so that they shall be stopped as forward motion ceases. Any override switch shall be a spring-loaded, momentary contact type.

(i) Strike-Off of Concrete and Placement of Reinforcement. Following the placing of the concrete, it shall be struck-off to conform to the cross section shown on the plans and to an elevation such that when the concrete is properly consolidated and finished, the surface of the pavement shall be at the elevation shown on the plans. When reinforced concrete pavement is placed in two layers, the bottom layer shall be struck-off to such length and depth that the sheet of fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed directly upon the concrete, after which the top layer of the concrete shall be placed, struck-off and screeded. Any portion of the bottom layer of concrete which has been placed more than 30 minutes without being covered with the top layer shall be removed and replaced with freshly mixed concrete at the Contractor's expense. When reinforced concrete is placed in one layer, the reinforcement may be positioned in advance of concrete placement or it may be placed in plastic concrete by mechanical or vibratory means after spreading.

1) Reinforcing steel, at the time concrete is placed, shall be free of mud, oil, or other organic matter that may adversely affect or reduce bond.

2) Reinforcing steel with rust, mill scale, or a combination of both will be considered satisfactory, provided the minimum dimensions, weight, and tensile properties of a hand wire-brushed test specimen are not less than the applicable AASHTO specification requirement.

3) The Contractor shall, at his option, either place pavement reinforcing manually in the plane shown on the plans and then place the final lift or he may set the reinforcing into place using mechanical equipment to be approved by the Engineer

prior to its use, after the placement of the concrete.

4) Mechanical equipment to place the pavement reinforcing after the placement of concrete shall be capable of positioning the pavement reinforcing at the required depth in the wet concrete without damaging the edges and finished surface of the concrete pavement. The Contractor shall use a finishing machine, equipped with side forms, to correct and refinish the surface of the concrete pavement to provide a smooth riding surface in accordance with the requirements of the specifications.

(j) Joints.

1) General. Longitudinal and transverse joints shall be constructed as indicated on the plans and in accordance with these requirements. All joints shall be constructed true to line with their faces perpendicular to the surface of the pavement. Joints shall not vary more than 1/4 inch from true line or from their designated position. The vertical surface of the pavements adjacent to all expansion joints shall be finished to a true plane and edged to a radius of 1/4 inch, or as shown on the plans. The surface across the joints shall be tested with a 10 foot straightedge as the joints are finished and any irregularities in excess of 1/8 inch shall be corrected before the concrete has hardened. Transverse joints shall be at right angles to the centerline of the pavement and shall extend the full width of the slab. The transverse joints in succeeding lanes shall be placed in the line with similar joints in the first lane. In the case of widening existing pavements, transverse joints shall be placed in line with similar joints in the existing pavement. All transverse contraction joints shall be saw cut to the depths and widths shown in the plans.

i) Deformed Dowel Bars. Deformed dowel bars of the dimensions and spacings as shown on the plans shall be installed principally in longitudinal construction joints as shown on the plans. The dowel bars shall be placed at right angles to the centerline of the concrete slab and shall be spaced at intervals of 12 inches, unless otherwise specified. They shall be held in position parallel to the pavement surface and midway between the surfaces of the slab.

When deformed dowel bars extend into an unpaved lane, they shall be drilled and epoxy grouted into the poured lane as hereinafter specified, unless threaded bolt or other assembled deformed dowel bars are specified. These bars shall not be painted, greased, or enclosed in sleeves.

ii) Smooth Dowel Bars. Smooth dowel bars or other load-transfer units of an approved type shall be placed across transverse, longitudinal, or other joints in the manner as specified on the plans. They shall be of the dimensions and spacings as shown and held rigidly in the middle of the slab depth in the proper horizontal and vertical alignment by an approved assembly device to be left permanently in place. When the dowels for longitudinal construction joints extend into an unpaved lane, they shall be drilled and epoxy grouted into the poured lane as hereinafter specified. The dowel or load-transfer and joint devices shall be rigid enough to permit complete assembly as a unit ready to be lifted and placed into position. The portion of each dowel painted with rust preventative paint, as required under Paragraph 02(f) hereinbefore, shall be thoroughly coated with Asphalt MC-70, or an approved lubricant, to prevent the concrete from binding to that portion of the dowel. In lieu of using dowel assemblies at contraction joints, dowel bars may be placed in the full thickness of

pavement by a mechanical device approved by the Engineers.

2). Installation. If the paving mixer is operated from an adjacent lane, any joint materials required shall be set immediately after the final testing of the grade. If the paving mixer is operated from the lane being poured, the materials shall be set immediately after the mixer moves forward to permit as much time as possible for proper installation. All joint materials required shall be put in place on the completed and accepted grade. The materials and joint position shall be either at right angles or parallel to the centerline of the pavement, except for fillets or irregular sections. The top of an assembled joint device shall be set at the proper distance below the pavement surface and the elevation shall be checked. Such devices shall be set to the required position and line and shall be securely held in place by stakes or other means during the pouring and finishing of the concrete. The premolded joint material shall be placed and held in a vertical position; if constructed in sections there shall be no offsets between adjacent units. Dowel bars shall be checked for exact position and alignment as soon as the joint device is staked in place and the device shall be tested to determine whether it is firmly supported. Any joint installation not firmly and securely supported shall be reset.

i) When joints in concrete pavements are sawed, the joints shall be cut at the time and in the manner approved by the Engineer. The equipment used shall be as described in paragraph 03(a)4).

ii) The circular cutter shall be capable of cutting a groove in a straight line; the circular cutter shall produce a slot at least 1/8 inch wide. When shown on the plans or required by the specifications, the top portion of the slot or groove shall be widened by means of a second shallower cut or by suitable and approved beveling to provide adequate space joint sealers. Sawing of the joints shall commence as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling or tearing. Sawing shall be carried on both during the day and night as required. The joints shall be sawed at the required spacing consecutively in sequence of the concrete placement, unless otherwise approved by the Engineer.

3). Longitudinal Joints.

i) Construction. Longitudinal construction joints necessary for lane construction shall be formed against suitable forms made of steel. Wooden forms may be used under special conditions, when approved by the Engineer. The construction joints shall be a butt-type joint with smooth dowel bars or deformed tie-bars, as indicated on the plans. The dowels for this type joint shall be painted and greased. The edges of the joint shall be finished with a grooving tool or edging tool and a space or slot shall be formed along the joint of the dimensions, as indicated, to receive the joint sealing material. Provisions shall be made for the installation of tie bars as noted on the plans.

ii) Contraction or Weakened-plane Type. The longitudinal groove formed or sawed in the top of the slab shall be installed where indicated on the drawings. The groove shall be formed in the plastic concrete with suitable tools or material to obtain the width and depth specified, or it shall be sawed with approved equipment in the hardened concrete to the dimensions required. When the groove is formed in plastic concrete, it shall be true to line with not more than 1/4 inch variation in 10 feet; it shall be uniform in width and depth; and the sides of the groove shall be finished

evenly and smoothly with an edging tool. If an insert material is used, the installation and edge finish shall be according to the manufacturer's instructions. The sawed groove shall be straight and of uniform width and depth. In either case, the groove shall be clean cut so that spalling will be avoided at intersections with transverse joints. Tie bars shall be installed across those joints, as shown on the plans.

iii) Expansion. Longitudinal expansion joints shall be installed where designated on the plans. These shall be of a butt type without load-transfer devices and shall include a premolded expansion material. The thickness of the concrete at these joints shall be increased by at least 25% of the normal pavement thickness to the nearest inch but not less than 2 inches. This increase shall slope to normal thickness in not less than 10 feet from the joint unless otherwise indicated on the plans or to the nearest joint such as a groove joint. The premolded filler, of the thickness as shown on the plans, shall extend for the full depth and width of the slab at the joint, except for space for sealant at the top of the slab. The filler shall be securely staked or fastened into position perpendicular to the proposed finished surface.

A metal or wooden cap shall be provided to protect the top edge of the filler and to permit the concrete to be placed and finished. After the concrete has been placed and struck-off, the cap shall be carefully withdrawn leaving the space over the premolded filler. The edges of the joint shall be finished and tooled while the concrete is still plastic. The width of the joint shall be corrected for temperature, nominal width shown on the plans to be at 68°F.

4). Transverse Joints.

i) Expansion. Transverse expansion joints shall be installed at the locations and spacing as shown on the plans. The joints shall be installed at right angles to the centerline and perpendicular to the surface of the pavement. The joints shall be so installed and finished to insure complete separation of the slabs.

Expansion joints shall be of a premolded type conforming to these specifications and with the plans and shall be the full width of the pavement strip.

All concrete shall be cleaned from the top of the joint material. Before the pavement is opened to traffic this space shall be swept clean and filled with approved joint sealing material.

The filler shall be placed on the side of the installing plate nearest the mixer. The top edge of the filler shall be protected by a metal channel cap of at least 10 gauge material. The installing device may be designed with this cap self-contained.

All devices used for the installation of expansion joints shall be approved by the Engineer. They shall be easily removable without disturbing the concrete and held in proper transverse and vertical alignment. Immediately after forms are removed, any concrete bridging the joint space at the ends shall be removed for the full width and depth of the joint.

When specified, expansion joints shall be equipped with dowels of the dimensions and at the spacing and location indicated on the plans. The dowels shall be firmly supported in place and accurately aligned parallel to the subgrade and the centerline of the pavement by means of a dowel assembly which will remain in the pavement and will insure that the dowels are not displaced during construction.

Other types of load-transfer devices may be used, when approved by the Engineer. The width of the joint shall be corrected for temperature, nominal width shown on the plans to be at 68°F.

ii) Contraction. Transverse contraction joints, weakened-plane joints, or both, shall be installed at the locations and spacing as shown on the plans. These joints will be installed by forming a groove or cleft in the top of the slab while the concrete is still plastic or by sawing a groove into the concrete surface after the concrete has hardened in the same manner as specified in paragraph 03)(j)3)ii).

Dowel bar assembly shall be installed when required, as shown on the plans.

iii) Construction. Transverse construction joints shall be installed in accordance with the details on the plans and ordinarily are only needed when it is necessary to suspend the work for more than 30 minutes. The construction joint shall be located at a planned contraction or expansion joint. The fresh concrete shall be removed back to the previously spaced regular joint.

iv) Construction of Connection Between New and Existing Pavement. The Contractor shall hand excavate, using extreme care, to the dimensions shown in the plans, adjacent to the edges of all existing pavements to prevent any damage to the existing pavement.

The connection between the new and existing pavements shall be constructed as shown on the plans.

Any damage to the existing pavement caused by the Contractor's operations shall be repaired by him, to the satisfaction of the Engineer at no cost to the Owner.

(k) Final Strike-Off, Consolidation and Finishing.

1). Sequence. The sequence of operations shall be the strike-off and consolidation, floating and removal of laitance, straightedging, and final surface finish. The addition of superficial water to the surface of the concrete to assist in finishing operations generally will not be permitted. If the application of water to the surface is permitted, it shall be applied as a fog spray by means of approved spray equipment.

2), Finishing at Joints.

i) The concrete adjacent to joints shall be compacted or firmly placed without voids or segregation against the joint material; it shall be firmly placed without voids or segregation under and around all load-transfer devices, joint assembly units, and other features designed to extend into the

pavement. Concrete adjacent to joints shall be mechanically vibrated as required in paragraph 03(h).

ii) After the concrete has been placed and vibrated adjacent to the joints as required in paragraph 03(h), the finishing machine shall be operated in a manner to avoid damage or misalignment of joints. If uninterrupted operations of the finishing machine, to, over, and beyond the joints causes segregation of concrete, damage to, or misalignment of the joints, the finishing machine shall be stopped when the front screed is approximately 8 inches from the joint. Segregated concrete shall be removed from the front of and off the joint; the front screed shall be lifted and set directly on top of the joint and the forward motion of the finishing machine shall be resumed.

When the second screed is close enough to permit the excess mortar in front of it to flow over the joint, it shall be lifted and carried over the joint. Thereafter, the finishing machine may be run over the joint without lifting the screeds, provided there is no segregated concrete immediately between the joint and the screed or on top of the joint.

3). Machine Finishing.

i) A belt finish or burlap drag will be acceptable on the taxiway and roadway pavements. The final elevations of all pavements shall not vary more than one fourth (1/4) inch from the finished grade elevations.

ii) Vibratory Method. When vibration is specified, vibrators for full-width vibration of concrete paving slabs shall meet the requirement specified in paragraph 03)(a)3) ii). If uniform and satisfactory density of the concrete is not obtained by the vibratory method at joints, along forms, at structures, and throughout the pavement, the Contractor will be required to furnish equipment and methods which will produce pavement conforming to the specifications.

When in operation, the screed shall be moved forward on the forms with a combined longitudinal and transverse shearing motion, always moving in the direction in which the work is progressing, and so manipulated that neither end is raised from the side forms during the striking-off process. If necessary, this shall be repeated until the surface is of uniform texture, true to grade and cross section, and free from porous areas.

4). Hand Finishing. Unless otherwise specified, hand finishing methods will not be permitted, except under the following conditions:

i) In the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade.

ii) Narrow widths or areas or irregular dimensions where operation of the mechanical equipment is impractical may be finished by hand methods.

iii) Concrete, as soon as placed, shall be struck-off and screeded. An approved portable screed shall be used. A second screed shall be provided for striking-off the bottom layer of concrete when reinforcement is used.

iv) The screed for the surface shall be at least 2 feet longer than the maximum width of the slab to be struck-off. It shall be of approved design, sufficiently rigid to retain its shape, and shall be constructed either of metal or of other suitable material, shod with metal.

v) Consolidation shall be attained by the use of a suitable vibrator or other approved equipment.

5). Floating. After the concrete has been struck-off and consolidated, it shall be further smoothed, trued, and consolidated by means of a longitudinal float, using one of the following methods, as specified or permitted:

i) Hand Method. The hand-operated longitudinal float shall be not less than 12 feet in length and 6 inches in width, properly stiffened to prevent flexibility and warping. The longitudinal float, operated from foot bridges resting on the side forms and spanning but not touching the concrete, shall be worked with a sawing motion, while held in a floating position parallel to the pavement centerline and passing gradually from one side of the pavement to the other. Forward movement along the centerline of the pavement shall be in successive advances of not more than one-half the length of the float. Any excess water or soupy material shall be wasted over the side forms on each pass.

ii) Mechanical Method. The mechanical longitudinal float shall be approved by the Engineer, and it shall be in good working condition. The tracks from which the float operates shall be accurately adjusted to the required crown. The float shall be accurately adjusted and coordinated with the adjustments of the transverse finishing machine so that a small amount of mortar is carried ahead of the float at all times. The forward speed shall be adjusted so that the float will lap the distance specified by the Engineer on each transverse trip. The float shall pass over each pavement at least two times, but excessive operation over a given area will not be permitted. Any excess water or soupy material shall be wasted over the side forms on each pass.

iii) Alternative Mechanical Method. As an alternative to paragraph 03(k)5)ii., Contractor may use a machine composed of a cutting and smoothing float(s) suspended from and guided by a rigid frame. The frame shall be carried by four or more visible wheels riding on, and constantly in contact with, the side forms.

If necessary, following one of the preceding methods of floating, long-handled floats having blades not less than 5 feet in length and 6 inches in width may be used to smooth and fill in open-textured areas in the pavement. Long-handled floats shall not be used to float the entire surface of the pavement in lieu of, or supplementing, one of the preceding methods of floating. When strike-off and consolidation are done by hand, and the crown of the pavement will not permit the use of the longitudinal float, the surface shall be floated transversely by means of the long-handled float. Care shall be taken not to work the crown out of the pavement during the operation. After floating, any excess water and laitance shall be removed from the surface of the pavement by a straightedge 10 feet or more in length. Successive drags shall be lapped one-half the length of the blade.

6). Straight-edge Testing and Surface Correction. After the floating has been completed and the excess water removed, but while the concrete is still plastic, the surface of the concrete shall be tested for trueness with a 16 foot straightedge. For this purpose the Contractor shall furnish and use an accurate 16 foot straightedge swung from handles 3 feet longer than one-half the width of the slab. The straightedge shall be held in contact with the surface in successive positions parallel to the centerline and the whole area gone over from one side of the slab to the other, as necessary. Advancing shall be in successive stages of not more than one half the length of the straightedge. Any depressions shall be immediately filled with freshly mixed concrete, struck-off, consolidated, and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the requirements for smoothness. Straightedge testing and surface correction shall continue until the entire surface is found to be free from observable departures from the straightedge and until the slab conforms to the required grade and cross section.

7). Final Finish. Taxiways, roadways and other pavements shall be finished with either a belt finish, or a burlap drag finish.

i) Belt Finish. If the surface texture is to be a belt finish, when straightedging is completed and water sheen has practically disappeared and just before the concrete becomes non-plastic, the surface shall be belted with a 2-ply canvas belt not less than 8 inches wide and at least 3 feet longer than the pavement width. Hand belts shall have suitable handles to permit controlled, uniform manipulation. The belt shall be operated with short strokes transverse to the centerline and with a rapid advance parallel to the centerline.

ii) Drag Finish. If the surface texture is to be a drag finish, a drag shall be used; it shall consist of a seamless strip of damp burlap and it shall produce a uniform surface of gritty texture after dragging it longitudinally along the full width of pavement. For pavement 16 feet or more in width, the drag shall be mounted on a bridge which travels on the forms. The dimensions of the drag shall be such that a strip of burlap at least 3 feet wide is in contact with the full width of pavement surface while the drag is used. The drag shall consist of not less than two layers of burlap with the bottom layer approximately 6 inches wider than the upper layer. The drag shall be maintained in such a condition that the resultant surface is of uniform appearance and reasonably free from grooves over 1/16 inch in depth. Drags shall be maintained clean and free from encrusted mortar. Drags that cannot be cleaned shall be discarded and new drags substituted.

8). Edging at Forms and Joints. After the final finish, but before the concrete has taken its initial set, the edges of the pavement along each side of each slab, and on each side of transverse expansion joints, formed joints, transverse construction joints, and emergency construction joints shall be worked with an approved tool and rounded to the radius required by the plans. A well-defined and continuous radius shall be produced and a smooth, dense, mortar finish obtained. The surface of the slab shall not be unduly disturbed by tilting of the tool during use.

At all joints, any tool marks appearing on the slab adjacent to the joints shall be eliminated by brooming the surface. In doing this, the rounding of the edge shall not be disturbed. All concrete on top of the joint filler shall be completely removed.

All joints shall be tested with a straightedge before the concrete has set, and correction shall be made if one side of the joint is higher than the other or if they are higher or lower than the adjacent slabs.

(l) Surface Test. As soon as the concrete has hardened sufficiently, and within 24 hours of placement, the pavement surface shall be tested by the Contractor in the presence of the Engineer with a GOMACO Smoothness Indicator (GSI) set up to profile as a California Profilograph. The Contractor shall provide the GSI prior to the start of concrete placement operations and shall have it on the site until after completion of all pavement construction. The Roughness Index Value shall not exceed five (5) inches per mile for each 500 linear foot section based on a blanking band of 2/10" at time of placement. Individual bumps or depressions shall not exceed 3/10" per 25 feet. The recording sensors shall trace along a line 1 foot, 4 feet and 8 feet off the joint line on each side and along the centerline of each 25 foot slab, and 1 foot, 3.5 feet on each side and along the centerline of a 12½ foot slab.

i) If the concrete smoothness is less than the above requirement by 1 inch or more (4 or less) in a section, the unit price shall be adjusted to be paid at 105% for that section.

ii) If the concrete pavement smoothness fails to meet the above requirement by one inch or more in a section at time of placement, the unit price shall be adjusted to be paid at 95% for the first inch, and each additional inch shall be adjusted by an additional deduction of 2.5%.

Any sections exceeding ten (10) inches shall be removed and replaced, or, if approved by the Engineer, may be left in place without payment, after planning to the specification requirements.

The Contractor will be required to correct areas of pavement not meeting the above requirements prior to placing concrete pavement in adjacent areas. Continued placements not meeting the requirements will be cause for the Engineer to direct the Contractor to cease concrete placement until satisfactory corrections are made to the equipment, methods of placement, and finishing and/or batching of concrete in addition to removing and/or planing the defective areas.

The Contractor shall submit his proposed procedures for performing the testing to the Engineer for review. Certification as to the accuracy of the testing equipment will be required.

The Contractor shall also have a 16' rolling straightedge on the work to check the completed pavement. Surface deviations in excess of 1/4 inch in 16 feet in any direction will require correction by planing. Deviations exceeding ½" shall be cause for removal and replacement.

Any area or section so removed shall not be less than 10 feet in length nor less than the full width of the lane involved. When it is necessary to remove and replace a section of pavement, any remaining portion of the slab adjacent to the joints that is less than 10 feet in length shall also be removed and replaced.

(m) Curing. Immediately after the finishing operations have been completed and marring of the concrete will not occur, the entire surface of the newly placed concrete shall be cured in accordance with one of the following methods. In all cases in which curing requires the use of water, the curing shall have prior right to all water supply or supplies. Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or lack of water to adequately take care of both curing and other requirements, shall be cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than ½ hour between stages of curing or during the curing period.

1). Impervious Membrane Method. The entire surface of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place. The curing compound shall not be applied during rainfall.

Curing compound shall be applied by mechanical sprayers under pressure at the rate of 1 gallon to not more than 125 square feet. The spraying equipment shall be of the fully atomizing type equipped with a tank agitator. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. During application the compound shall be stirred continuously by effective mechanical means. Hand spraying of off widths or shapes and concrete surfaces exposed by the removal of forms will be permitted. Curing compound shall not be applied to the inside faces of joints to be sealed.

The curing shall be of such character that the film will harden within 30 minutes after application. Should the film become damaged from any cause within the required

curing period, the damaged portions shall be repaired immediately with additional compound.

Upon removal of side forms, the sides of the exposed slabs shall be protected immediately to provide a curing treatment equal to that provided for the surface.

2). Curing in Cold Weather. When the average daily temperature is below 40°F., curing shall consist of covering the newly laid pavement with a protective curing authorized by the Engineer, which shall be retained in place as determined by the Engineer. Admixture for curing or temperature control may be used only when authorized by the Engineer.

When concrete is being placed and the air temperature may be expected to drop below 30°F., a sufficient supply of suitable blanketing material shall be provided along the work. Any time the temperature may be expected to reach the freezing point during the day or night, the material so provided shall be spread over the pavement to prevent freezing of the concrete. The period of time such protection shall be maintained shall be determined by the Engineer. The Contractor shall be responsible for the quality and strength of the concrete placed during cold weather, and any concrete injured by frost action shall be removed and replaced at the Contractor's expense.

(n) Removing Forms. Unless otherwise specified, forms shall not be removed from freshly placed concrete until it has set for at least 12 hours, except where auxiliary forms are used temporarily in widened areas. Forms shall be removed carefully to avoid damage to the pavement. After the forms have been removed, the sides of the slab shall be cured as outlined in one of the methods indicated in paragraph (m) above. Major honeycombed areas shall be considered as defective work and shall be removed and replaced. Any area or section so removed shall be not less than 10 feet in length nor less than the full width of the lane involved. When it is necessary to remove and replace a section of pavement, any remaining portion of the slab adjacent to the joints that is less than 10 feet in length shall also be removed and replaced.

(o) Sealing Joints. The joints in the pavement shall be sealed in accordance with Section P-605 of these specifications.

(p) Protection of Pavement. The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by his own employees and agents. This shall include watchmen to direct traffic and the erection and maintenance of warning signs, lights, pavement bridges, or crossovers, etc.

The plans or special provisions will indicate the location and type of device or facility required to protect the work and provide adequately for traffic. Any damage to the pavement occurring prior to final acceptance shall be repaired or the pavement replaced at the Contractor's expense.

(q) Loading on new concrete Based on maturity meter readings or flexural strength testing, pavement shall attain a strength of 450 psi for dowel drilling equipment on the new concrete, 500 psi for paving equipment/construction traffic on the new pavement and 650 psi for opening

to air traffic. The strength shall be determined based on the formula in 3)(t), the actual strength adjusted for the ratio of the design thickness compared to the actual thickness based on the pavement design.

(r) Opening to Traffic. The Engineer shall decide when the pavement shall be opened to traffic, based on maturity meter readings and/or flexural strength testing and strength thresholds noted in Section 03)(q).

This project will require pavement to be opened for air traffic in short timeframes. The Contractor shall be responsible for developing a PCC mix that meets the minimum requirements stated above for traffic opening while meeting the project phasing requirements and milestones. This mix must be approved by the Engineer and Owner prior to use. The Contractor will be responsible for preventing premature PCC cracking by controlling the rate at which the PCC cures and slowing down the rate of hydration.

Prior to opening, the pavement shall be cleaned.

(s) Surface Tolerances. Extreme care must be exercised in all phases of the operation to assure that the pavement will pass the specified tolerances. The following tolerances are applicable:

1). Lateral deviation from established alignment of the pavement edge shall not exceed plus or minus 0.10 foot in any lane.

2). Vertical deviation from established grade shall not exceed plus or minus 0.04 foot at any point.

3). Surface smoothness deviations shall not exceed 1/4" from a 16-foot straightedge placed in any direction, including placement along and spanning any pavement joint or edge, and in addition shall not exceed the requirements as stated in 03)(L).

4). In order to stay within the above tolerances, the Contractor must control the tolerances on all phases of construction preceding the placement of pavement and is cautioned that additive deviations may result in the removal and replacement of out of tolerance construction and/or price adjustments for deficient construction in accordance with the specifications as stated herein.

(t) Tolerance of Pavement Thickness. The thickness of the pavement shall be determined by average caliper measurement of cores taken and tested in accordance with AASHTO T-148 and by edge measurements taken prior to placement of adjacent lanes. Cores shall be taken by the Contractor at the frequency of one per 250 feet per lane per section to verify pavement thickness and concrete consolidation. The Contractor shall patch the core holes in a manner approved by the Engineer.

Should any portion of the concrete pavement fail to meet the requirements of the thickness, the following shall apply:

1). The twenty-eight (28) day strengths for the area of thickness deficiency shall be adjusted in proportion to the square of the thickness.

$$fs_{adjusted} = \frac{t^2_{actual}}{t^2_{design}} \times fs_{actual}$$

Where: t_{actual} = actual pavement thickness

t_{design} = pavement design thickness shown on plans

fs_{actual} = actual 28 day flexural strength

$fs_{adjusted}$ = adjusted 28 day flexural strength

2). If $fs_{adjusted}$ is less than 650 psi, the unit price shall be adjusted in accordance with Table III in Article 03(e), Item ii.

(u) Edge Slump. When slip-form paving is used, not more than 15 percent of the total free edge of each 500 foot segment of pavement, or fraction thereof, shall have an edge slump exceeding 1/4-inch, and none of the free edge of the pavement shall have an edge slump exceeding 3/8-inch. (The total free edge of 500 feet of pavement will be considered the cumulative total linear measurement of pavement edge originally constructed as nonadjacent to any existing pavement; i.e., 500 feet of paving lane originally constructed as a separate lane will have 1,000 feet of free edge, 500 feet of fill-in lane will have no free edge, etc.). The area affected by the downward movement of the concrete along the pavement edge shall be limited to not more than 18 inches from the edge. When excessive edge slump cannot be corrected before the concrete has hardened, the area with excessive edge slump shall be removed and replaced at the expense of the Contractor when so directed by the Engineer.

(v) Dowel Bar Alignment. Dowel bars and assemblies shall be checked for position and alignment. The maximum permissible tolerance on dowel bar alignment in each plane, horizontal and vertical, shall not exceed 2 percent or 1/4 inch per foot of a dowel bar. Vertical alignment of dowels shall be measured parallel to the designed top surface of the pavement, except for those across the crown or other grade change joints. Dowels across crowns and other joints at grade changes, shall be measured to a level surface. Horizontal alignment shall be checked perpendicular to the joint edge.

(w) Repair, Removal, Replacement of Slabs.

1) General. New pavement slabs that are broken or contain cracks shall be removed and replaced or repaired, as specified hereinafter at no cost to the owner. Spalls along joints shall be repaired as specified. Removal of partial slabs is not permitted. Removal and replacement shall be full depth, shall be full width of the slab, and the limit of removal shall be normal to the paving lane and to each original transverse joint. The engineer will determine whether cracks extend full depth of the pavement and may require cores to be drilled on the crack to determine depth of cracking. Such cores shall be 4-inch (100 mm) diameter, shall be drilled by the Contractor and shall be filled by the Contractor with a well consolidated concrete mixture bonded to the walls of the hole with epoxy resin, using approved procedures. Drilling of cores and refilling holes shall be at no expense to the owner. All epoxy resin used in this work shall conform to ASTM C 881, Type V.

2) Shrinkage Cracks. Shrinkage cracks, which do not exceed 4 inches in depth, shall be cleaned and then pressure injected with epoxy resin, Type IV, Grade 1, using procedures as approved. Care shall be taken to assure that the crack is not widened during epoxy resin injection. All epoxy resin injection shall take place in the presence of the Engineer. Shrinkage cracks, which exceed 4 inches in depth, shall be treated as full depth cracks in accordance with Section P-605.

3) Slabs With Cracks through Interior Areas. Interior area is defined as that area more than 6 inches from either adjacent original transverse joint. The full slab shall be removed and replaced at no cost to the owner, when there are any full depth cracks, or cracks greater than 4” in depth, that extend into the interior area.

4) Cracks Close To and Parallel To Joints. All cracks essentially parallel to original joints, extending full depth of the slab, and lying wholly within 6 inches either side of the joint shall be treated as specified hereinafter. Any crack extending more than 6 inches from the joint shall

be treated as specified above in subparagraph "Slabs With Cracks Through Interior Area."

i. Full Depth Cracks Present, Original Joint Not Opened. When the original uncracked joint has not opened, the crack shall be sawed and sealed per Section P-605, and the original joint filled with epoxy resin.

ii. Full Depth Cracks Present, Original Joint Also Cracked. At a joint, if there is any place in the lane width where a parallel crack and a cracked portion of the original joint overlap, the entire slab containing the crack shall be removed and replaced for the full lane width and length.

5) Removal and Replacement of Full Slabs. Where it is necessary to remove full slabs, unless there are keys or dowels present, all edges of the slab shall be cut full depth with a concrete saw. All saw cuts shall be perpendicular to the slab surface. If keys, dowels, or tie bars are present along any edges, these edges shall be sawed full depth 24 inches (150 mm) from the edge if only keys are present, or just beyond the end of the dowels or tie bars if they are present. These joints shall then be carefully sawed on the joint line to within 1 inch (25 mm) of the depth of the dowel or key.

The main slab shall be further divided by sawing full depth, at appropriate locations, and each piece lifted out and removed. Suitable equipment shall be used to provide a truly vertical lift, and approved safe lifting devices used for attachment to the slabs. The narrow strips along keyed or doweled edges shall be carefully broken up and removed using light, hand-held jackhammers, 30 LB (14 kg) or less, or other approved similar equipment.

Care shall be taken to prevent damage to the dowels, tie bars, or keys or to concrete to remain in place. The joint face below keys or dowels shall be suitably trimmed so that there is not abrupt offset in any direction greater than 1/2 inch (12 mm) and no gradual offset greater than 1 inch (25 mm) when tested in a horizontal direction with a 12-foot (3.6 m) straightedge.

No mechanical impact breakers, other than the above hand-held equipment shall be used for any removal of slabs. If underbreak between 1-1/2 and 4 inches (37 and 100 mm) deep occurs at any point along any edge, the area shall be repaired as directed before replacing the removed slab. Procedures directed will be similar to those specified for surface spalls, modified as necessary.

If underbreak over 4 inches (100 mm) deep occurs, the entire slab containing the underbreak shall be removed and replaced. Where there are no dowels, tie bars, or keys on an edge, or where they have been damaged, dowels of the size and spacing as specified for other joints in similar pavement shall be installed by epoxy grouting them into holes drilled into the existing concrete using procedures as specified. Original damaged dowels or tie bars shall be cut off flush with the joint face. Protruding portions of dowels shall be painted and lightly oiled. All 4 edges of the new slab shall thus contain dowels or original keys or original tie bars.

Placement of concrete shall be as specified for original construction. Prior to placement of new concrete, the underlying material (unless it is stabilized) shall be re-compacted and shaped as specified in the appropriate SECTION of these specifications. The surfaces of all four joint faces shall be cleaned of all loose material and contaminants and coated with a double application of membrane forming curing compound as bond breaker. Care shall be taken to prevent any curing compound from contacting dowels or tie bars. The resulting joints around the new slab shall be prepared and sealed as specified for original construction.

6) Repairing Spalls Along Joints. Where directed, spalls along joints of new slabs shall be repaired per DOA direction.

(x) Conditioning of Soil Cement. This effort shall include the remediation of any damaged and/or deficient soil cement stabilized base course with low slump, low strength concrete when directed by the Engineer. Small areas of damaged or deficient soil cement stabilized base course shall be cut out and replaced with low slump low strength concrete. Offsite removal of this unsuitable material shall be incidental to the cost of low slump, low strength concrete. Low slump, low strength concrete shall meet the requirements as defined in this section.

05) METHOD OF MEASUREMENT

(a) The yardage to be paid for shall be the total area of each depth of pavement, measured in square yards, in-place, completed and accepted less any deductions hereinbefore required for deficient strength or thickness. Thickened slabs will be measured separately.

(b) Low slump, low strength fill concrete for base repair shall be measured as the number of cubic yards of material completed and accepted by the City. Repair that is due to the negligence of the Contractor during demolition operations as determined by the Owner's representative will not be paid for.

(c) The quantity of low-slump low-strength fill concrete for trench backfill will not be paid for separately and shall be incidental to the utility being installed.

06) BASIS OF PAYMENT

(a) General. The accepted quantities of concrete pavement will be paid for at the contract unit price per square yard, after any adjustments required for deficient strength or thickness, which price and payment shall be full compensation for all mix designs, for furnishing and placing all materials, including any dowels and steel reinforcement.

(b) No additional payment over the unit contract bid price shall be made for any pavement which has an average thickness in excess of that shown on the plans or for strengths in excess of that specified.

Adjustments in the payment will be made for smoothness, in accordance with sections 03)(l) i) and ii).

(d) Payment for low slump, low strength fill concrete for base repair shall be paid at the contract unit price per cubic yard. This price shall be full compensation for excavation, and disposal of unsuitable materials, placement of new materials, and incidentals.

(e) In areas where existing pavement is being removed and replaced, no additional payment shall be made for the additional thickness required where existing base must be milled and filled in with additional concrete thickness or if existing base elevations and conditions warrant additional thickness. This shall apply only where pavement is being removed and replaced and where the additional thickness is no more than 2 inches. If additional thickness is more than 2 inches, when directed by the Engineer the Contractor will be required to install P-402 asphalt course to bring the base up to proper grade or additional PCC thickness which will be paid for separately.

(f) Payment will be made under:

Item P-501-1 Non-reinforced Portland Cement Concrete Pavement, 20" Thick – Per Square Yard

Item P-501-2	Reinforced Portland Cement Concrete Pavement, 20” Thick – Per Square Yard
Item P-501-3	Non-reinforced Variable Depth Portland Cement Concrete Pavement, 20”-26” Thick – Per Square Yard
Item P-501-4	Reinforced Variable Depth Portland Cement Concrete Pavement, 20”-26” Thick – Per Square Yard
Item P-501-5	Non-reinforced Portland Cement Concrete Pavement, 16” Thick – Per Square Yard
Item P-501-6	Reinforced Variable Depth Portland Cement Concrete Pavement, 16”-20” Thick – Per Square Yard
Item P-501-7	Low Slump, Low Strength Fill Concrete – Per Cubic Yard
Item P-501-8	Non-reinforced Portland Cement Concrete Pavement at TW E10, 16” Thick – Per Square Yard
Item P-501-9	Reinforced Portland Cement Concrete Pavement at TW E10, 16” Thick – Per Square Yard

TESTING AND MATERIAL REQUIREMENTS

Test and short title	Material and short title
AASHTO T-26 -- Water	AASHTO M 6 -- Fine Aggregate
AASHTO T-23 -- Test Specimens	AASHTO M 80 -- Coarse Aggregate
AASHTO T-97 -- Flexural Strength	AASHTO M 85 -- Portland Cement Concrete
AASHTO T-119 -- Slump	AASHTO M 154 -- Air-entrained PC
AASHTO T-152 -- Air (Aggregate)	AASHTO M 151 -- Slag PC
	AASHTO M 90 -- Joint Filler
ASTM T-173 -- Air (Slag)	AASHTO M 153 -- Joint Filler
AASHTO T-121 -- Yield	AASHTO M 213 -- Joint Filler
AASHTO T-84 and T-85 -- Absorption and Specific Gravity	AASHTO M 55 -- Wire
	AASHTO M 137 -- Bars
	AASHTO M 54 -- Bars
AASHTO T-148 – Cores	AASHTO M 31 – Bars
ASTM C1260 – ASR	AASHTO M 42 – Bars
ASTM C1293 – ASR	AASHTO M 73 -- Mats
	AASHTO M 139 -- Paper
	AASHTO M 171 -- Polyethylene
	AASHTO M 182 -- Burlap
	AASHTO M 148 -- Membrane
	ASTM C 618 -- Fly Ash
	ASTM C 402 -- Pozzolans
	ASTM C 260 -- Air-entraining
	ASTM C 494 -- Water Reducing
	AASHTO M 157 -- Ready Mix
	Fed. Spec. TT-C-800 – Membrane

Note: Others as required by referenced specifications.

END OF SECTION P-501

SECTION P-502 GRIND CONCRETE PAVEMENT

1) DESCRIPTION

a) The work shall consist of grinding Portland Cement Concrete Pavement to substantially eliminate differential grades longitudinally and pavement edge deviations prior to placement of the PCC pavement.

b) This specification shall also be utilized to correct surface deviations in new PCC pavement to meet the requirements of Section P-501.

2) EQUIPMENT

a) The grinding equipment shall be a power drive, self-propelled machine that is specifically designed to smooth and texture Reinforced Concrete with diamond blades. The effective wheelbase of the machine shall not be less than 12'. It shall have a set of pivoting tandem bogey wheels at the front of the machine and the rear wheels shall be arranged to travel in the track of the fresh cut pavement. The center of the grinding head shall be no further than 3' forward from the center of the back wheels.

b) The equipment shall be of a size that will cut or plane at least 3' wide. It shall also be of a shape and dimension that does not encroach on traffic movement outside of the work area. The equipment shall be capable of grinding the surface without causing spalls at cracks, joints, or other locations.

3) CONSTRUCTION

a) The construction operation shall be scheduled and proceed in a manner that produces a uniform finished surface. Grinding will be accomplished in a manner that eliminates the deviation in the pavement edge. The operation shall result in pavement that conforms to the typical cross-section and requirements specified in Section P-501.

b) The Contractor shall establish positive means for removal of grinding residue. Solid residue shall be removed from pavement surfaces before it is blown by air traffic action or wind. Residue shall not be permitted to flow across the pavement and shall be contained by vacuums and other means acceptable to the Engineer.

4) FINAL SURFACE FINISH

a) The grinding process shall produce a pavement that is true to grade and uniform in appearance with a longitudinal line-type texture. The line-type texture shall contain parallel longitudinal corrugations that present a narrow ridge corduroy appearance. The peaks of the ridges shall be approximately 1/32 inch higher than the grooves with 53 to 57 evenly spaced grooves per foot.

b) The finished pavement surface shall be measured for riding quality. The grinding shall produce a mainline riding surface which does not exceed the specified requirements in Section P-501.

c) Grinding along the edge of the existing pavement shall conform to the requirements of Section P-501.

5) METHOD OF MEASUREMENT

a) Pavement grinding on existing pavement will be measured by the square yard. The quantity of pavement grinding will be determined by multiplying the finished ground width by the total length ground.

b) Correction of New PCC pavement, not meeting the requirements of Section P-501 will not be measured for pavement.

6) BASIS OF PAYMENT

a) The contract price per square yard for grinding concrete pavement shall be full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in grinding the existing surface, removing residue and cleaning the pavement in accordance with these specifications as shown on the plans.

b) Payment will be made under:

Item P-502-1 - Grind Concrete Pavement – Per Square Yard

END OF SECTION P-502

SECTION P-602

BITUMINOUS PRIME COAT

01) DESCRIPTION

a) This item shall consist of an application of bituminous material on the prepared base course in accordance with this specification applied at the rate specified by the Engineer. The type of bituminous material to be used shall be selected by the Engineer from those included in this specification.

b) Quantity of Material. The approximate amount of bituminous material per square yard for the prime coat shall be as provided in Table 1.

TABLE 1. - QUANTITY OF MATERIAL

Material	Amount
Bituminous Material	0.25 to 0.50 gallon per sq. yd.

02) MATERIAL

a) The types, grades, controlling specifications and application temperatures for the bituminous materials are given below. The Engineer shall designate the specific material to be used.

Type and Grade	Specification	Application Temp.
Liquid Asphalt RC-70/MC-70	AASHTO M-81/M-82	120^0F. - 160^0F.
RC-250/MC-250	AASHTO M-81/M-82	160^0F. - 200^0F.
Tar		
RT-2	AASHTO M-52	60^0F. - 125^0F.
RT-3	AASHTO M-52	80^0F. - 120^0F.

03) CONSTRUCTION METHODS

a) Weather Limitations. The prime coat shall be applied only when the existing surface is dry or contains sufficient moisture to get uniform distribution of the bituminous material, when the atmospheric temperature is above 60^0F, and when the weather is not foggy or rainy. The temperature requirements may be waived, but only when so directed by the Engineer.

b) Equipment. The equipment used by the Contractor shall include a self-powered pressure bituminous material distributor and equipment for heating bituminous material.

i) The distributor shall have pneumatic tires of such width and number that the load produced on the surface shall not exceed 650 pounds per inch of tire width and shall be designed, equipped and operated so that bituminous material is applied at readily controlled rates from 0.05 to 2.0 gallons per square yard. The material shall be applied within a pressure range from 25 to 75 pounds per square inch and with an allowable variation from any specified rate not to exceed 5 percent. Distributor

equipment shall include a thermometer for reading temperatures of tank contents.

c) Application of Bituminous Material. Immediately before applying the prime coat, the full width of the surface to be primed shall be swept with a power broom to remove all loose dirt and other objectionable material.

i) The application of the bituminous material shall be made by means of a pressure distributor at the temperature, pressure and in the amounts directed by the Engineer.

ii) Following the application, the primed surface shall be allowed to dry not less than 48 hours without being disturbed or for such additional time as may be necessary to permit the drying out of the prime until it will not be picked up by traffic or equipment. This period shall be determined by the Engineer. The surface shall then be maintained by the Contractor until the surfacing has been placed. Suitable precautions shall be taken by the Contractor to protect the primed surface against damage during this interval, including supplying and spreading any sand necessary to blot up excess bituminous material.

d) Bituminous Material Contractor's Responsibility. Samples of the bituminous material that the Contractor proposes to use, together with a statement as to their source and character, must be submitted and approved before use of such material begins. The Contractor shall require the manufacturer or producer of the bituminous materials to furnish material subject to this and all other pertinent requirements of the contract. Only satisfactory materials, so demonstrated by service tests, shall be acceptable.

The Contractor shall furnish vendor's certified test reports for each carload, or equivalent, of bituminous material shipped to the project. The report shall be delivered to the Engineer before permission is granted for use of the material. The furnishing of the vendor's certified test report for the bituminous material shall not be interpreted as basis for final acceptance. All such test reports shall be subject to verification by testing samples of materials received for use on the project.

e) Freight and Weigh Bills. Before final estimate is allowed, the Contractor shall file with the Engineer receipted bills when railroad shipments are made, and certified weigh bills when materials are received in any other manner, of the bituminous materials actually used in the construction covered by the contract. The Contractor shall not remove bituminous material from the tank car or storage tank until the initial outage and temperature measurements have been taken by the Engineer, nor shall the car or tank be released until the final outage has been taken by the Engineer. Copies of freight bills and weigh bills shall be furnished to the Engineer during the progress of the work.

04) METHOD OF MEASUREMENT

a) The bituminous prime coat to be paid for shall be the number of gallons used as ordered for the accepted work, corrected to 60ºF, in accordance with the temperature-volume correction tables for asphalt and tar materials contained in ASTM D-1250 and ASTM D-63, respectively.

05) BASIS OF PAYMENT

a) Payment shall be made at the contract unit price per gallon of bituminous prime coat. Payment shall be full compensation for furnishing all materials, labor, tools, and incidentals necessary to complete the items.

b) Payment shall be made under:

Item P-602-1- Bituminous Prime Coat – Per Gallon

TESTING AND MATERIAL REQUIREMENTS

Test and Short Titles	Material and Short Title
ASTM D-1250 -- Volume Correction for Asphalts	AASHTO M-81 -- Asphalt RC for Asphalts
ASTM D-633 -- Volume Correction for Tars	AASHTO M-52 -- Tar

END OF SECTION P-602

SECTION P-603

BITUMINOUS TACK COAT

01) DESCRIPTION

a) This section shall consist of preparing and treating a bituminous surface with bituminous material in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

02) MATERIALS

a) Bituminous Materials: The bituminous material shall be cutback asphalt, emulsified asphalt, or tar, and shall conform to the requirements of Table 1. The type, grade, controlling specification, and application temperature of bituminous material to be used shall be specified by the Engineer.

TABLE 1. BITUMINOUS MATERIAL

Type and Grade	Specification	Application Temperature Deg. F.
Asphalt Cement PG 64-22	AASHTO M-226	325-375

03) CONSTRUCTION METHODS

a) Weather Limitations. The tack coat shall be applied only when the existing surface is dry, when the atmospheric temperature is above 60F., and when the weather is not foggy or rainy. The temperature requirements may be waived, but only when so directed by the Engineer.

b) Equipment. The equipment used by the Contractor shall include a self powered pressure bituminous material distributor and equipment for heating bituminous material.

i) The distributor shall be designed, equipped, maintained, and operated so that bituminous material at even heat may be applied uniformly on variable widths of surface at the specified rate. The allowable variation from the specified rate shall not exceed 10%. Distributor equipment shall include a tachometer, pressure gages, volume-measuring devices or a calibrated tank, and a thermometer for measuring temperatures of tank contents. The distributor shall be self-powered and shall be equipped with a power unit for the pump and full circulation spray bars adjustable laterally and vertically.

ii) A power broom and/or blower shall be provided for any required cleaning of the surface to be treated.

c) Application of Bituminous Material. Immediately before applying the tack coat, the full width of surface to be treated shall be swept with a power broom and/or air blast to remove all loose dirt and other objectionable material.

i) Emulsified asphalt shall be diluted by the addition of water when directed by the Engineer and shall be applied a sufficient time in advance of the paver to ensure that all water has evaporated before any of the overlying mixture is placed on the tacked surface

ii) The bituminous material including vehicle or solvent shall be uniformly applied with a bituminous distributor at the rate of 0.05 to 0.15 gallons per square yard depending on the condition of the existing surface. The type of bituminous material and application rate shall be approved by the Engineer prior to application.

iii) Following the application, the surface shall be allowed to cure without being disturbed for such period of time, as may be necessary to permit drying out and setting of the tack coat. The Engineer shall determine this period. The Contractor shall then maintain the surface until the next course has been placed. Suitable precautions shall be taken by the Contractor to protect the surface against damage during this interval.

d) Bituminous Material Contractor's Responsibility. Samples of the bituminous material that the Contractor proposes to use, together with a statement as to its source and character, must be submitted and approved before use of such material begins. The Contractor shall require the manufacturer or producer of the bituminous material to furnish material subject to this and all other pertinent requirements of the Contract. Only satisfactory materials so demonstrated by service tests, shall be acceptable.

The Contractor shall furnish vendor's certified test reports for each carload, or equivalent, of bituminous material shipped to the project. The report shall be delivered to the Engineer before permission is granted for use of the material. The furnishing of the vendor's certified test report for the bituminous material shall not be interpreted as a basis for final acceptance. All such test reports shall be subject to verification by testing samples of material received for use on the project.

e) Freight and Weigh Bills. Before the final estimate is allowed, the Contractor shall file with the Engineer receipted bills when railroad shipments are made and certified weigh bills when materials are received in any other manner, of the bituminous materials actually used in the construction covered by the Contract. The Contractor shall not remove bituminous material from the tank car or storage tank until the Engineer has taken the initial outage and temperature measurements, nor shall the car or tank be released until the final outage has been taken by the Engineer. Copies of freight bills and weigh bills shall be furnished to the Engineer during the progress of the work.

04) METHOD OF MEASUREMENT

A. The quantity of tack coat to be paid for shall be measured by the gallon. Volume shall be corrected to the volume at 60 degrees F in accordance with the temperature-volume corrections in ASTM D-1250 for cutback asphalt, ASTM D-633 for tar and Table IV-3 of The Asphalt Institute's Manual MS-6 for emulsified asphalt. Water added to emulsified asphalt will not be measured for payment.

05) BASIS OF PAYMENT

A. Payment shall be made at the Contract unit price per gallon for tack coat. Payment shall be full compensation for furnishing all materials, labor, tools and incidentals necessary to complete the items.

B. Payment will be made under:

Item P-603-1- Bituminous Tack Coat – Per Gallon

TESTING AND MATERIAL REQUIREMENTS

Test and Short Title	Material and Short title
ASTM D-633 --	Volume Correction for Tar
ASTM D-977 --	Emulsified Asphalt
ASTM D-1250 --	Petroleum Meas. Tables
ASTM D-2028 --	Asphalt RC
ASTM D-2397 --	Cationic Emulsified Asphalt
AASHTO T182-84 --	Tar for Road Construction
Asphalt Institute --	Volume Correction

Manual MS-6 for Emulsified Asphalt, Table IV-3

END OF SECTION P-603

SECTION P-605
JOINT SEALING FILLER

01) DESCRIPTION

(a) This section shall consist of providing and installing resilient and adhesive joint sealing filler capable of effectively sealing joints of all types and cracks in pavements and structures and around the various electrical items embedded in the pavement.

(b) It is the intent of this specification to provide a superior sealed joint, considerably in excess of normal industry standards.

02) MATERIALS

(a) The joint sealing material for concrete joints shall conform to the requirements of Table I.

1) Cold Applied Sealant for Joints.

TABLE 1 - SILICONE SEALANT REQUIREMENT

Test Method	Test	Material Requirement
As Supplied		
ASTM D 2202	Flow, maximum	0.2
ASTM D-1475	Specific Gravity	1.450 - 1.515
ASTM C 1183 (Type S)	Extrusion Rate, mL/minute, minimum	50
ASTM C 679	Tack-Free Time, minutes	35 - 75
Upon Complete Cure		
ASTM D 2240	Durometer[1], Shore A, points	15 - 25
ASTM D 412, Die C	Modulus, at 150% Elongation[1], psi (k Pa), maximum	45 (310)
ASTM D 412, Die C	Elongation[1], minimum	1200
ASTM D 5329[2] (Section 9, (Modified)	Adhesion to Concrete, minimum % elongation	500
Performance		
ASTM C 719	Movement, 10 cycles at 100/-50 %	No failure
ASTM C 793	Accelerated Weathering, @ 5,000 hours	No cracks, blisters or bond loss

[1] Sample cured 7 days at 77 ± 2 F (25 ± 1 C) and 50 ± 5% relative humidity. Proper joint design and proper joint preparation are necessary for maximum performance.

[2] Tested on random samples at least on a Quarterly basis. The Engineer shall have additional tests performed in accordance with ASTM C-719 on random samples taken from material supplied to the work. Material not passing the testing shall be removed and replaced at the contractor's cost.

(b) The joint sealing material for the concrete and asphalt joint interfaces shall conform to the requirements of Table II.

TABLE 2 - SL SELF- LEVELING SILICONE SEALANT REQUIREMENT

Test Method	Test	Material Requirement
As Supplied		
ASTM D 1475	Specific Gravity	1.26 – 1.34
ASTM C 1183 (Type S)	Extrusion Rate, mL/minute, minimum	50
CTM 0098	Skin Over Time, minutes, maximum	60
CTM 0208	Non-Volatile Content, minimum	96
Upon Complete Cure		
ASTM D 412, Die C, Modified	Elongation[1], % minimum	1400
ASTM D 5329 (Section 9 Modified)	Joint Modulus at 50% elongation[1], psi (kPa), maximum	7 (49)
	Joint Modulus at 100% Elongation[1], psi (kPa), maximum	8 (56)
	Joint Modulus at 150% Elongation [1], psi (kPa), maximum	9 (62)
ASTM D-5329 (Section 9, modified)	Adhesion to Asphalt/Concrete [1], elongation	600 min
Performance		
ASTM C 719	Movement, 10 cycles at + 100/-50 %	No failure
ASTM C 793	Accelerated Weathering, at 5,000 hours	No cracks, blisters, or bond loss

[1] Sample cured 7 days at 77 ± 2 F (25 ± 1 C) and 50 ± 5% relative humidity. Proper joint design and proper joint preparation are necessary for maximum performance.

[2] Tested on random samples at least on a Quarterly basis. The Engineer shall have additional tests performed in accordance with ASTM C-719 on random samples taken from material supplied to the work. Material not passing the testing shall be removed and replaced at the contractor's cost.

03) PREFORMED BACKUP RODS

Preformed backup rods, as shown on the plans and as recommended and approved by the sealant manufacturer, shall be used with cold applied sealants to control the depth of the sealant, to achieve the desired shape factor, to support the sealant against indentation and sag, and shall be a non-moisture absorbing resilient material. Backup materials shall be compatible with the sealant, shall not adhere to the sealant, shall be compressible without extruding the sealant, and shall recover to maintain contact with the joint faces when the joint is open.

Samples of all materials which the Contractor proposes for use and copies of the sealant manufacturer's recommendations for mixing and installation shall be submitted to the Engineer for approval at least thirty (30) days prior to use.

An appropriate primer, compatible with the seal and either manufactured by or approved by the sealant manufacturer shall be used with the sealant.

Each lot or batch of sealing material shall be delivered to the job-site in the manufacturer's original sealed container. Each container shall be labeled to include the following:
(a) Name of Material.
(b) Manufacturer's Name.
(c) Manufacturer's Lot Number.
(d) Shelf Life.
(e) Mixing Instructions.
(f) Storage Instructions.

04) CONSTRUCTION METHODS

(a) Time of Application. The joints shall be sealed immediately following the curing period or as soon thereafter as weather conditions permit, and before the pavement is opened to traffic, including construction traffic. At the time of application of the sealing compound, the atmospheric and pavement temperature shall be above 50ºF and the weather shall not be rainy or foggy. The temperature requirements may be waived only when so directed by the Engineer.

At a temperature of 75ºF. (24ºC) and 50% relative humidity, the sealant will cure to a tack-free surface in about one hour. At a temperature of 40ºF. (4ºC) the tack-free time will be about 2-3 hours.

(b) Equipment. All equipment necessary for the proper construction of this work shall be on the project in first class working condition. The equipment shall be as recommended by the manufacturer of the filler and approved by the Engineer before construction is permitted to start. Air compressors shall be equipped with suitable traps capable of removing all free water and oil from the compressed air and shall be capable of furnishing air with a pressure greater than 90 psi.

(c) Joint Cleaning. Immediately after final saw cutting and beveling is complete, the resulting cement slurry, laitance, curing compound and other foreign material shall be completely removed from the joint by water blasting. After cleaning is complete the joint shall be blown out with compressed air.

(d) Preparation of Joints When the surfaces are clean and dry, and just prior to placement of the backer rod and sealant, the joint shall be sand blasted with two passes, i.e., one pass on each bond face, then compressed air shall be used to blow out the joint and remove all residual dust.

(e) Concrete Pavement Crack Routing and Sealing Preparation for concrete pavement crack routing and sealing shall be by properly routing the crack to be slightly lower than the existing crack to ensure proper adhesion to the sidewalls. The cracks should be routed out to provide a minimum sealant reservoir 3/8" wide with a minimum depth of 3/8". The contractor shall use a specialized crack router that is designed to automatically follow the crack. Thickness and depth below the pavement surface shall be as specified for joint sealant. Cracks shall be cleaned to be free of dirt, dust, and debris, and shall be moisture and be frost-free. Preparation of cracks shall comply with the requirements of 04) (d). Re-sand blasting of routed cracks may be required as directed by the Engineer.

(f) Installation of Sealants. Joints and cracks shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the Engineer before sealing is allowed. Sealants shall be installed in accordance with the manufacturer's recommendations and the following requirements:
1) Cold Applied Sealants. A backer rod shall be installed as shown on the plans and the primer shall be applied in the correct sequence in accordance with the sealant manufacturer's instructions, prior to placement of the joint sealer. The sealant shall be applied in a continuous operation, with an approved mechanical device that will force the sealant to the bottom of the joint and completely fill the joint without spilling the material on the surface of the pavement, and shall adhere to the concrete and be free of voids.

The sealant shall then be tooled, with an appropriate tool, to produce a slightly concave surface approximately 1/4" below the pavement surface for roadways, 3/8" below the surface for aprons and taxiways and 1/2" below the surface of runways. The sealant shall have a minimum thickness of 3/8". Tooling shall be accomplished before a skin forms on the surface, usually within 10 minutes of application.

The sealant shall be tooled in both directions to ensure a void-free installation. Sealant which does not bond to the concrete surface of the joint walls, contains voids, or fails to set to a tack-free condition will be rejected and replaced by the Contractor at no additional cost. Before sealing the joints, the Contractor shall demonstrate that the equipment and procedures for preparing, mixing, and placing the sealant will produce a satisfactory joint seal. This shall include the preparation of two small batches and the application of the resulting material.

(g) Warranty. The sealant shall be warranted for repair and/or replacement for all defects in materials and workmanship by both the Contractor and the Sealant Manufacturer for a period of five (5) years.

05) METHOD OF MEASUREMENT

(a) Joint sealing material shall be measured by the linear foot of sealant in place, complete, and accepted.

(b) Expansion joints shall be measured by the linear foot of expansion joint in place, complete, and accepted. This shall include specially fabricated sections of expansion joint material as may be required.

06) BASIS OF PAYMENT

(a) Payment for joint sealing material shall be made at the contract unit price per linear foot. The price shall be full compensation for all joint preparation, furnishing all materials including backer rod, expansion filler, and sealant, delivery, placing of the material, for test coring, and for all labor, equipment, tools, and incidentals necessary to complete the item.

(b) Payment for expansion joints shall be made at the contract unit price per linear foot. The price shall be full compensation for all joint preparation, removal of existing expansion joint material, furnishing all materials, special fabrication as necessary, delivery, placing of the material, locating reinforcing steel, and for all labor, equipment, tools, and incidentals necessary to complete the item.

(c) Payment will be made under:

Item P-605-1	Cold Applied Sealant, Contraction, Construction and Longitudinal Joints - Per Linear Foot
Item P-605-2	Asphalt / PCC Joint - Per Linear Foot
Item P-605-3	Cold Applied Sealant, Expansion Joints - Per Linear Foot

TESTING AND MATERIAL REQUIREMENTS

MIL-S-8802	Flow, Extrusion Rate, Tack-Free Time, Adhesion
ASTM D-1475	Specific Gravity
ASTM D-2240	Durometer
ASTM D-412,	Die C Modulus, Elongation
ASTM C-719	Movement
ASTM D-793	Accelerated Weathering
ASTM D-2202	Flow or Sag
AASHTO T-132	Bond to Concrete

END OF SECTION P-605

SECTION P-615 SITE CONCRETE

1.01 DESCRIPTION

A. This section shall consist of constructing concrete curb and gutter, sidewalks, paved ditches and miscellaneous site work concrete in accordance with the lines, grades and dimensions shown on the plans or as required by the Engineer.

2.01 MATERIALS

A. Concrete and other required materials shall conform to the requirements of Article 441.2 of the Georgia Department of Transportation's Standard Specifications. Modify the concrete to use a minimum compressive strength of 3000 PSI at 28 days.

3.01 CONSTRUCTION METHODS

A. These items shall be constructed in accordance with the requirements of the applicable portions of Article 441.3 of the Georgia Department of Transportation's Standard Specifications.

B. The compaction and testing requirements for the subgrade materials under these items shall be the same as the requirements for subgrades under paved areas in Section P-152, Excavation and Embankment.

4.01 METHOD OF MEASUREMENT

A. Concrete drainage flume will be measured per square foot completed in-place at the depth shown in the Plans and accepted.

5.01 BASIS OF PAYMENT

A. Payment will be made at the Contract unit price per square foot for concrete drainage flume, complete in-place. These prices shall be full compensation for furnishing all materials, preparations and placing of the materials and for all labor, equipment, tools, and incidentals necessary to complete this item.

B. Payment will be made under:

Item P-615-1 – Concrete Drainage Flume – Per Square Foot

END OF SECTION P-615

SECTION P-621
PAVEMENT MARKINGS AND MARKING REMOVAL

01) DESCRIPTION

This section shall consist of the preparation and painting of markings and stripes, installing preformed thermoplastic markings if damaged, and the removal of existing markings, on the surface of Runway, Taxiways and Roadways applied in accordance with these specifications and at the locations shown on the plans, or as directed by the City.

02) MATERIALS

(a) Materials Acceptance. The Contractor shall furnish manufacturer's certified test reports for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. The reports can be used for material acceptance or the Engineer may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the Engineer upon arrival of a shipment of materials to the site. All material shall arrive in sealed containers for inspection by the Engineer. Material shall not be loaded into the equipment until inspected by the Engineer.

(b) Paint. Paint shall be waterborne meeting the requirements of Federal Specification TT-P-1952E, Type II, furnished in White – 37925, Yellow – 33538 or 33655, Red – 31136, and Black – 37038, in accordance with Federal Standard No. 595. The color pink shall be made using one part Red – 31136 to two parts White – 37925.

(c) Preformed Thermoplastic Markings. Markings must be composed of ester modified resins in conjunction with aggregates, pigments, and binders that have been factory produced as a finished product. The material must be impervious to degradation by aviation fuels, motor fuels, and lubricants.

1) The markings must be able to be applied in temperatures down to 35ºF without any special storage, preheating, or treatment of the material before application. The markings must be supplied with an integral, non-reflectorized black border.

2) Graded Glass Beads.

(a) The material must contain a minimum of thirty percent (30%) intermixed graded glass beads by weight. The intermixed beads shall conform to Federal Specification. TT-B-1325D, Type IV.

(b) The material must have factory applied coated surface beads in addition to the intermixed beads at a rate of 1 lb. (± 10%) per 10 sq. ft. These factory applied coated surface beads shall have a minimum of 90% true spheres, minimum refractive index of 1.50, and meet the following gradation.

Size Gradation		Retained, %	Passing, %
US Mesh	µm		
12	1700	0 - 2%	98 - 100%
14	1400	0 - 3.5%	96.5 - 100%
16	1180	2 - 25%	75 - 98%

18	1000	28 - 63%	37 - 72%
20	850	63 - 72%	28 - 37%
30	600	67 - 77%	23 - 33%
50	300	89 - 95%	5 - 11%
80	200	97 - 100%	0 - 3%

3) Heating Indicators. The top surface of the material (same side as the factory applied surface beads) shall have regularly spaced indents. These indents shall act as a visual cue during application that the material has reached a molten state so satisfactory adhesion and proper bead embedment has been achieved and a post-application visual cue that the installation procedures have been followed.

4) Pigments. Percent by weight.

(a) White:
Titanium Dioxide, ASTM D 476, type II shall be 10 percent minimum.

(b) Yellow and Colors:
Titanium Dioxide, ASTM D 476, type II shall be 1 percent minimum.
Organic yellow, other colors, and tinting as required to meet color standard

5) Prohibited Materials. The manufacturer shall certify that the product does not contain mercury, lead, hexavalent chromium, halogenated solvents, nor any carcinogen as defined in 29 CFR 1910.1200 in amounts exceeding permissible limits as specified in relevant Federal Regulations.

6) Daylight Directional Reflectance.

(a) White: The daylight directional reflectance of the white paint shall not be less than 75 percent (relative to magnesium oxide), when tested in accordance with Federal Test Method Standard No. 141D/GEN, Method 6121.

(b) Yellow: The daylight directional reflectance of the yellow paint shall not be less than 45 percent (relative to magnesium oxide), when tested in accordance with Federal Test Method Standard No. 141D/GEN. The x and y values shall be consistent with the Federal Hegman yellow color standard chart for traffic yellow standard 33538, or shall be consistent with the tolerance listed below:

x .462	x .470	x .479	x .501
y .438	y .455	y .428	y .452

7) Skid Resistance. The surface, with properly applied and embedded surface beads, must provide a minimum resistance value of 45 BPN when tested according to ASTM E303.

8) Thickness. The material must be supplied at a nominal thickness of 65 mils (1.7 mm).

9) Environmental Resistance. The material must be resistant to deterioration due to exposure to sunlight, water, salt, or adverse weather conditions and impervious to aviation fuels, gasoline, and oil.

10) Retroreflectivity. The material, when applied in accordance with manufacturer's guidelines,

must demonstrate a uniform level of nighttime retroreflection when tested in accordance to ASTM E1710.

11) Packaging. A protective film around the box must be applied in order to protect the material from rain or premature aging.

12) Manufacturing Control and ISO Certification. The manufacturer must be ISO 9001:2000 certified and provide proof of current certification. The scope of the certification shall include manufacture of reflective markings.

(a) The markings must be a resilient thermoplastic product with uniformly distributed glass beads throughout the entire cross-sectional area. The markings must be resistant to the detrimental effects of aviation fuels, motor fuels and lubricants, hydraulic fluids, de-icers, anti-icers, protective coatings, etc. Lines, legends, and symbols must be capable of being affixed to bituminous and/or Portland cement concrete pavements by the use of a large radiant heater. Colors shall be available as required.

(b) The markings must be capable of conforming to pavement contours, breaks, and faults through the action of airport traffic at normal pavement temperatures. The markings must be capable of fully conforming to grooved pavements, including pavement grooving per FAA AC 150/5320-12, current version. The markings shall have resealing characteristics, such that it is capable of fusing with itself and previously applied thermoplastics when heated with a heat source per manufacturer's recommendation.

(c) Multicolored markings must consist of interconnected individual pieces of preformed thermoplastic pavement marking material, which through a variety of colors and patterns, make up the desired design. The individual pieces in each large marking segment (typically more than 20 ft. long) must be factory assembled with a compatible material and interconnected so that in the field it is not necessary to assemble the individual pieces within a marking segment. Obtaining multicolored effect by overlaying materials of different colors is not acceptable due to resulting inconsistent marking thickness and inconsistent application temperature in the marking/substrate interface.

(d) The marking material must set up rapidly, permitting the access route to be re-opened to traffic a maximum of 15 minutes after application.

(e) The marking material shall have an integral color throughout the thickness of the marking material.

(d) Reflective Media. This feature will be provided by the addition of glass spheres to the surface of the pigmented binder. Glass spheres shall meet the requirements of Federal Specification TT-B-1325D, Type III.

(e) Water. Water to be used by high-pressure water equipment for removing pavement markings shall be obtained by the Contractor from a potable source.

(f) Chemicals. The use of chemicals for removing pavement markings will not be permitted.

03) CONSTRUCTION METHODS

(a) Weather Limitations. The painting shall be performed only when the existing surface is dry and clean, when the atmospheric temperature is at least 45°F and rising, when the pavement surface temperature is at least 5°F above the dew point, and when the weather is not

excessively windy, dusty, or foggy. The suitability of the weather will be determined by the City.

Do not perform work when the atmospheric temperature is below 40 degrees F or when the pavement is covered with snow or ice.

If markings are applied with wind speeds sustained in excess of 10 knots, windscreens shall be used to shroud the material guns.

(b) Equipment. All equipment for the work shall be approved by the City and shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

1) The mechanical marker shall be an approved atomizing spray-type marking machine suitable for application of traffic paint. It shall produce an even and uniform film thickness at the required coverage and shall be designed so as to apply markings of uniform cross sections and clear-cut edges without running or spattering and within the limits for straightness set forth herein. When needed, a dispenser shall be furnished which is properly designed for attachment to the mechanical marker and suitable for dispensing the required quantity of reflective media.

2) Suitable adjustments shall be provided on the sprayer(s) of a single machine or by furnishing additional equipment for painting the width required.

(c) Preparation of Surfaces. Immediately before application of the paint, the existing surface shall be dry and entirely free from dirt, grease, oil, acids, laitance or other foreign matter which would reduce the bond between the coat of paint and the pavement. The surface shall be thoroughly cleaned by waterblasting as required to remove all dirt, laitance and loose materials. After the cleaning operations, vacuuming or other City-approved cleaning methods shall be performed to ensure the surface is clean and free of grit or other debris left from the cleaning process.

1) During blasting, dust and debris will be controlled and contained by vacuums or other approved processes.

2) Obliterating pavement markings by masking with paint, bituminous material, surface treatments or other cover material will not be an acceptable removal method.

3) Paint shall not be applied to new Portland cement concrete pavement until the concrete in the areas to be painted is clean of curing material and/or removal of existing markings. Sandblasting or high pressure water shall be used to remove curing material and laitance from the concrete surfaces.

(d) Removal Methods. Pavement markings shall be removed from indicated areas by methods acceptable to the Engineer, such as sandblasting, waterblasting, or beadblasting, that cause negligible damage to existing pavements, surface texture, joint sealants, or other airfield appurtenances as determined by the City. The Contractor shall repair at his expense any damage to the pavement, surface texture, sealant, or appurtenances caused by the removal work. Methods to repair damages shall be acceptable to the City.

1) Contractor shall be aware that existing paint to be removed may contain lead. Safety precautions shall be taken for environmental concerns. Contractor shall test the area prior to submitting a bid for this condition.

2) Any removal method that causes objectionable dust, contaminated water runoff, or other such hazard or nuisance shall be controlled by means approved by the City that eliminate such causes of objection or its use will not be allowed.

(e) Layouts and Alignment. On those sections of pavements where no previously applied figures, markings, or stripes are available to serve as a guide, suitable layouts and lines of proposed stripes shall be spotted in advance of the paint application. Control points shall be spaced at such intervals as will insure accurate location of all markings. All stripes shall be accurately surveyed and layout accomplished well in advance of painting and shall be approved by the City prior to applying paint.

1) The Contractor shall provide an experienced technician to supervise the location, alignment, layout, dimensions and application of the paint.

2) Single stripes shall be applied wholly on one side of the longitudinal pavement joints. Double or multiple stripes shall be centered over similar joints.

(f) Application. Markings shall be applied at the locations and to the dimensions and spacing indicated on the plans or as specified. Paint shall not be applied until the layouts, indicated alignment and the condition of the existing surface have been approved by the City. Pavement shall be dry to the satisfaction of the City prior to application of paint.

1) The paint shall be mixed in accordance with the manufacturer's instructions before application. The paint shall be thoroughly mixed and applied to the surface of the pavement with the marking machine at its original consistency without the addition of thinner. The paint shall be applied uniformly by suitable equipment at the following rates:

Pavement Type	Paint Application Rate
Portland Cement Concrete	115 Square Feet per Gallon
Freshly Sealcoated Asphalt Concrete	75 Square Feet per Gallon
Other Asphalt Concrete	115 Square Feet per Gallon

If the paint is applied by brush, the surface shall receive two coats; the first coat shall be thoroughly dry before the second coat is applied.

2) The reflective media shall be distributed to the surface of the pigmented binder immediately after application and imbedded at the rate and depth as required to provide adhesion and reflection. Type III glass beads shall be applied at the rate of 10 pounds per gallon of paint for white and yellow markings. Type III glass beads shall not be used for red or pink markings.

3) In the application of markings, any deviation in the edges exceeding 1/2" in 50 feet shall be obliterated and the marking corrected. The dimensions of the markings shall be as designated within a tolerance of plus or minus 5%. All painting shall be performed to the satisfaction of the City by competent and experienced equipment operators, laborers, and artisans in a neat and workmanlike manner.

4) No paint shall be applied to bituminous pavement until the pavement has been allowed to cure to the City's satisfaction. Upon application to properly prepared surfaces after curing, the paint shall not bleed excessively, blister, peel, curl, or discolor.

5) The Contractor shall furnish certified test reports for the materials shipped to the project. These reports shall not be interpreted as a basis for final acceptance. The City shall be notified upon arrival of a shipment of paint to the job site for inspecting and sampling of the materials. The Contractor shall make an accurate accounting of the paint materials used in the accepted work.

(g) Protection. After application of the paint, all markings shall be protected while the paint is drying. The fresh paint shall be protected from injury or damage of any kind. The Contractor shall be directly responsible and shall erect or place suitable warning signs, flags or barricades, and

protective screens or coverings as required. All surfaces shall be protected from disfiguration by spatter, splashes, spillage, drippings of paint or other materials.

(h) Cleanup. The Contractor shall remove from the site all debris, waste, loose or unadhered reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the Engineer. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and Federal environmental statutes and regulations.

(i) Defective Workmanship or Material. When any material not conforming to the requirements of the specifications or plans has been delivered to the project or incorporated in the work, or any work performed is of inferior quality, such material or work shall be considered defective and shall be corrected as directed by the City, at the expense of the Contractor. Any areas of paint that chips or peels or wears excessively in respect to the overall shall be repainted within the warranty period.

04) METHOD OF MEASUREMENT

(a) The payment for pavement striping and marking removal shall be the number of square feet of paint removed.

(b) The quantity of pavement striping and marking, shall be paid by the number of square feet of paint applied in accordance with the specifications and accepted by the City.

05) BASIS OF PAYMENT

(a) Payment shall be made at the Contract unit price per square foot for striping or marking removal. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools and incidentals necessary to complete the item.

(b) Payment shall be made at the Contract unit price per square foot for pavement striping, and marking, including the surface prep prior to paint application, paint and the reflective media. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools and incidentals necessary to complete the item.

(c) Payment will be made under:

Item P-621-1 Pavement Striping and Marking Removal – Per Square Foot

Item P-621-2 Permanent Pavement Striping and Marking – Per Square Foot

Item P-621-3 Temporary Pavement Striping and Marking – Per Square Foot

TESTING AND MATERIAL REQUIREMENTS

Test/Material and short title	
TT-B-1325C_1	Beads (Glass Spheres) Retro-reflective
TT-P-1952E_1	Paint, Traffic and Airfield Marking, Waterborne
Federal STD 595	Colors used in Government Procurement

END OF SECTION P-621

SECTION P-629
COAL TAR SEALER / REJUVENATOR

01) DESCRIPTION

This item consists of an application of coal-tar sealer/rejuvenator, applied to previously prepared bituminous and concrete surfaces, in accordance with these specifications, as shown on the plans or as directed by the Engineer.

The purpose of this product is to rejuvenate oxidized or otherwise aged asphalt binder and/or provide a fuel resistant surface without causing an appreciable reduction in the friction characteristics of the pavement.

02) MATERIALS

The bituminous materials shall total 100 percent of the range of the three separate materials shown in the following table.

MATERIALS	MINIMUM	MAXIMUM
Refined Coal-tar (Grade RT-12)	30%	50%
Light aromatic solvent naptha or Coal tar solvent naptha	30%	40%
Blend of tar oils as described below Meeting requirements of Table 1	15%	40%
Elastomer	0.01%	13%

The coal-tar oils shall be a composition for rejuvenating asphalt paving comprising a mixture of di-, tri- and tetracyclic aromatic compounds and their alkyl homologs containing lower alkyl groups together with a significant amount of phenolic and hydroxyl derivatives, said mixture being derived from the distillation of coal tar, said mixture having a specific gravity at 25/25 C of at least 1.06, a maximum Brookfield viscosity at 25 C of 60 cps., and an initial boiling point of at least 180 C and a continuous boiling range to at least 300 C and conform to the requirements of Table 1. The coal-tar pitch shall conform to the requirements of ASTM D490, Grade RT-12. The light aromatic solvent naptha shall be a solvent having an API Gravity @ 60 F of 11-30, Specific Gravity 60/60F of 0.876-0.993, Distillation Range of 310-450 IBP (initial boiling point) to 350-550 DP naptha shall have a Specific 60/60F of 0.94-0.99, distillation range F of 250-385 IBP and Flash pt. F TCC of 92-109. The material shall meet the requirements of Table 2.

TABLE 1. COAL-TAR OIL PROPERTY REQUIREMENTS

Specific Gravity @ 25/25C	1.06 min.
Water 5 by weight	2.0%
Brookfield Viscosity @ 25C	60 cps. max.
Soluble in CS 2 by weight	95% min.
Flash Point C.O.C. min.	82C (180F) min.

ASTM D-86 Distillation

Initial Boiling Point	160 C (320 F)
170C (338F) 0-1%	240C (464F) 0-12%
180C (356F) 0-2%	250C (482F) 0-20%
90C (374F) 0-3%	260C (500F) 5-30%
200C (392F) 0-4%	270C (518F) 10-40%
210C (410F) 0-5%	280C (536F) 15-50%
220C (428F) 0-6%	290C (554F) 20-60%
230C (446F) 0-8%	300C (572F) 25-60%

TABLE 2. BITUMINOUS MATERIAL PROPERTY REQUIREMENTS

Test Property	**Test Method**	**Requirements**
Specific Gravity @ 25/25C (77/77F)	ASTM D 70	1.04 min.
Viscosity Engler 50 cc @ 50C (122F)	ASTM D 1665	4.5 max.
Water % by volume	ASTM D 95	2.0 max.
Distillation % by weight	ASTM D 20	
170 C (338 F)		20 max.
270 C (518 F)		25-45
300 C (572 F)		30-55
Flash Point	PMCC	125 F min. (61.66c)
Softening Point of residue from 300 C (572 F) distillation test	ASTM D 36	40-45 (104-131 F)

VERIFICATION OF BITUMINOUS MATERIALS

1. The bituminous materials listed in Article 2, “Materials” of this specification shall be verified by the contractor by submitting a sample of the product to the Engineer along with the results of an independent material testing lab acceptable to and approved by the Engineer that confirms full compliance with the property requirements, and a statement from the manufacturer signed by the executive officer that the sample tests by the independent lab and the sample provided to the Engineer are an accurate representation of the materials to be used on the project.

2. The Contractor shall supply three (3) years’ independent test results of the rejuvenator component of the material, showing a minimum 40% reduction in viscosity of the treated pavement when compared to the control section after 3 years for at least four (4) different projects. The RT-12 and all the solvent naptha components will not be considered as a rejuvenator component of the material.

03) TESTING REQUIREMENTS

ASTM D 20	Distillation of Road Tars
ASTM D 36	Softening Point of Bitumen
ASTM D 70	Specific Gravity of Semi-Solid Bituminous Materials
ASTM D 95	Water in Petroleum Products and Bituminous by Distillation
ASTM D 1665	Engler Specific Viscosity of Tar Products

ASTM D 2171 Standard test Method by Viscosity of Asphalts by Vacuum Capillary Viscometer
ASTM D 2172 Quantative Extraction of Bitumen from Bituminous Paving Mixtures
ASTM D 3666 Inspection and Testing Agencies for Bituminous Paving Materials

24-HOUR PENETRATION

a) The Engineer shall examine the test sections 24-hours after treatment to determine if all of the sealer/rejuvenator has penetrated into the surface. Application rates which have not allowed full penetration into the pavement surface after 24-hours, shall not be permitted to be used for full production.

04) CONSTRUCTION METHODS

a) Weather Limitations. The sealer/rejuvenator shall be applied only when the existing surface is dry and the air temperature is at least 50F or higher and rising.

b) Equipment. The Contractor shall furnish all equipment and hardware necessary for the performance of the work. The product shall be delivered in dedicated tankers and/or containers. The distributor shall be designed and equipped as follows:

i) Adequate heating capability for rapid heating of the sealer/rejuvenator to the proper application temperature;

ii) A positive displacement pump capable of pumping low viscosity material and providing a pre-selected constant pressure of 0-60 psi to deliver the specified rates of application;

iii) A full circulation spray bar and applicator which maintains proper nozzles which provide the specified rate of application;

iv) A hooded spray bar and applicator which maintains proper nozzle height;
v) A positive shut-off for the spray bar;

vi) A hand spray with hose, equipped with a positive shutoff at the spray gun;

vii) A thermometer installed in the distributor tank to measure the temperature of the sealer/rejuvenator at the time of application;

viii) A tachometer calibrated to a minimum of tenths of miles per hour;

ix) A chart listing the capacity of the tank, in gallons, shall be carried in each unit. This chart shall show gallons for each one (1) inch of depth. A chart showing speed/pressure application rates will also be included;

x) The distributor shall be equipped with filters which shall be fully functional during both the loading and unloading of the product.

c) Cleaning Existing Surface. Unless otherwise shown on the plans, prior to placing the sealer/rejuvenator, the Contractor utilizing a power broom, high-pressure water, or approved equal, shall clean the surfaces of the pavement to be treated and assure that it is free of all debris, dust, dirt, curing compound, or other loose matter. The pavement surface shall be properly cleaned to the satisfaction of the Engineer by the Contractor.

d) Test Section. Prior to full production, the Contractor shall place a series of one square yard test sections at rates between 0.05 and 0.10 gallons per square yard in intervals of 0.01 gallons per

square yard as are necessary and, as determined by the Engineer to develop the proper application rate. The area to be tested will be approved by the Engineer and will be located on the existing pavement. The Contractor shall examine the test sections 24-hours after placement and recommend to the Engineer the application rate to be used for the remainder of the project. A test section will be required for each different type and category of pavement surface. The engineer will have the final decision, including approvals, of the application rate for each pavement type.

e) Application Rate. The sealer/rejuvenator shall be uniformly applied with a bituminous distributor at a rate determined as specified above. The application rate shall not be varied without the approval of the Engineer. The application temperature shall be between 70F and 120F. Following the application, the surface shall be allowed to cure without being disturbed until the sealer has thoroughly dried.

05) QUALITY CONTROL

a) Inspection. The contractor shall have a manufacturers representative on the job site at the beginning of operations. The manufacturers representative shall have knowledge of the materials described in this specification and shall oversee the mixing of the component materials and application of the sealer/rejuvenator. The manufacturers representative shall have a minimum of two years experience in the use of coal-tar sealer/rejuvenators. Documentation of this experience shall be furnished to the City prior to the start of operations. The cost of the manufacturers representative shall be included in the bid price.

b) Freight and Weigh Bills. The Contractor shall furnish the City receipted bills when railroad shipments are made and certified weigh bills when materials are received in any other manner for the coal-tar sealer/rejuvenator used in the construction covered by the Contract. The Contractor's representative shall not remove material from the tank car or storage tank until the initial outage and temperature measurements have been verified, nor shall the car or tank be released until the final outage has been verified.

c) Warranty.

i) The Contractor shall warrant that the treated pavement shall retain a 20% minimum lowered viscosity for a period of two (2) years from the date of treatment. The City will designate an area of no less than 10 square yards of pavement for each pavement type as the control section for all testing.

ii) The Contractor shall further warrant that from the date the coal-tar sealer/rejuvenator is applied and for a period of three (3) years thereafter, the material will not flake, peel, chip or spall or the manufacturers authorized representative will re-apply the coal-tar sealer/rejuvenator or replace damaged pavement as directed by the Owner or City.

iii) This warranty shall be effective only if spills are cleaned up as per local regulations.

06) METHOD OF MEASUREMENT

a) The coal-tar sealer/rejuvenator shall be measured by the gallon actually placed and accepted by the Engineer.

07) BASIS OF PAYMENT

a) Payment shall be made at the Contract unit price per gallon for the coal-tar sealer/rejuvenator.

b) Payment will be made under:

P-629-1 Coal Tar Sealer/Rejuvenator – Per Gallon

TESTING REQUIREMENTS

ASTM D-20	Distillation of Road Tars
ASTM D-36	Softening Point of Bitumen
ASTM D-70	Specific Gravity of Semi-solid Bituminous Materials
ASTM D-95	Water in Petroleum Products and Bituminous Materials by Distillation
ASTM D-1308	Effect of Household Chemicals on Clear end Pigmented Organic Finishes
ASTM D-1665	Engler Specific Viscosity of Tar Products
ASTM D-2171	Standard Test Method for Viscosity of Asphalts by vacuum Capillary Viscometer
ASTM D-2172	Quantitative Extraction of Bitumen from Bituminous Paving Mixtures
ASTM D-3666	Inspection and Testing Agencies for Bituminous Paving Materials

MATERIAL REQUIREMENTS

ASTM D-490	Tars (for use in road construction)

END OF SECTION P-629

SECTION P-630 – THERMOPLASTIC COAL TAR EMULSION SEALCOAT

01) DESCRIPTION

This item shall consist of a two coat application of a thermoplastic coal-tar emulsion sealcoat without aggregate, applied on a concrete or asphalt pavement in accordance with these specifications for the areas shown on the plans or as designated by the engineer. This application is intended to provide a heavy weather barrier with fuel, chemical, and water resistance.

02) MATERIALS

(a) Bituminous Materials
The emulsion material shall be a thermoplastic emulsion made up of plastic resins and coal-tar conforming to the requirements of ASTM D 3320. The emulsion shall be manufactured as a complete product which can be tested at the manufacturing plant. The water content of the emulsion shall not exceed 48% +/- 1% when tested in accordance with ASTM D 244. paragraph 3. A dried film of emulsion, shall contain a minimum of 89% of a combination of plastic resin and coal tar with the remaining percentage being inorganic filler. The dried emulsion shall have a softening point greater than 212 degrees F (100 C) when tested in accordance with ASTM D36. A film of the dried emulsion material, eight (8) mills thick, shall stretch to five (5) times it original length at 70 Degrees F (21 C) without breaking and recover 35% of this length in one minute.

(b) Water
The water used in mixing shall be potable and free from harmful soluble salts. The temperature of the water added during mixing shall be at least 50 degrees F (10 degrees C). The ph of the water added during mixing shall conform to the requirements of the emulsion manufacturer.

03) CONSTRUCTION METHODS

(a) Composition and Application
The first coat of thermoplastic coal-tar emulsion sealcoat without aggregate shall be primer mixed at the rate of 50% binder and 50% water applied at a diluted rate of .10 gallons per square yard +/- .02 gallons per sq. yd. The second coat shall be mixed at a rate of 70% thermoplastic coal tar emulsion and 30% water applied at a diluted rate of .20 gallons per sq. yd. +/- .03 gallons per sq. yd.

(b) Test Section
Prior to full production, the Contractor shall prepare a quantity of mixture sufficient to place a test section of approximately 16 feet wide by 100 feet long, or as otherwise approved by the Engineer. at the application rate specified in Section 03 (a). The area to be tested will be designated by the Engineer and will be located on the existing pavement.

The test section should be used to verify the adequacy of the mixture and to determine the exact application rate. The same equipment and method of operations shall be used on the test section as will be used on the remainer of the work. If the test section should prove to be unsatisfactory, the necessary adjustments to the mix composition, application rate, placement operations and equipment shall be made. Additional test sections shall be placed and evaluated if required.

(c) Weather Limitations.
The sealcoat shall be applied only when the existing surface is dry and the air temperature is at least 50° F or higher and rising.

(d) Cleaning Existing Surface.
Unless otherwise shown on the plans, prior to placing the sealcoat, the Contractor utilizing waterblasting, shall clean the surfaces of the pavement to be treated and assure that it is free of all debris, dust, dirt, curing compound, paint, markings, or other loose matter. The pavement surface shall be properly cleaned to the satisfaction of the Engineer by the Contractor.

(e) Equipment and Tools
The mixing equipment shall be a mobile mixing plant and have a capacity to contain at least 400 gallons. It shall have an agitator which will mix the emulsion and aggregate to a uniform consistency. The mixer should have a non-shearing pump with a variable rate of flow for spraying the mixture on the pavement. Other tools and equipment such as power brooms, hand brooms, air compressors, squeegees, etc. shall be provided as required.

(f) Preparation of Pavement Surface

New asphalt and concrete shall be allowed to cure for thirty days prior to the application of the emulsion. The surface shall be cleaned of dust, dirt or other loose foreign matter. All thermoplastic traffic markings shall be removed by grinding, blasting etc.

(g) Curing
The mixture shall be permitted to dry for a minimum of 24 hours after the application, before opening to traffic or painting, and shall be sufficiently cured to drive over without damage to the sealcoat. Any damage to the uncured mixture will be the responsibility of the contractor to repair.

(h) Handling
The mixture shall be continuously agitated from the time it had been mixed until its application on the pavement surface. The distributor or applicator, pumps and all tools shall be maintained in satisfactory working condition. Spray bar nozzles, pumps, or other equipment can be cleaned with coal tar toluene or xylene.

04) QUALITY CONTROL

(a) Inspection
The contractor shall have a manufacturers representative on the job site at the beginning of operations. The manufacturers representative shall have knowledge of the materials described in this specification and shall oversee the application of the material. The manufacturer's representative shall have a minimum of two years experience in the use of the thermoplastic coal-tar sealcoat. Documentation of this experience shall be furnished to the City prior to the start of operations. The cost of the manufacturers representative shall be included in the bid price.

(b) Certification
The Contractor shall furnish the manufacturer's certification that each consignment of thermoplastic coal-tar emulsion shipped to the project meets the requirements of Section 2.2 (Bituminous Materials). The Contractor shall submit a certification that the material proposed has been in field use for a minimum of 2 years. The Contractor shall furnish a certification demonstrating their experience in the application of a thermoplastic coal-tar emulsion sealcoat without aggregate for a minimum of two years.

(c) Warranty
The Contractor shall warrant that from the date the sealcoat is applied and for a period of three (3) years thereafter, the material will not flake, peel, chip or spall under normal usage and maintenance or the manufacturers authorized representative will re-apply the coal-tar thermoplastic coal tar emulsion sealcoat or replace damaged pavement as directed by the Owner or City at no additional cost to the

City.

05) METHOD OF MEASUREMENT

(a) The Thermoplastic Coal Tar Emulsion Sealcoat shall be measured by the gallon actually placed and accepted by the Engineer.

06) BASIS OF PAYMENT

(a) Payment shall be made at the Contract unit price per gallon for the Thermoplastic Coal Tar Emulsion Sealcoat.

(b) Payment will be made under:

P-630-1 Thermoplastic Coal Tar Emulsion Sealcoat – Per Gallon

TESTING REQUIREMENTS

ASTM D244	Water Content
ASTM D3320	Pitch, Coal-tar emulsion (Coating for Bituminous Pavements)
ASTM D36	Dried Emulsion Softening
ASTM D-3666	Inspection and Testing Agencies for Bituminous Paving Materials

MATERIAL REQUIREMENTS

ASTM D-490	Tars (for use in road construction)

END OF SECTION P-630

SECTION D-701

PIPE FOR STORM DRAINS

01) DESCRIPTION

a) This item shall consist of pipe of the types, classes, sizes and dimensions required on the plans, furnished and installed at the places designated on the plans and profiles, or by the Engineer, in accordance with these specifications and with the lines and grades given.

i) The item shall include the furnishing and installation of pipe in place, all excavation and backfill, furnishing and installing all trench bracing, all fittings required to complete the pipe drain as shown on the plans and the material for the making of all joints, including all connections to existing drainage pipe and structures.

b) The Contractor shall submit detailed shop drawings for the pipe laying plan to the Engineer for approval. Include pipe strength class, joint lengths, and trench types.

c) This item shall also include all work associated with the protection of all trenches and excavations required to perform the work under all sections of the specifications, including procedures, inspections, reports, installations, modifications and all else required to complete the work.

02) MATERIALS

Materials shall meet the requirements shown on the plans and as specified below.

a) General.

i) All reinforced pipe shall be strength Class V unless noted otherwise on the plans. Pipe strength classes are referenced to ASTM C-76. Gaskets for joints shall be as specified in Article 02(e) of this section.

ii) Reinforced concrete pipe shall be furnished in six-foot minimum laying lengths, except that two-foot spacer lengths shall be used as required to orient tee sections in the correct locations where these are specified on the plans. Two-foot sections shall also be used in making connections to drainage structures.

iii) In addition to strength testing, all pipe and pipe joints on reinforced concrete pipe 48" diameter and smaller shall be certified as having been tested in accordance with ASTM Designation C-76 and C-443, respectively, for absorption and joint leakage. At least 1% of the pipe lengths and joints of each diameter from a given pipe run by a given manufacturer and not less than two pipe lengths or two joints of each diameter and run shall be so tested and certified. No runs of pipe failing to meet the absorption and leakage test requirements will be accepted.

iv) Lift holes will not be permitted on concrete pipe. The Contractor shall make other arrangements for lifting and handling pipe sections.

v) Pipe. The pipe shall be of the type called for on the plans or in the proposal and shall be in accordance with the following appropriate requirements:

Reinforced Concrete Pipe	ASTM C 76
Standard Specification for Corrugated Steel Pipe, Metallic Coated for Sewers and Drains	ASTM A 760
Standard Specification for Post-Applied Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe	ASTM A 849

b) Concrete. All concrete shall conform to Class A as defined in Section 500 of the Georgia DOT Standard Specifications.

c) Mortar. Mortar for connections to other drainage structures shall be composed of one part, by volume, of portland cement and 2 parts of mortar sand. The portland cement shall conform to the requirements of AASHTO M-85, Type 1. The sand shall conform to the requirements of AASHTO M-45. Hydrated lime may be added to the mixture of sand and cement in an amount equal to 15% of the weight of cement used. The hydrated lime shall meet the requirements of ASTM C-6.

d) Rubber Gasket Joints. Rubber-type gaskets for concrete nonpressure pipe shall conform to the requirements of ASTM C-443.

i) Gaskets shall be "O" ring or profile type.

e) Pipe Fittings. Pipe fittings for reinforced concrete pipe shall be fabricated from standard lengths of reinforced concrete pipe of the specified class. All fabricated connections of the reinforcing steel cages shall be connected by welding. Pipe fittings shall be as follows:

i) Tees shall be furnished with groove-end on the branch of the tee.

ii) Reducing Section shall be furnished with the groove-end on the smaller diameter end.

f) Bedding material for unstable trench excavation shall meet the requirements for No. 89 Coarse Aggregate Underdrain Backfill as specified in Section 800.2.01 of Georgia DOT Specifications for Construction of Transportation Systems.

03) CONSTRUCTION METHODS

a) Equipment. All equipment necessary and required for the proper construction of storm sewers and culverts shall be on the project, in first-class working condition and approved by the Engineer before construction is permitted to start.
The Contractor shall provide appropriate hoisting equipment to handle the pipe while unloading and placing it in its final position without damaging the pipe.
The Contractor shall provide hand tampers and pneumatic tampers to obtain the required compaction of the pipe bed and the backfill, as specified.

b) Excavation. The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under the pipe and of the backfill around the pipe, but shall not be less than the external diameter of the pipe plus 6" on each side. The trench walls shall be approximately vertical below the top of the pipe, unless otherwise approved by the Engineer. The maximum allowable width of the trench shall not exceed 18" on each side of the pipe when placed, unless otherwise approved by the Engineer.

Where rock, hardpan, or other unyielding material is encountered at the bottom of pipe trench, such material shall be removed below the foundation grade for a depth of at least 12" or 1/2" for each foot of fill over the top of the pipe, whichever is greater, but not more than 3/4 of the nominal diameter of the pipe. The material shall be removed across the full width of the trench and replaced with suitable granular material obtained from excavation within the project, compacted and shaped to fit the lower 1/4 of the pipe diameter.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil or from buried trash, rubble or garbage, the unstable soil or unsuitable material shall be removed and replaced with suitable granular material obtained from excavation for the full trench width. The limits of excavation of unstable material shall be as directed by the Engineer, but in no case will the required depth of excavation of unstable material below the bottom of the pipe exceed 1/2 the inside diameter of the pipe being installed, or 24" whichever is the lesser. All trash encountered at and below the pipe invert shall be removed and replaced. The Contractor shall dispose of trash, rubble and garbage removed from the trench outside Airport boundaries.

Excavated material that is neither required nor acceptable for backfill shall be disposed of by the Contractor as directed by the Engineer. Common excavation shall not be carried below the required depth; but when it is, the trench shall be backfilled at the Contractor's expense with material approved by the Engineer and compacted to a density of not less than 90% of the maximum dry density for the material as determined by AASHTO T-180. The excavation for pipes that are placed in embankment fill shall not be made until the embankment has been completed to a height above the top of the pipe as shown on the plans. The bed for the pipe shall be so shaped that at least the lower quarter of the pipe circumference shall be in continuous contact with the bottom of the trench.

c) Trench and Excavation Protection. The Contractor shall do such trench bracing, sheathing, or shoring necessary to perform and protect the excavation as required for safety and conformance to governing laws. The bracing, sheathing, or shoring shall not be removed in one operation but shall be done in successive stages as determined by the Engineer to prevent overloading of the pipe during backfilling operations. The Contractor shall submit an excavation plan, certifying that the excavation methods conform to all appropriate governing laws. The plan shall be prepared by a Professional Engineer registered in the State of Georgia.

The Contractor shall employ the services of a Professional Engineer registered in the State of Georgia to inspect the various trenches and excavations on the project on at least a weekly basis and certify as to meeting all the appropriate laws. A report will be promptly submitted to the Engineer detailing the results of the inspections. If problem areas are observed, the inspections shall be conducted on a daily basis until such time as the trenches and excavations meet all the appropriate governing laws. No work is to be accomplished until the problem areas are corrected.

If changes in the planned pipe gradients are directed by the Engineer, which result in trenching depths more than 12" greater or lesser than the planned trench depth, the increased or decreased cost of the work shall be provided for in a supplemental agreement. Changes of a lesser extent will be considered incidental to the contract, without lesser or additional compensation.

d) Bedding. The pipe bedding shall conform to the class specified on the plans. When no bedding class is specified or detailed on the plans, the requirements for Class C bedding shall apply.

i) Rigid Pipe.

1) Class B or C Bedding shall consist of bedding the pipe in a granular foundation in accordance with details shown on the plans. The bed shall be shaped to fit the pipe and shall have recesses shaped to receive the bell of bell and spigot pipe.

2) Bedding details shown on the plans are an integral part of the pipe design, with respect to load bearing capacity of the various sizes and classes of pipe. The contractor has the option of constructing these beddings in accordance with the details shown on the plans, or alternatively may produce his own designs for bedding and concrete pipe systems that will meet the D-load requirements of ASTM C-76, for the given fill heights and weights. If this second option is chosen, these designs are to be prepared, signed and sealed by a professional engineer registered in the state of Georgia, and submitted to the Owner for review and approval. Imperfect backfill will not be considered as an alternative to a conventional trench-type bedding and/or special design pipe.

ii) Flexible Pipe.

For flexible pipe, the bed shall be roughly shaped to fit the pipe and a bedding blanket of sand or fine granular material shall be provided as follows:

Pipe Corrugation Depth Inches	Minimum Bedding Depth Inches
½	1
1	2
2	2-1/2

iii) PVC and Polyethylene Pipe. For PVC and polyethylene pipe, the bedding material shall consist of coarse sands and gravels with a maximum particle size of ¾ inch. For pipes installed under paved areas, no more than 12% of the material shall pass the #200 sieve. For all other areas, no more than 50% of the material shall pass the #200 sieve. The bedding shall have a thickness of at least 6 inches below the bottom of the pipe and extend up around the pipe for a depth of not less than 50% of its vertical outside diameter.

e) Laying and Installing Pipe.

i) Concrete Pipe. The Contractor shall provide the necessary mason's lines and supports to insure installation of the pipe to line and grade. The Contractor`s facilities for lowering the pipe into the trench shall be such that neither the pipe nor the trench will be damaged or disturbed.

1) The Engineer shall inspect all pipe before it is laid, and reject any section that is damaged by handling or is defective to a degree which will materially affect the function and service of the pipe.
2) The laying of the pipe in the finished trench shall be started at the lowest point and laid upgrade. When bell and spigot pipe is used, the bell shall be laid upgrade.
3) The pipe shall be firmly and accurately set to line and grade so that the invert will be smooth and uniform. The pipe shall be protected from water during placing and until the mortar in the joints has thoroughly set.
4) When bell and spigot pipes are used, spaces for the pipe bells shall be dug in the pipe subgrade to accommodate the bells. The spaces shall be deep enough to insure that the bells do not bear the load of the pipe; they

shall not be excessively wide in relation to the longitudinal direction of the trench. When the pipes are laid, the barrel of each section of pipe shall be in contact with the quadrant-shaped bedding throughout its full length, exclusive of the bell, to support the entire load of the pipe.

5) Pipe shall not be laid on frozen ground.

6) When placing concrete pipe constructed with elliptical reinforcing, the pipe shall be oriented in accordance with the manufacturer`s markings of top or bottom.

7) The upgrade end of pipelines not terminating in a structure shall be plugged or capped as approved by the Engineer.

8) Pipe which is not true in alignment, or which shows any settlement after laying, shall be taken up and relaid without extra compensation.

9) The Contractor shall provide, as may be necessary, for the temporary diversion of stream flow in order to permit the installation of the pipe under dry conditions.

10) The Contractor shall lay tee sections to set the tee risers at the location shown on the plans, using spacer length of pipe as required. A tolerance of 1.0` will be required in the plan location of the riser tee branch, measured along the pipe centerline, within areas to be paved.

11) The proposed storm sewer pipe alignments will pass under existing storm sewer lines, and other utilities as shown on the plans. The Contractor shall support in place those existing utilities, which must remain in service during the construction process. At the Contractor`s option, existing storm sewers may be removed and replaced by the Contractor in lieu of supporting these facilities in place. The Contractor is advised that existing watermains will be required to remain under pressure at all times.

12) The Contractor shall replace in kind with new materials any pipe or other existing facility damaged as a result of his work or furnish any new fittings required to make the system whole.

ii) Corrugated Metal Pipe. Corrugated steel pipe shall be laid with separate gasket sections jointed firmly together with 3/8 inch thick by 7 inch wide Neoprene gasket and coupling bands conforming to Fed. Spec. WW-P-405, with outside laps of circumferential joints pointing upgrade, and with longitudinal laps on the sides.

1) Proper facilities shall be provided for lowering the pipe when it is to be placed in a trench. The pipe shall be laid carefully and true to lines and grades on a bed that is uniformly firm throughout its length. Any pipe which is not in true alignment, or which shows any undue settlement after being laid or is damaged, shall be taken up and re-laid without extra compensation.

2) The pipe shall be placed so that the element of the cylindrical pipe constituting the centerline of the paved section shall coincide with the flow line of the culvert orsewer. Sections of paved pipe shall be laid so that the flow line is smooth and continuous across joints.

3) All pipe shall be handled so as to prevent bruising, or breaking on the spelter coating or the bituminous coating. All spots on the pipe where the spelter or bituminous coating has been damaged or destroyed shall be painted with two coats of asphaltic paint, or otherwise repaired in a satisfactory manner.

f) Joining Pipe.

i) Concrete Pipe. Concrete pipe may be either bell and spigot or tongue and groove. The method of joining pipe sections shall be such that the ends are fully entered and the inner surfaces are reasonably flush and even.

Joints shall be made with rubber gaskets or plastic gaskets.

1) Rubber Gasket Joints. The gasket shall be installed in accordance with the manufacturer`s instructions.

2) Composition Gasket Joints. The gasket shall be installed in accordance with the manufacturer`s instructions.

a) Bell and Spigot Pipe. The first pipe shall be bedded to the established grade line, placing the bell end upstream. The interior surface of the bell shall be carefully cleaned with a wet brush, and the lower portion of the bell filled with mortar to such a depth as to bring the inner surfaces of the abutting pipe flush and even. The spigot end of each subsequent pipe shall be cleaned with a wet brush and uniformly matched into the bell so that the sections are closely fitted. After each section is laid, the remainder of the joint shall be filled with mortar and a bead shall be formed around the joint with a sufficient amount of additional mortar. The cement mortar shall be protected from rapid drying from exposure to sun or wind by suitable covering such as damp burlap kept moist for at least 24 hours. If the mortar is not sufficiently stiff to prevent appreciable slump before setting, the outside of the joint should be wrapped or bandaged with cheesecloth to hold the mortar in place.

b) Tongue and Groove Pipe. The first pipe shall be bedded carefully to the established grade line with the groove upstream. A shallow excavation shall be made underneath the pipe at the joint and filled with mortar to provide a bed for the second pipe. The grooved end of the first pipe shall be carefully cleaned with a wet brush, and a layer of soft mortar applied to the lower half of the groove. The tongue of the second pipe shall be cleaned carefully with a wet brush and while in a horizontal position, a layer of soft mortar shall be applied to the upper half of the tongue. The tongue end of the second pipe shall then be inserted in the grooved end of the first pipe until mortar is squeezed out on the interior and exterior surfaces. Sufficient mortar shall be used to completely fill the joint and to form a bead on the outside. The cement mortar shall be protected from rapid drying from exposure to sun or wind by suitable covering such as damp burlap kept moist for at least 24 hours. If the mortar is not sufficiently stiff to prevent appreciable slump before setting, an acceptable method shall be provided to hold the mortar in place.

ii) Metal Pipe. Metal pipe shall be firmly joined by form fitting bands conforming to the requirements of ASTM A 760 for steel pipe and AASHTO M 196 for aluminum pipe.

iii) PVC and Polyethylene Pipe. Fittings for PVC pipe shall conform to the requirements of ASTM D3034. Fittings for polyethylene pipe shall conform to the requirements of AASHTO M252.

g) Backfilling. All trenches and excavations shall be backfilled within a reasonable time after the pipes are installed, unless other protection of the pipe is directed. Pipes shall be

inspected before any backfill is placed, and any found to be out of alignment, unduly settled, or damaged, shall be removed, relaid or replaced at the Contractor`s expense.

Materials for backfill shall be fine, readily compactible soil or granular material selected from the excavation or an approved source. It shall not contain frozen lumps, stones that would be retained on a 2" sieve, chunks of highly plastic clay, or other objectionable material. Granular backfill material shall have not less than 95% passing a 1/2" sieve and not less than 95% retained on a No. 4 sieve.

When the top of the pipe is even with or below the top of the trench, backfill shall be compacted in layers, not exceeding 6" on both sides of the pipe and to an elevation of one foot above the top of the pipe or to natural ground level whichever is greater. Care shall be exercised to thoroughly compact the backfill material under the haunches of the pipe. Backfilling shall be done in a manner to avoid injurious top or side pressure on the pipe. Material shall be brought up evenly on both sides of the pipe. When the top of the pipe is above the top of the trench, the backfill shall be compacted in layers not exceeding 6" and shall be brought up evenly on both sides of the pipe to an elevation one foot above the top of the pipe. The width of backfill on each side of the pipe for the portion above the top of the trench shall be equal to twice the diameter of the pipe or 12 feet whichever is less.

For PVC and polyethylene pipe the backfill shall be placed in two stages; one to the top of the pipe and the other at least 12" over the top of the pipe. The backfill material shall meet the requirements as specified above.

All backfill shall be compacted to a density of not less than 90% of the maximum dry density as determined for the material by AASHTO Designation T-180. Density tests shall be taken, by the Owner's representative, at the frequency of one (1) per every other lift per 100 L.F. of trench or fraction thereof. The movement of construction machinery over a culvert shall be at the Contractor's risk. Any pipe damaged thereby shall be replaced at the expense of the Contractor.

h) Connections. Where the plans call for connections to existing or proposed structures, these connections shall be watertight and made so that a smooth uniform flow line will be obtained throughout the drainage system. Joints between storm sewer pipes and structures shall be made with formed and poured collars as shown in Plans or as directed by Engineer.

i) 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 embankment, shoulders, or as ordered by the Engineer. The Contractor shall restore all disturbed areas to their original condition.

i) After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clean and in good condition.

ii) Performance of the work described in this section is not payable directly, but shall be considered as subsidiary obligation of the Contractor covered under the contract unit price for the pipe.

iii) The Contractor shall note that there is an existing drainage system constructed in the area of this project. The proposed drainage system will be connected to this existing system. The Contractor and the Engineer will inspect the existing drainage system prior to the start of work and record its condition and again at the completion of the work to assure that the system is clean and operable. The Contractor will be required to maintain the existing drainage system at all times during construction, and clean and/or rehabilitate to its prior condition at no additional cost to the contract.

j) Inspection. Prior to final approval of the drainage system, the Engineer, accompanied by the Contractor`s representative, shall make a thorough inspection, by an appropriate method, of the entire installation. Any indication of defects in material or workmanship or obstruction to flow in the pipe system shall be further investigated and corrected. Defects due to the Contractor`s negligence shall be corrected by the Contractor without additional compensation and as directed by the Engineer.

04) METHOD OF MEASUREMENT

a) The length of pipe to be paid for shall be the number of linear feet of pipe in place, completed and approved. It shall be measured along the centerline of the pipe, from end to inside face of structure to the end or inside face of structure, whichever is applicable. The several types and sizes shall be measured under the appropriate item without distinction as to pipe strength class. All fittings shall be included in the footage as typical pipe sections in the pipeline being measured. Pipe bends and flared end sections where called for on the plans or as directed by the City, will be counted for separate payment. Tees, wyes and eccentric pipe reducers will not be measured separately for payment and shall be included in the measurement in linear feet of the line of pipe in which they are installed.

b) The length of Class B or C Pipe Bedding to be paid for shall be the number of linear feet of pipe bedding, without regard to the pipe diameter, actually shaped, compacted and backfilled in accordance with these specifications and approved by the Engineer.

c) Trench and excavation protection will not be measured for payment but paid for as a lump sum.

05) BASIS OF PAYMENT

a) Payment for storm sewer pipe, complete and installed as planned and/or directed, will be made at the contract unit price per linear foot for pipe, without distinction as to pipe strength class. If the contractor elects to utilize his own designs for concrete pipe, and or different beddings than those shown on the plans, those other designs will be paid for under the unit price items listed below for the various pipe diameters and bedding types. These prices shall be full compensation for furnishing all materials and for all preparation, excavation, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

1) No separate payment will be made for demolishing portions of walls of existing structures to make connection with new pipe.

2) Hauling and placement of excess material removed in the pipe trench excavation process and not used as backfill will not be measured for payment under this item.

Payment for this work will be made under the appropriate embankment item as specified.

3) No separate payment will be made for common trench excavation, or trench backfill, including select backfill. The cost of this work will be considered incidental to the construction of the storm sewer pipe.

4) No separate payment will be made for any pumping and counter-floatation measures which are required during construction, whether or not such work is indicated on the plans.

5) Separate payment will not be made for removing and abandoning existing storm sewers.

6) Separate payment will be made for constructing concrete pipe collars for the purpose of joining two pipes. This will be paid under the item for “Miscellaneous Concrete” in Section D-751.

7) No separate payment will be made for the removal and replacement or support of existing utilities necessary during the construction of storm sewers. The cost of this work will be considered incidental to the construction of the storm sewer pipe.

8) No separate payment will be made for exceptional costs incurred by the Contractor in conforming to construction schedules established in the plans or for duplicated work required by these schedules. The cost of this work will be considered incidental to the storm sewer item.

9) No separate payment will be made for the removal and disposal of trash, rubble and garbage removed from the pipe trench, or for replacement backfill. All costs, therefor, shall be included in the prices bid for the pipe item.

10) No separate payment will be made for tees, reducers, or other fittings, except that bends and flared end sections will each be counted for payment.

(b) Payment for Pipe Bedding completed and accepted will be made at the contract unit price per linear foot, which price shall be full compensation for furnishing and placing all material and for all labor, equipment, tools and incidentals necessary to complete the item.

(c) Payment will be made at the contract lump sum price for Trench and Excavation Protection. This price shall be full compensation for furnishing and placing all material and for all labor, equipment, tools and incidentals necessary to complete the item. Partial payments shall be made as follows:

1) Fifteen percent (15%) of the contract item will be paid when the complete excavation and protection plan is approved.

2) Seventy-five percent (75%) of the contract item will be pro-rated on each partial payment in respect to the percent complete of all work on the contract, less allowances.

3) The final ten percent (10%) will be paid when all work is complete, and all reports have been submitted.

(d) Payment will be made under:

Item D-701-1 - Storm Sewer, RCP, 24” Diameter, Class V – Per Linear Foot.

Item D-701-2 - Pipe Bedding, Type C – Per Linear Foot.

Item D-701-3- Trench and Excavation Protection – Per Lump Sum.

TESTING AND MATERIAL REQUIREMENTS

Test and Short Title	Material and Short Title
ASTM A 760	Standard Specification for Corrugated Steel Pipe, Metallic Coated for Sewers and Drains
ASTM A 849	Standard Specification for Post-Applied Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe
ASTM C 6	Hydrated Lime
AASHTO M 45	Sand
ASTM C 76	RC Pipe
ASTM C 443	Rubber Gasket
AASHTO M 85	Portland Cement
AASHTO M 157	Ready-Mix Concrete
AASHTO M 173	Joint Sealer
AASHTO M 198	Gaskets
AASHTO M 219	Aluminum Structural Plate
Fed. Std. 601	Gasket Swell
1/HH-G-156	Flexibility

Note: Others as required by referenced specifications.

1/ Federal Specifications

END OF SECTION D-701

SECTION D-705

PIPE FOR UNDERDRAINS

01) DESCRIPTION

(a) This item shall consist of pipe for underdrains of the type, classes, sizes, and dimensions required on the plans, furnished and installed at the places designated on the plans, or by the Engineer, in accordance with these specifications and with the lines and grades given.

(b) This item shall include the furnishing and installation of underdrain pipe in place, the cost of underdrain pipes, common excavation, pavement removal, furnishing and installing all trench bracings, all fittings required to complete the underdrains as shown on the plans, and the material for the making of all joints including all connections to existing drainage pipes and structures.

02) MATERIALS

(a) Underdrain Backfill. Underdrain backfill shall meet the quality requirements of GDOT Section 800, Coarse Aggregate, with the gradation meeting the requirements of size 89.

The above material shall be used to replace material from the trench for perforated pipe and shall be paid for separately as specified herein. Gradations shall be obtained on samples of underdrain backfill prior to delivery to the job site. Additional gradations shall be obtained at the rate of one (1) per week for size No. 89 during the stockpiling and placement operations. The quality requirement tests described under section 800 shall be performed prior to the start of delivery to the job site.

(b) General. Materials shall meet the requirements shown on the plans and as specified below.

1) Smooth-wall Perforated PVC Pipe, ASTM F758, Poly (vinyl chloride) Ribbed Drain Pipe & Fittings, based on controlled inside diameter, ASTM F794, Poly (vinyl chloride) (PVC) corrugated sewer pipe with a smooth interior and fittings, ASTM F949, Poly (vinyl chloride) (PVC) Profile Drain Pipe and fittings based on controlled inside diameter AASHTO M304. All PVC pipe for under drains shall be Schedule 40

2) Fittings are not required to be leak-proof but must be tight enough to prevent intrusion of fine material. Fittings may snap or screw on. All fittings shall be of the composition and have the same physical properties as the tubing and shall not restrict flow. Fittings as a continuous part of the line shall be capable of passing the stretch resistance test in accordance with ASTM F-405, latest revision.

Schedule 40 PVC pipe supplied as meeting this specification shall be marked with the manufacturer's identification symbol regularly at not more than 10 ft. intervals and in addition may be required to carry an approved symbol designating the manufacturer's assurance of compliance also at regular intervals along the pipe. Fittings shall bear the identification symbol of the manufacturer. Each bundle shall bear the date, month and year of manufacture.

3) All underdrain pipe backfill shall be AASHTO or ASTM No. 89 stone.

03) CONSTRUCTION METHODS

3.01 Equipment. All equipment necessary and required for the proper construction of pipe underdrains shall be on the project, in first class working condition, and approved by the Engineer before construction is permitted to start. The equipment shall be able to be set up to maintain line and grade control accurately without damaging the existing soil cement base. A standard backhoe will not be approved for this work.

A. The Contractor shall provide hand tampers and pneumatic tampers to obtain the required compaction of the pipe bed and backfill, as specified.

3.02 Excavation. The Contractor shall do all necessary excavation to the depth shown on the plans.

1) Excavated material not required or acceptable for backfill shall be disposed of by the Contractor as directed by the Engineer. The excavation shall not be carried below the required depth; when this is done, the trench shall be backfilled at the Contractor's expense with material approved by the Engineer and compacted to the density of the surrounding earth material as determined by the AASHTO Compaction Control Tests AASHTO T-180. The laboratory compaction and field density shall be determined by methods described in Section P-152, "Excavation and Embankment".

2) In case the depth of cut is changed from that shown on the plans, the change shall not exceed 6" without a revision in the contract unit price per linear foot of pipe. However, if the depth of cut is changed more than 6", compensation or deduction of work involved, whether increased or decreased, shall be provided for in a supplemental agreement.

3) The minimum width of the trench at the top of the pipe, when placed, shall be a width which will permit the proper construction of joints and compaction of backfill around the pipe.

4) The Contractor shall do such trench bracing, sheathing, or shoring necessary to perform and protect the excavation as required for safety and conformance to governing laws. Unless otherwise provided, the bracing, sheathing, or shoring shall be removed by the Contractor after the completion of the backfill to at least 12" over the top of the pipe. The sheathing or shoring shall be pulled as the granular backfill is placed and compacted to avoid any unfilled spaces between the trench wall and the backfill material. The cost of bracing, sheathing, or shoring, and the removal of same, shall be included in the unit price bid per foot for the pipe.

5) The Contractor is cautioned to exercise extreme care, particularly in the areas immediately adjacent to taxiway and runway edges, where lighting conduit runs continuously and under which the piping must pass. The Contractor is further cautioned to exercise care in the vicinity of FAA communication, power, and electronic circuits. Damages to these and any other underground utilities shall be repaired in accordance with "General Conditions, Section 22.11". All cost associated with these repairs shall be paid for by the Contractor.

3.03 Laying and Installing Pipe.

1) The Contractor's facilities for lowering the pipe into the trench shall be such that neither the pipe nor the trench will be damaged or disturbed.

2) The Engineer shall inspect all pipe before it is laid, and reject any section that is damaged by handling or is defective to a degree which will materially affect the function and service of the pipe.

3) The laying of the pipe in the finished trench shall be started at the lowest point and laid upgrade. The pipe shall be firmly and accurately set to line and grade so that the invert will be smooth and uniform. Pipe shall not be laid on frozen ground or in a wet trench.

4) PVC pipe shall be installed in accordance with the requirements of ASTM D2321 or AASHTO standard specifications for Highway Bridges Section 30. Perforations shall meet the requirements of AASHTO M252 or M294 class 2, unless otherwise indicated on the plans.

3.04 Mortar. The mortar shall be of the desired consistency for making connections to other pipes or to structures. Mortar that is not used within 45 minutes after water has been added shall be discarded. Retempering of mortar shall not be permitted.

3.05 Backfilling.

A. Earth. All trenches and excavations shall be backfilled within a reasonable time after the pipes are installed, unless other protection of the pipe is provided. Backfill material shall be approved by the Engineer. Special care shall be taken in placing the backfill. Great care shall be used to obtain thorough compaction under the haunches and along the sides to the top of the pipe.

1. The backfill shall be placed in loose layers not exceeding 6" in depth under and around the pipe, and not exceeding 8" over the pipe. Successive layers shall be added and thoroughly compacted by hand and pneumatic tampers, approved by the Engineer, until the trench is completely filled and brought to the proper elevation. Backfilling shall be done in a manner to avoid injurious top or side pressures on the pipe.

2. In embankments and for other areas, the backfill shall be compacted to 90% of the maximum density as determined by AASHTO T-180. The laboratory compaction and field density shall be determined by methods described in SECTION P-152, EXCAVATION AND EMBANKMENT. Density tests shall be taken at a frequency of one (1) per every other lift per 100 linear feet of trench for earth backfill.

B. Granular Material. When granular backfill is required, its placement in the trench and about the pipe shall be as shown on the plans. Special care shall be taken in placing the backfill. The granular backfill shall not contain a damaging amount of foreign matter, nor shall earth from the sides of the trench or from the windrow be allowed to filter into the backfill. The backfill shall be placed in loose layers not exceeding 6” in depth and compacted by hand and vibratory tampers to the requirements as given above. Backfilling shall be done in a manner to avoid injurious top or side pressure on the pipe. The granular backfill shall be made to the elevation of the trench, as shown on the plans.

1. When perforated pipe is specified, granular backfill material shall be placed along

the full length of the pipe. The position of the granular material shall be as shown on the plans.

2. Whenever a granular subbase blanket course is to be used under pavements or which extends several feet beyond the edge of paving to the outside edge of the underdrain trench, the granular backfill material over the underdrains shall be placed in the trench up to an elevation of 2" above the bottom surface of the granular subbase blanket course. Immediately prior to the placing of the granular subbase blanket course, the Contractor shall blade this excess trench backfill from the top of the trench onto the adjacent subgrade where it can be incorporated into the granular subbase blanket course. Any unsuitable material which remains over the underdrain trench shall be removed and replaced.

   The subbase material shall be placed to provide clean contact between the subbase material and the underdrain granular backfill material for the full width of the underdrain trench. The backfill shall be compacted in accordance with the applicable portions of Section D-701 Pipe for Storm Drains.

3.06 Connections. When the plans call for connections to existing or proposed structures, these connections shall be watertight and made so that a smooth uniform flow line will be obtained throughout the drainage system.

3.07 Flushing and/or Rodding. The flushing and/or rodding of underdrain pipe shall be accomplished in such a manner to reasonably assure that the underdrain longitudinal pipes and outlet pipes are not obstructed or blocked or discontinuous.

Sufficient water is to be injected into the system, overcoming the amount absorbed into the backfill aggregate, to reasonably indicate free flow. This can be observed by monitoring the time it takes to reach a monitoring point and the magnitude of flow. The reverse also will be monitored; i.e. the time it takes for the flow to abate.

If the lines appear to be blocked, obstructed, or discontinuous, based on the above monitoring, the Contractor is to rod the lines to determine the point of the problem.

An exploratory pit would then be dug at the perceived problem point and corrections made to the underdrains.

3.08 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 ordered by the Engineer. Except for paved areas of the Airport, the Contractor shall restore all disturbed areas to their original condition.

A. After all work is completed, the Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

B. Performance of the work described in this section is not payable directly but shall be considered as a subsidiary obligation of the Contractor, covered under the contract unit price for the underdrain.

3.09 Existing Underdrain Replacement. In areas where individual PCC panels are being removed and replaced, the Contractor shall remove the existing underdrain and replace it with a new underdrain pipe. This work shall include trench removal of the base course, installation of the pipe per project plans and specs, and trench backfill using low strength, low slump concrete. This underdrain

installation shall be paid for under the appropriate underdrain items listed below.

04) METHODS OF MEASUREMENT

A. The length of pipe to be paid for shall be the number of linear feet of underdrain pipes in place, completed, and approved to be measured along the centerline of the pipe from end of pipe or inside face of structure to the end or inside face of structure, whichever is applicable. All fittings and appurtenances shall be included in the length as typical pipe sections in the pipe being measured.

B. Underdrain cleanouts constructed and finished in-place will each be counted for payment.

C. Trench Rock Excavation if required will be measured per specification P-152.

D. Concrete for the 8-inch underdrain outfall pipes shall not be measured separately as it is incidental to the work.

E. The amount of underdrain aggregate backfill to be paid for shall be the number of cubic yards of the material in place, completed, and approved.

05) BASIS OF PAYMENT

A. Payment will be made at the contract unit price per linear foot for each kind of pipe, type and size designated. These prices shall be full compensation for furnishing all materials and for all labor, equipment, tools and incidentals necessary to complete these items, including the excavation and removal of existing underdrain pipes, connections to existing drainage pipes and structures. The cost of underdrain outfall pipe, concrete encasement, concrete collars at manholes or inlets, and earth backfill shall also be included in the linear foot price bid for the non-perforated outlet underdrain outlet pipe.

B. Payment for underdrain cleanouts shall be made for each cleanout installed and accepted in-place These prices shall be full compensation for furnishing all materials and for all labor, equipment, tools and incidentals necessary to complete these items

C. Payment for the underdrain pipe aggregate backfill shall be made per cubic yard placed and accepted.

D. Payment for Trench Rock Excavation, if required, will be per pay item in P-152.

E. No separate payment shall be made for underdrain removal which shall be incidental to construction.

F. Payment will be made under:

Item D-705-1 6” Perforated Underdrain Pipe – Per Linear Foot

Item D-705-2 8” Perforated Underdrain Pipe – Per Linear Foot

Item D-705-3 8” Non-perforated Concrete Encased Underdrain Pipe – Per Linear Foot

Item D-705-4 Underdrain Cleanout – Per Each

Item D-705-5 Coarse Aggregate Underdrain Backfill, #89 Stone– Per Cubic Yard

TESTING AND MATERIAL REQUIREMENTS

Test and short title	Material and short title
AASHTO T-180 -- Density	AASHTO M-85--Portland Cement
AASHTO T-27 -- Gradation	AASHTO M-45--Sand
	ASTM C-6--Hydrated Lime
	ASTM D-1248--Joints
	ASTM D-3034--PVC Pipe & Fittings
	ASTM F-758--PVC Pipe
	ASTM F-949--PVC Pipe

END OF SECTION D-705

SECTION D-751

MANHOLES, CATCH BASINS AND INLETS

01) DESCRIPTION

a) This work shall include construction of new manholes, inlets, headwalls, trench drains, miscellaneous drainage structures, adjusting inlets to grade, and other incidental concrete structures constructed 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.

b) This section shall include plain or reinforced concrete for miscellaneous structures, constructed in accordance with the specification at the specified locations and conforming to the lines, grades and dimensions shown on the plans or required by the Engineer.

c) All reinforced concrete structures partly or wholly precast, covered by these specifications shall be constructed in accordance with the shop drawings, approved by the Engineer, in advance of the work. Shop drawings shall indicate the location of all joints and the size, shape and orientation of all the pipe openings. Bar schedule for all reinforcing steel shall be submitted with the shop drawings. Shop drawings shall be submitted with all parts of the structure and hardware indicated – multiple submittals for the appurtenant parts of a single structure will be cause for rejection of the entire submittal.

02) MATERIALS

a) Mortar. The mortar for brick masonry and similar work shall be composed of one part of portland cement and two parts of mortar sand, by volume. The portland cement shall conform to the requirements of AASHTO M-85. The sand shall conform to the requirements of AASHTO M-45. Hydrated lime may be added to the mixture of sand and cement in an amount not to exceed 15% of the weight of cement used. The hydrated lime shall meet the requirements of ASTM C-6. The water shall be clean and free of deleterious amounts of acids, alkalies, and organic material. If the work is of questionable quality, it shall be tested in accordance with AASHTO T-26.

b) Concrete. Joints between storm sewer pipes and manholes shall be made with formed and poured collars.

The top and bottom slabs and other portions of the various drainage structures to be constructed of reinforced concrete shall conform to the applicable requirements of Section 500, Section 833, and Section 441 of the Georgia Department of Transportation Standard Specifications. Unless otherwise noted on the contract documents, these elements may be cast in place or precast, at the Contractor's option. All concrete shall be Class A unless otherwise specified on the plans.

Reinforcing steel shall conform to ASTM A-615, Grade 60, and shall conform to the applicable requirements of Section 511 of the Georgia Department of Georgia Standard Specifications.

c) Manholes.

i) Precast concrete manhole risers shall conform to the requirements of ASTM C-478, unless noted otherwise on the plans.

ii) Precast circular wall sections of manholes shall conform to the requirements of ASTM C-478, unless noted otherwise on the plans.

iii) All manhole covers shall be furnished with four cover hold-down bolts, rubber gaskets, and a single pick hole on the cover periphery which does not extend beyond the seating flange of the frame. Frames shall be furnished with anchor bolts, as shown on the contract documents. All frames and covers shall be cast iron, as shown on the contract drawings.

iv) Rubber Gasket Joints shall conform to the requirements of C-433. Gasket shall be “O”-ring or profile type, Neoprene.

v) All castings shall be thoroughly cleaned and given two coats of approved bituminous paint. After fabrication, structural steel units shall be galvanized to meet the requirements of AASHTO M-111.

vi) The steps or ladder bars shall be gray or malleable cast iron.

vii) Bedding for precast base sections shall conform to the requirements for coarse aggregate No. 89, Georgia DOT Standard Specifications.

03) CONSTRUCTION METHODS

a) Unclassified Excavation.

i) The Contractor shall do all excavation for structures and structure footings 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 structure footings shown. The elevations of the bottoms of footings, as shown on the plans, shall be considered as approximate only; and the Engineer may order, in writing, changes in dimensions or elevations of footings necessary to secure a satisfactory foundation.

ii) 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. When poured concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation, and excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.

iii) All precast base sections must be founded on a compacted layer of Georgia DOT No. 89 coarse aggregate at least 18" thick.

iv) 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.

v) Unless otherwise provided, the Contractor shall remove bracing, sheathing, or shoring involved in the construction of this item after the completion of the structure. Removal shall be effected in a manner, which will not disturb or mar finished masonry. The cost of removal shall be included in the unit price bid for the structure.

vi) After each excavation is completed, the Contractor shall notify the Engineer to that effect; and concrete or reinforcing steel shall be placed after the Engineer has approved the depth of the excavation and the character of the foundation material.

b) Concrete Structures. Concrete structures shall be built on prepared foundations, conforming to the dimensions and form indicated on the plans. The construction shall conform to the requirements of section 500, Class A Concrete, of the Georgia DOT Standard Specifications.

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

Adjusting existing manholes and inlets shall consist of removing and replacing the casting, removing portions of the existing walls, and/or constructing new structure walls as necessary to lower an existing structure to grade. Also included under this item is the raising of an existing structure to grade.

c) Precast Concrete Structures. Precast concrete structures shall be constructed on prepared aggregate bases and shall conform to the dimensions and locations shown on the contract documents. All precast concrete sections necessary to build a completed structure shall be furnished. The different sections shall fit together readily and all joining and connections shall be cemented with mortar. The top of the upper precast concrete pipe member shall be suitably formed and dimensioned to receive the metal frame and cover or grate, or other cap, as required.

Provisions 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.

d) Inlet and Outlet Pipes. Inlet and outlet pipes shall extend through the walls of the structures for a sufficient distance beyond the outside to allow for connections but shall be cut off flush with the wall on the inside surface, unless otherwise directed. For concrete or brick structures, the mortar shall be placed around these pipes so as to form a tight, neat connection. For precast structures, joints between storm sewer pipes and structure walls shall be formed concrete collars, placed exterior of the structure, which completely fill and seal the annular void between the pipe and the structure wall.

e) 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 to correct elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place and position 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 to be placed upon previously constructed masonry, the bearing surface or masonry shall be brought true to line and grade, and shall present an even bearing surface in order that 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 and approved by the Engineer. All units shall be set firm and secure.

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

f) 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 poured. 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 days. After this period has elapsed, the steps shall be cleaned and painted, unless they have been galvanized. When steps are required with precast concrete pipe structures, they shall be cast into the sides of the pipe at the time the pipe sections are manufactured, or set in place after the structure is erected, by drilling holes in the concrete and cementing the steps in place.

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

g) Backfilling.

1) After a structure has been completed, the area around it shall be backfilled with approved material, in horizontal layers not to exceed 8" in loose depth and compacted to a density of not less than 90% of the maximum dry-density for the material as determined by AASHTO T-180. Density tests shall be taken at the frequency of one per every other lift per manhole, inlet, junction chamber, or drainage structure, as appropriate. Each layer shall be deposited all 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.

2) Backfilling shall not be placed against any structure until the Engineer gives permission. In the case of concrete, such permission shall not be given until the concrete has been in place seven days, or until tests made by the laboratory under supervision of the Engineer establish that the concrete has attained sufficient strength to provide a factor of safety against damage or strain in withstanding any pressure created by the backfill or the methods used in placing it.

3) Backfill placed around concrete culverts shall be deposited on both sides at the same time and to approximately the same elevation. Care shall be taken to prevent any wedging action against the structure and all slopes bounding or within the area to be backfilled shall be stepped or serrated to prevent wedge action.

4) Backfill shall not be measured for direct payment. Performance of this work shall be considered as a subsidiary obligation of the Contractor covered under the contract unit price for the structure involved.

h) 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 ordered by the Engineer. The Contractor shall restore all disturbed areas to their original condition. After all work is complete, the Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

04) METHOD OF MEASUREMENT

a) Each new manhole and inlet will be measured per each, complete, in place and accepted.

b) Each manhole and inlet to be adjusted will be measured per each, complete, in place and accepted.

c) Miscellaneous concrete for collars, aprons, pipe plugs and other purposes will be measured by the cubic yard, complete, in place and accepted.

d) No measurement or allowance shall be made for forms, falsework, cofferdams, pumping, bracing, expansion joints or material, finishing of concrete sand blankets water stops or utility sleeves.

05) BASIS OF PAYMENT

a) Each manhole and inlet of the various types, complete, in-place, and accepted shall be paid for at the contract price bid per each. Such prices and payments shall be full compensation for furnishing all materials, fittings, and other appurtenances called for on the plans for all preparation, excavation, and placing of materials, and for all labor, equipment, tools and incidentals necessary to complete the structures.

b) Each existing manhole and inlet of the various types reset to new elevation, complete, in-place, and accepted shall be paid for at the contract price per each.

c) Payment will be made at the contract unit price per cubic yard for concrete for miscellaneous concrete. These prices shall be full compensation for furnishing all materials, for all preparation, excavation, and placing of materials, and for all labor, equipment, tools, and incidentals necessary to complete the structure. No separate payment will be made for reinforcing steel.

d) No separate payment will be made for breaking and connecting into manholes for storm sewers. This work shall be considered incidental to the storm sewer construction.

e) No additional payment will be made for sheeting, shoring, bracing, pumping, dewatering, and any counter-floatation measures, which may be required during construction.

f) Payment will be made under:

Item D-751-1 – Inlet Type “B”	– Per Each
Item D-751-2 – Drainage Manhole	– Per Each
Item D-751-3 – Reset Existing Manhole/Inlet to Grade	– Per Each
Item D-751-4 - Miscellaneous Concrete	– Per Cubic Yard

END OF SECTION D-751

SECTION T-901 SEEDING

04) DESCRIPTION

(a) Work shall consist of developing a grass cover on unpaved areas which are exposed, or damaged during construction operations, not to exceed 10' outside of construction limits, as shown on the plans, or as directed by the Engineer in accordance with these specifications.

(b) These specifications are to be used as a guide to enable the Contractor to develop a satisfactory stand of grass. The Contractor shall visit the site and acquaint himself as to the nature and condition of the soil and the extent of the work required prior to bidding. The Contractor shall have the soil tested to determine the actual rates and/or types of lime, fertilizer, seed and mulch required. Prior to construction, the Contractor shall submit a seeding plan to the Engineer for review. In addition to the above, it shall also include his methods of maintenance, watering, reseeding, fertilizing, mowing and recommendations for future maintenance by the City.

(c) Areas that have previously been seeded or grassed and are unnecessarily disturbed during construction shall be reseeded and, if necessary, re-sloped and mulched at no expense to the City.

05) MATERIALS

(a) Seed. Seed to be furnished shall be Lespedeza Sericea (scarified), Lespedeza Sericea (unscarified), Turf-type Fescue, Weeping Love Grass and White Clover. Seed shall conform to the requirements of Section 890.2.01 of the Georgia Department of Transportation's Standard Specifications, Construction of Roads and Transportation Systems, 2001 Edition.

Seed shall be furnished separately or in mixtures in standard containers with the seed name, lot number, net weight, percentages of purity and of germination and hard seed and percentage of maximum weed seed content clearly marked for each kind of seed. The Contractor shall furnish the Engineer duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within 6 months of date of delivery. This statement shall include; name and address of laboratory, date of test, lot number for each kind of seed and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished and, in case of a mixture, the proportions of each kind of seed.

All seed used shall be certified and labeled in accordance with U.S. Department of Agriculture "Rules and Regulations Under the Federal Seed Act" in effect on the date of invitation for bids. All seed shall be furnished in standard containers, unless exception is granted by the Engineer. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be acceptable.

Between March 1 and April 30, or between September 1 and October 31, the various types of permanent seed may be sown at the following approximate rates:

On slopes of 3:1 or steeper -
Lespedeza Sericea (Scarified) ..... 60 lbs/acre
Lespedeza Sericea (Unscarified)..... 30 lbs/acre
Weeping Love Grass ..... 10 lbs/acre

On all areas (including slopes 3:1 or steeper) -
Turf-type Fescue ..... 200 lbs/acre
White Clover ..... 15 lbs/acre

Seeding performed at other times of the year shall be considered temporary seeding. For temporary seeding types and rates, see section 02) (f).

The Contractor shall meet or exceed the following performance requirements. Contractor shall perform all work necessary, including water, fertilizing, topsoil, liming and other amendments as required to sustain an established turf through the warranty period, at no additional cost to Owner. Include in such maintenance the filling, leveling, and repairing of any washed or eroded areas, as may be necessary.

An acceptable stand of grass is defined as follows:

a) Established root system (leaf blades break before seedlings or sod can be pulled from soil by hand).

b) No bare spots larger than one square foot.

c) No continuous streaks running perpendicular to the face of the slope.

d) No bare areas comprising more than 1% of any given 1,000 square foot area.

e) No deformation of the turf areas caused by mowing or other contractor equipment.

(b) Lime. Agricultural limestone must contain not less than 85% calcium carbonate equivalent and ground to such a fineness that 90% will pass a No. 10 sieve, not less than 50% pass a No. 50 sieve, and 25% through a No. 100 sieve. All liming materials shall conform to the requirements of ASTM C 602. Agricultural limestone shall be applied at the approximate rate of 4,000 lbs/acre.

(c) Fertilizer. Fertilizer shall be 6-12-12 fertilizer and shall have a guaranteed analysis of: 6% in-organic nitrogen derived from superphosphate and 12% water soluble potash derived from muriate of potash. They shall be applied at the rates and depth specified herein and shall meet the requirements of Section 891 of the Georgia Department of Transportation's Standard Specifications, Construction of Roads and Transportation Systems, 2001 Edition.

They shall be furnished in standard containers with name, weight and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

1) A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

2) A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

3) A granular or pellet form suitable for application by blower equipment.

For all areas to be seeded, fertilizer shall be applied at the approximate rate of 2,500 lbs/acre. Fertilizer 6-12-12 shall be mixed in the top 4" to 6" of soil.

(d) Mulch. Mulch materials shall be as specified in Section T-908. All areas to be grassed are

to be mulched. The mulch material shall be applied immediately after the seeding operation.

(e) Soil for Repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps or other materials that will interfere with subsequent sowing of seed, compacting and establishing turf and shall be approved by the Engineer before being placed.

(f) Temporary Seeding. Where temporary seeding is called for on the plans or directed by the Engineer, the acceptable types of seed, fertilizer, and application rates in pounds per acre are shown below:

May 1 - August 31	September 1 - October 31 and March 1 - April 30	November 1 - February 28
40# Brown Top Millet 3000# Limestone 500# Gypsum 400# 0-20-0 150# 34-0-0 (Ammonium Nitrate)	40# Turf-type Fescue 3000# Limestone 500# Gypsum 400# 0-20-0 150# 34-0-0 (Ammonium Nitrate)	40# Turf-type Fescue plus 40# Annual Ryegrass 3000# Limestone 500# Gypsum 400# 0-20-0 150# 34-0-0 (Ammonium Nitrate)

06) CONSTRUCTION METHODS

(a) Advance Preparation and Cleanup. After grading of areas has been completed and before applying fertilizer and ground limestone, areas to be seeded shall be raked or otherwise cleared of stones larger than 2" in any dimension, sticks, stumps and other debris which might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass covered areas. If any damage by erosion or other causes has occurred after the completion of grading and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage. This may include filling gullies, smoothing irregularities, removing silt deposits around structures, and repairing other incidental damage. Before any seed or mulch is applied to a slope face, it shall be prepared such that no ridges or holes are evident.

An area to be seeded shall be considered a satisfactory seedbed without additional treatment if it has recently been thoroughly loosened and worked to a depth of not less than 5 inches as a result of grading operations and if immediately prior to seeding, the top 3 inches of soil is loose, friable, reasonably free from large clods, rocks, large roots, or other undesirable matter and if shaped to the required grade. However, when the area to be seeded is sparsely sodded, weedy, barren and un-worked, or packed and hard, any grass and weeds shall first be cut or otherwise loosened to a depth not less than 5". Clods shall be broken and the top 3" of soil shall be worked into a satisfactory seedbed by discing, or by use of cultipackers, rollers, drags, harrows or other appropriate means.

Lime and fertilizer may be incorporated during the tillage operations, except that fertilizer shall be applied, immediately prior to sowing.

Seed, fertilizer, lime and mulch shall not be applied until all rocks, sticks, metal or other debris has been removed. Payment for seeding will not be made if the work is not accomplished as stated herein.

Contractor shall apply temporary and permanent seeding as construction of embankment

slopes are completed. Slopes shall be seeded in seven (7) foot vertical intervals or as directed by the Engineer.

(b) Dry Application Method.

1) Liming. Lime, if required, shall be applied separately and prior to the application of any fertilizer or seed and only on seedbeds that have previously been prepared as described above. Spreading of lime shall be by means of an approved type of mechanical distributor or other equipment approved by the Engineer. The lime shall then be worked into the top 3" of soil after which the seedbed shall again be properly graded and dressed to a smooth finish.

2) Fertilizing. Following advance preparations and clean-up and liming, if required, fertilizer shall be uniformly spread at the rate which will provide not less than the minimum quantity stated in section 02) of these specifications. Fertilizer distribution shall be by means of a common fertilizer distributor, grain drill, or other approved equipment. Use of a combination seed and fertilizer drill equipped to plant seed and distribute fertilizer at the same time will be permitted.

3) Seeding. Grass seed shall be sown immediately after fertilizing at the rates listed in section 02) of these specifications. The fertilizer and seed shall be raked within the depth range stated in 02)(c). Seeds of legumes, either alone or in mixtures shall be inoculated before mixing or showing, in accordance with the instructions of the manufacturer of the inoculant. When seeding is required at seasons outside of those identified for permanent seeding, a cover crop shall be sown by the same methods required for grass and legume seeding.

4) Rolling. After the seed has been properly covered, the seedbed shall be immediately compacted by means of an approved lawn roller, weighing 40 to 65 pounds per foot of width for clay soil (or any soil having a tendency to pack), and weighing 150 to 200 pounds per foot of width for sandy or light soils.

(c) Wet Application Method.

1) General. The Contractor may elect to apply seed and fertilizer (and lime, if required) by spraying them on the previously prepared seedbed in the form of an aqueous mixture and by using the methods and equipment described herein. The rates of application shall be as described in section 02) of these specifications.

2) Spraying Equipment. The spraying equipment shall have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons over the entire range of the tank capacity, mounted so as to be visible to the nozzle operator. The container or tank shall also be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.

The unit shall also be equipped with a pressure pump capable of delivering 100 gallons per minute at a pressure of 100 pounds per square inch. The pump shall be mounted in a line which will re-circulate the mixture through the tank whenever it is not being sprayed from the nozzle. All pump passages and pipe lines shall be capable of providing clearance for 5/8" solids. The power unit for the pump and agitator shall have controls mounted so as to be accessible to the nozzle operator. There shall be an indicating pressure gauge connected and mounted immediately at the back of the nozzle.

The nozzle pipe shall be mounted on an elevated supporting stand in such a manner that it can be rotated through 360 degrees horizontally and inclined vertically from at least 20

degrees below to at least 60 degrees above the horizontal. There shall be a quick-acting, three-way control valve connecting the re-circulating line to the nozzle pipe and mounted so that the nozzle operator can control and regulate the amount of flow of mixture delivered to the nozzle. At least three different types of nozzles shall be supplied so that mixtures may be properly sprayed over distance varying from 20 feet to 100 feet. One shall be close-range ribbon nozzle, one a medium-range ribbon nozzle and one a long-range jet nozzle. For removal and cleaning, all nozzles shall be connected to the nozzle pipe by means of quick release couplings.

In order to reach areas inaccessible to the regular equipment, an extension hose at least 50 feet in length shall be provided to which the nozzles may be connected.

3) Mixtures. Lime, if required, shall be applied separately, in the quantity specified, prior to the fertilizing and seeding operations. Not more than 220 pounds of lime shall be added to and mixed with each 100 gallons of water. Seed and fertilizer shall be mixed together in the relative proportions specified, but not more than a total of 220 pounds of these combined solids shall be added to and mixed with each 100 gallons of water.

All water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances harmful to plant life. Brackish water shall not be used at any time. The Contractor shall identify to the Engineer all sources of water at least 2 weeks prior to use. The Engineer may take samples of the water at the source or from the tank at any time and have a laboratory test the samples for chemical and saline content. The Contractor shall not use any water from any source which is disapproved by the Engineer following such tests.

All mixtures shall be constantly agitated from the time they are mixed until they are finally applied to the seedbed. All such mixtures shall be used within 2 hours from the time they were mixed or they shall be wasted and disposed of at locations acceptable to the Engineer.

4) Spraying. Lime, if required, shall be sprayed only upon previously prepared seedbeds. After the applied lime mixtures have dried, the lime shall be worked into the top 3 inches, after which the seedbed shall again be properly graded and dressed to a smooth finish.

Mixtures of seed and fertilizer shall only be sprayed upon previously prepared seedbeds on which the lime, if required, shall already have been worked in. The mixtures shall be applied by means of a high-pressure spray which shall always be directed upward into the air so that the mixtures will fall to the ground like rain in a uniform spray. Nozzles or sprays shall never be directed toward the ground in such a manner as might produce erosion or runoff. On surfaces that are to be mulched as indicated by the plans or designated by the Engineer, seed and fertilizer applied by the spray method need not be raked into the soil or rolled.
Particular care shall be exercised to insure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area. Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets of paper or pans over the area at intervals and observing the quantity of material deposited thereon.

(d) Maintenance of Seeded Areas. The Contractor shall protect the permanently seeded areas against traffic or other use by warning signs or barricades, as approved by the Engineer. Surfaces gullied or otherwise damaged following seeding shall be repaired by re-grading, reseeding, and re-mulching as directed. The Contractor shall mow, water as directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work.

All seeded areas shall be top dressed when the grass is 3" to 6" tall by spreading approximately 3,000 lbs/acre of agricultural limestone and approximately 150 lbs/acre of ammonia nitrate.

It will be required that the Contractor establish a good stand of grass of uniform color and density to the satisfaction of the Engineer. A grass stand shall be considered adequate when bare spots are one square foot or less, randomly dispersed, and do not exceed 3% of the seeded area.

If, at the time when the contract has been otherwise completed, it is not possible to make an adequate determination of the color, density and uniformity of the stand of grass, payment for the unaccepted portions will be withheld until such time as these requirements have been met. In lieu of withholding payment until a satisfactory stand of grass is established, the Contractor may submit a bond in a form and in an amount satisfactory to the City covering the costs of establishing a satisfactory stand of grass.

07) METHOD OF MEASUREMENT

a) The quantity of seeding, temporary or permanent, and reseeding (permanent seed), to be measured for payment shall be the number of square yards, measured on the ground surface, completed and accepted. No measurement will be made for areas more than 10 ft. Outside of the area required for construction. No measurement will be made for haul roads, staging areas, concrete crushing or processing areas or areas unnecessarily disturbed by the Contractor. Mulch will be measured for payment as specified under Section T-908 “Mulching”.

b) Watering shall be measured for payment by the hour regardless of the number of pieces of equipment required by the Engineer starting from the beginning of watering operations at the point of delivery on the project, until the Engineer determines that watering may cease.

08) BASIS OF PAYMENT

a) The quantity of seeding and reseeding, determined as provided above, will be paid for at the contract unit price per square yard for seeding, or reseeding, which price shall be full compensation for furnishing and placing all material and for all labor, equipment, tools, and incidentals necessary to complete the item. Fertilizer and liming shall be incidental to the price for seeding.

b) Watering will be paid for at the contract unit price per hour for both areas of seeding and sodding. This price shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary to complete the item.

c) Payment will be made under:

Item T-901-1 – Seeding - Per Square Yard

Item T-901-2 – Temporary Seeding – Per Square Yard

Item T-901-3 – Watering for Grassed Areas – Per Hour

MATERIAL REQUIREMENTS

ASTM C 602	Agricultural Liming Materials
GDOT Section 890.2.01	Seed
GDOT Section 891	Fertilizer

END OF SECTION T-901

SECTION T-904
SODDING

09) DESCRIPTION

(a) This item shall consist of furnishing, hauling, and placing approved live sod on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the Engineer. Work shall consist of developing a grass cover on unpaved areas which are exposed, or damaged during construction operations, not to exceed 10' outside of construction limits, as shown on the plans, or as directed by the Engineer in accordance with these specifications.

(b) These specifications are to be used as a guide to enable the Contractor to develop a satisfactory stand of grass. The Contractor shall visit the site and acquaint himself as to the nature and condition of the soil and the extent of the work required prior to bidding. The Contractor shall have the soil tested to determine the actual rates and/or types of lime, fertilizer, and other soil amendments required. Prior to construction, the Contractor shall submit a sodding plan to the Engineer for review. In addition to the above, it shall also include his methods of maintenance, watering, repairing, fertilizing, mowing and recommendations for future maintenance by the City.

(c) Areas that have previously been sodded and are unnecessarily disturbed during construction shall be resodded and, if necessary, re-sloped and mulched at no expense to the City.

02) MATERIALS

(a) Sod. Sod furnished by the Contractor shall have a good cover of living or growing grass. This shall be interpreted to include grass that is seasonally dormant during the cold or dry seasons and capable of renewing growth after the dormant period. All sod shall be obtained from areas where the soil is reasonably fertile and contains a high percentage of loamy topsoil. Sod shall be cut or stripped from living, thickly matted turf relatively free of weeds or other undesirable foreign plants, large stones, roots, or other materials that might be detrimental to the development of the sod or to future maintenance. At least 75% of the plants in the cut sod shall be composed of the species stated herein, and any vegetation more than 6 inches in height shall be mowed to a height of 3 inches or less before sod is lifted. Sod, including the soil containing the roots and the plant growth showing above, shall be cut uniformly to a thickness not less than that stated in Section 03)d). Sod which has become wet, moldy, or otherwise damaged in transit or storage will not be acceptable. Sod that is excessively dried out, exposed to heat, or not viable will also be rejected.

Sod will be obtained from approved nurseries that have a Georgia Live Plant License.

Between April 15 and June 30, Bermuda sod shall be installed. Between September 1 and October 31, Turf-type Fescue sod shall be installed.

(b) Fertilizer. Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall meet the requirements of Fed. Spec. A-A-1909 and the Georgia

Plant Food Act in effect at the date of Bid Advertisement. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers. The fertilizers may be supplied in one of the following forms:

1. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

2. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

3. A granular or pellet form suitable for application by blower equipment.

(c) Water. The water shall be sufficiently free from oil, acid, alkali, salt, or other harmful materials that would inhibit the growth of grass. It shall be subject to the approval of the Engineer prior to use. A hydrant that is available to draw potable water from is available in front of the DOA Tech Campus. A meter will be required prior to use.

(d) Soil for Repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps or other materials that will interfere with subsequent sod installation, compacting and establishing turf and shall be approved by the Engineer before being placed.

03) CONSTRUCTION METHODS

(a) General. Areas to be solid, strip, or spot sodded shall be shown on the plans. Areas requiring special ground surface preparation such as tilling and those areas in a satisfactory condition that are to remain undisturbed shall also be shown on the plans. Suitable equipment necessary for proper preparation of the ground surface and for the handling and placing of all required materials shall be on hand, in good condition, and shall be approved by the Engineer before the various operations are started. The Contractor shall demonstrate to the Engineer before starting the various operations that the application of required materials will be made at the specified rates.

(b) Preparing the ground surface. After grading of areas has been completed and before applying fertilizer and limestone, areas to be sodded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris which might interfere with sodding, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes occurs after grading of areas and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage. This may include filling gullies, smoothing irregularities, and repairing other incidental damage.

(c) Applying fertilizer and ground limestone. Following ground surface preparation, fertilizer shall be uniformly spread at a rate which will provide not less than the minimum quantity of each fertilizer ingredient, as stated in the soil test results. If use of ground limestone is required, it shall then be spread at a rate that will provide not less than the minimum quantity stated in the special provisions. These materials shall be incorporated into the soil to a depth of not less than 2 inches by discing, raking, or other methods acceptable to the Engineer. Any stones larger than 2 inches in any diameter, large clods, roots, and other litter brought to the surface by this operation shall be removed. The contractor's soils analysis report should be reviewed for specific fertilizer recommendations.

(d) Obtaining and delivering sod. After inspection and approval of the source of sod by the Engineer, the sod shall be cut with approved sod cutters to such a thickness that after it has been transported and placed on the prepared bed, but before it has been compacted,

it shall have a uniform thickness of not less than 2 inches. Sod sections or strips shall be cut in uniform widths, not less than 10 inches, and in lengths of not less than 18 inches, but of such length as may be readily lifted without breaking, tearing, or loss of soil. Where strips are required, the sod must be rolled without damage with the grass folded inside.

The Contractor shall be required to mow high grass before cutting sod. The sod shall be transplanted within 72 hours from the time it is harvested. Sod that is not transplanted within 24 hours shall be stacked, kept moist, and protected from exposure to heat, direct sunlight, and freezing until it is transplanted. Contractor shall not exceed the 72-hour time limit for transplanting all of the harvested sod. Sod shall be cut and moved only when the soil moisture conditions are such that favorable results can be expected. Where the soil is too dry, permission to cut sod may be granted only after it has been watered sufficiently to moisten the soil to the depth the sod is to be cut.

(e) Laying sod. Sodding shall be performed only during the seasons when satisfactory results can be expected. Frozen sod shall not be used and sod shall not be placed upon frozen soil. Sod may be transplanted during periods of drought with the approval of the Engineer, provided the sod bed is watered to moisten the soil to a depth of at least 4 inches immediately prior to laying the sod.

The sod shall be moist and shall be placed on a moist earth bed. Pitch forks shall not be used to handle sod, and dumping from vehicles shall not be permitted. The sod shall be carefully placed by hand, edge to edge and with staggered joints, in rows at right angles to the slopes, commencing at the base of the area to be sodded and working upward. The sod shall immediately be pressed firmly into contact with the sod bed by tamping or rolling with approved equipment to provide a true and even surface, and insure knitting without displacement of the sod or deformation of the surfaces of sodded areas. Where the sod may be displaced during sodding operations, the workmen when replacing it shall work from ladders or treaded planks to prevent further displacement. Screened soil of good quality shall be used to fill all cracks between sods. The quantity of the fill soil shall not cause smothering of the grass. Where the grades are such that the flow of water will be from paved surfaces across sodded areas, the surface of the soil in the sod after compaction shall be set approximately 1 inch below the pavement edge. Where the flow will be over the sodded areas and onto the paved surfaces around manholes and inlets, the surface of the soil in the sod after compaction shall be placed flush with pavement edges. All sod placed under this contract shall be pegged to resist disturbance from aircraft blast or weather.

On slopes steeper than 1 vertical to 2-1/2 horizontal and in v-shaped or flat-bottom ditches or gutters, the sod shall be pegged with wooden pegs not less than 12 inches in length and have a cross-sectional area of not less than 3/4 square inch. The pegs shall be driven flush with the surface of the sod.

(f) Watering. Adequate water and watering equipment must be on hand before sodding begins, and sod shall be kept moist until it has become established and its continued growth assured. In all cases, watering shall be done in a manner that will avoid erosion from the application of excessive quantities and will avoid damage to the finished surface.

(g) Establishing turf.

1. General. The Contractor shall provide general care for the sodded areas as soon as the sod has been laid and shall continue until final inspection and acceptance of the work.

2. Protection. All sodded areas shall be protected against traffic or other use by

warning signs or barricades approved by the Engineer.

3. Mowing. The Contractor shall mow the sodded areas with approved mowing equipment, depending upon climatic and growth conditions and the needs for mowing specific areas. In the event that weeds or other undesirable vegetation are permitted to grow to such an extent that, either cut or uncut, they threaten to smother the sodded species, they shall be mowed and the clippings raked and removed from the area.

(h) Repairing. When the surface has become gullied or otherwise damaged during the period covered by this contract, the affected areas shall be repaired to re-establish the grade and the condition of the soil, as directed by the Engineer, and shall then be sodded as specified in Section 03) (e) of this specification.

04) METHOD OF MEASUREMENT

(a) Sodding shall be measured on the basis of the area in square yards of the surface covered with sod and accepted.

(b) Watering shall be measured per the applicable item in T-901.

05) BASIS OF PAYMENT

(a) This item Sodding will be paid for on the basis of the contract unit price per square yard for sodding, which price shall be full compensation for all labor, equipment, material, staking, removing, hauling off site, and disposing of existing material (strippings and/or earth), and incidentals necessary to satisfactorily complete the items as specified.

(b) *In order to place the sod and topsoil at the required depths and at the elevations or grades shown in the plans, the cut and removal of existing material (strippings, earth, etc.) shall be done at no additional cost to the owner and included in price for select grading. This work shall include hauling off site and disposing of the material per P-152.*

(c) Payment will be made under:

Item T-904-1 – Sodding – per Square Yard

MATERIAL REQUIREMENTS

ASTM C 602	Agricultural Liming Materials
GDOT Section 890.2.02	Sod
GDOT Section 891	Fertilizer

END OF SECTION T-904

SECTION T-905 TOPSOILING

01) DESCRIPTION

(a) This item shall consist of preparing the ground surface for topsoil application, removing topsoil from approved sources off the site, and placing and spreading the topsoil on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the Engineer.

(b) Preparation of areas to be topsoiled shall be paid under selective grading.

02) MATERIALS

(a) Topsoil Topsoil shall be the surface layer of soil with no admixture of refuse or any material toxic to plant growth, and it shall be reasonably free from subsoil and stumps, roots, brush, stones (2 inches or more in diameter), and clay lumps or similar objects. Brush and other vegetation that will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sods and herbaceous growth such as grass and weeds are not to be removed but shall be thoroughly broken up and intermixed with the soil during handling operations. The topsoil or soil mixture, unless otherwise specified or approved, shall have a pH range of approximately 5.5 pH to 7.6 pH, when tested in accordance with the methods of testing of the association of official agricultural chemists in effect on the date of invitation of bids. The organic content shall be not less than 3% nor more than 20% as determined by the wet-combustion method (chromic acid reduction). There shall be not less than 20% nor more than 80% of the material passing the 200 mesh (0.075 mm) sieve as determined by the wash test in accordance with ASTM C 117.

Natural topsoil may be amended by the Contractor with approved materials and methods to meet the above specifications.

(b) Inspection and Tests Within 10 days following acceptance of the bid, the Engineer shall be notified of the source of topsoil to be furnished by the Contractor. The topsoil shall be inspected to determine if the selected soil meets the requirements specified and to determine the depth to which stripping will be permitted. At this time, the Contractor may be required to take representative soil samples from several locations within the area under consideration and to the proposed stripping depths, for testing purposes as specified in 02) (a).

03) CONSTRUCTION METHODS

(a) General Areas to be topsoiled shall be shown on the plans. If topsoil is available on the site, the location of the stockpiles or areas to be stripped of topsoil and the stripping depths shall be shown on the plans.

Suitable equipment necessary for proper preparation and treatment of the ground surface, stripping of topsoil, and for the handling and placing of all required materials shall be on hand, in good condition, and approved by the Engineer before the various operations are started.

(b) Preparing the Ground Surface Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by discs or spike-tooth harrows, or by other means

approved by the Engineer, to a minimum depth of 4 inches to facilitate bonding of the topsoil to the covered subgrade soil. The surface of the area to be topsoiled shall be cleared of all stones larger than 2 inches in any diameter and all litter or other material which may be detrimental to proper bonding, the rise of capillary moisture, or the proper growth of the desired planting. Limited areas, as shown on the plans, which are too compact to respond to these operations shall receive special scarification.

Grades on the area to be topsoiled, which have been established by others as shown on the plans, shall be maintained in a true and even condition. Where grades have not been established, the areas shall be smooth-graded and the surface left at the prescribed grades in an even and properly compacted condition to prevent, insofar as practical, the formation of low places or pockets where water will stand.

(c) Obtaining Topsoil Prior to the stripping of topsoil from designated areas, any vegetation, briars, stumps and large roots, rubbish or stones found on such areas, which may interfere with subsequent operations, shall be removed using methods approved by the Engineer. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means shall be removed.

When suitable topsoil is available in the work area, the Contractor shall remove this material from the designated areas and to the depth as directed by the Engineer. The topsoil shall be spread on areas already tilled and smooth-graded, or stockpiled in areas approved by the Engineer. Any topsoil stockpiled by the Contractor shall be rehandled and placed without additional compensation. Any topsoil that has been stockpiled on the site by others, and is required for topsoiling purposes, shall be removed and placed by the Contractor. The sites of all stockpiles and areas adjacent thereto which have been disturbed by the Contractor shall be graded if required and put into a condition acceptable for seeding.

When suitable topsoil is secured off the airport site, the Contractor shall locate and obtain the supply, subject to the approval of the Engineer. The Contractor shall notify the Engineer sufficiently in advance of operations in order that necessary measurements and tests can be made. The Contractor shall remove the topsoil from approved areas and to the depth as directed. The topsoil shall be hauled to the site of the work and placed for spreading, or spread as required. Any topsoil hauled to the site of the work and stockpiled shall be rehandled and placed without additional compensation.

(d) Placing Topsoil The topsoil shall be evenly spread on the prepared areas to a uniform depth of 4 inches after compaction *for seeding areas and 2 inch after compaction for sod areas*, unless otherwise shown on the plans or stated in the special provisions. Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Spreading shall be carried on so that turfing operations can proceed with a minimum of soil preparation or tilling.

After spreading, any large, stiff clods and hard lumps shall be broken with a pulverizer or by other effective means, and all stones or rocks (2 inches or more in diameter), roots, litter, or any foreign matter shall be raked up and disposed of by the Contractor. After spreading is completed, the topsoil shall be satisfactorily compacted by rolling with a cultipacker or by other means approved by the Engineer. The compacted topsoil surface shall conform to the required lines, grades, and cross sections. Any topsoil or other dirt falling upon pavements as a result of hauling or handling of topsoil shall be promptly removed.

04) METHOD OF MEASUREMENT

(a) Topsoil obtained on or off the site shall be measured by the number of square yards of topsoil for the applicable depth measured in its final position.

05) BASIS OF PAYMENT

(a) Payment will be made at the contract unit price per square yard for at the specified depth for topsoiling. This price shall be full compensation for furnishing and hauling all materials and for all preparation, placing, and spreading of the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item T-905-1 Topsoiling, 4-inch depth – Per Square Yard

Item T-905-2 Topsoiling, 2-inch depth – Per Square Yard

TESTING MATERIALS

ASTM C 117 Materials Finer than 75-μm (No. 200) Sieve in Mineral Aggregates by Washing

END OF SECTION T-905

SECTION T-908

ASPHALT SPRAY MULCHING

01) DESCRIPTION

This item shall consist of furnishing, hauling, placing and securing asphalt SS-1 mulch as specified by the Engineer.

02) MATERIALS

Asphalt Spray Mulch. Asphalt Spray Mulch shall be Type SS-1, with 57% to 59% residual asphalt, mixed with equal parts of water.

03) INSPECTION

Within 5 days after acceptance of the bid, the Engineer shall be notified of sources and quantities of mulch materials available and the Contractor shall furnish him with representative samples of the materials to be used. These samples may be used as standards with the approval of the Engineer and any materials brought to the site which do not meet these standards shall be rejected.

04) CONSTRUCTION METHODS

(a) Mulching. Before spreading mulch, all large clods, stumps, stones, brush, roots and other foreign material shall be removed from the area to be mulched. Mulch shall be applied immediately after seeding. The spreading of the mulch may be by hand methods, blower or other mechanical methods, provided a uniform covering is obtained.

Mulch materials shall be furnished, hauled and evenly applied on the area shown on the plans or designated by the Engineer.

(b) Care and Repair.

1. The Contractor shall care for the mulched areas until final acceptance of the project. Such care shall consist of providing protection against traffic or other use by placing warning signs, as approved by the Engineer, and erecting barricades that may be shown on the plans before or immediately after mulching has been completed on the designated areas.

2. The Contractor shall be required to repair or replace any mulching that is defective or becomes damaged until the project is finally accepted. When, in the judgement of the Engineer, such defects or damages are the result of poor workmanship or failure to meet the requirements of the specifications, the cost of the necessary repairs or replacement shall be borne by the Contractor. Areas requiring reworking and reseeding that previously have been mulched will be mulched at no additional cost to the City. However, once the Contractor has completed the mulching of any area in accordance with the provisions of the specifications and to the satisfaction of the Engineer, no additional work at his expense will be required, but subsequent repairs and replacements deemed necessary by the Engineer shall be made by the Contractor and will be paid for as additional or extra work, provided that the areas requiring reworking were not the fault of the Contractor and an acceptable stand of grass had been established.

3. All asphalt spray mulch shall be applied at the rate of 0.35 gallons per square yard. The binder material may be sprayed on the mulched slope areas from either the top or the bottom of the slope. An approved spray nozzle shall be used. The nozzle shall be operated at a distance of not less than 4 feet from the surface of the mulch and uniform distribution of the material shall be required. A pump or an air compressor of adequate capacity shall be used to insure uniform distribution of the material.

05) METHOD OF MEASUREMENT

(a) Mulching shall be measured in square yards on the basis of the actual surface area acceptably mulched.

06) BASIS OF PAYMENT

(a) Payment will be made at the contract unit price per square yard for mulching. This price shall be full compensation for furnishing all materials and for placing and anchoring the materials and for all labor, equipment, tools and incidentals necessary to complete the item

(b) Payment will be made under:

Item T-908-1 Asphalt Spray Mulching – Per Square Yard

TESTING AND MATERIAL REQUIREMENTS

Test and Short Title	Material and Short Title
None	AASHTO M-150 - Asphalt

END OF SECTION T-908

ITEM U-150 UTILITY CASINGS

DESCRIPTION

150-1.1 This item shall consist of the installation of utility casings for existing utilities. Utility casings shall be of the type and size specified and at the locations shown on the drawings or as directed by the Engineer.

MATERIALS

150-2.1 STEEL CASING. Casing pipe shall be ERW, Schedule 40 with fusion bonded epoxy coating.

150-2.4 INDICATOR MARKER. Indicator markers surface markers designed to be anchored into the soil. Indicator markers shall be inscribed with the specified wording “caution forcemain buried below”.

CONSTRUCTION METHODS

150-3.1 STEEL CASING. A steel casing is to be installed under proposed new pavement around an existing watermain. Steel casing shall be installed in accordance with the respective Utility Company specifications and requirements.

150-3.3 EXCAVATION. The Contactor shall excavate a trench to expose the existing utility. Contractor shall be responsible for shoring if required. The trench for all sections of steel casing shall be backfilled with low slump low strength concrete up to 6 inch above the top of casing. The trench shall then be backfilled with approved suitable material up to the pavement subgrade. Backfill shall be placed in 8 inch lifts and compacted to the density requirements in Item P-152 for pavement subgrade.

150-3.4 REPAIRS. The Contractor shall repair all the disturbed area caused by the trenching and casing installation process.

METHOD OF MEASUREMENT

150-3.1 The length of steel casing will be measured in linear feet of casing in place, completed, welded, and approved.

BASIS OF PAYMENT

150-4.1 Payment shall be made at the Contract unit price per linear foot for steel casing pipe. This prices shall be full compensation for furnishing all materials and for all preparation, excavation, shoring, welding, low slump low strength concrete, common backfilling, compaction and installation of these materials; and for all labor, equipment, tools, and incidentals necessary to complete the item. These prices shall also include all requirements of the respective Utility Company.

Payment will be made under:

Item U-150-1 Install 36-inch Dia. Split Steel Sleeve around Existing Watermain - Per Linear Foot

END OF ITEM U-150

SECTION L-100
AIRPORT LIGHTING SYSTEMS

DESCRIPTION

100-1.1 The Airport lighting system work covered by these specifications consist of the installation of conduit, cabling, taxiway centerline and edge lights, airfield signage, and all required items of work as indicated on the drawings and specifications, to provide to the City a complete functional airfield lighting system. All miscellaneous items of electrical equipment shall be furnished and installed by the Contractor, as needed to furnish a functioning lighting system, regardless of whether or not each individual item of such equipment is so indicated in these specifications or shown on the contract drawings. The Contractor shall coordinate with the Engineer, for required taxiway or runway closure procedures.

100-1.2 Interferences. It shall be the responsibility of the Contractor to determine the existence of and the location of existing subsurface systems that may interfere with or be damaged during the course of construction work.

100-1.3 The Contractor is cautioned not to damage underground utilities of any sort, including FAA communication, power, field lighting and electronic circuits. The Contractor shall hand dig and expose all underground cable prior to using any mechanical equipment for excavation in areas where underground cable have been indicated either on the drawings or located by the proper authorities pertaining to that particular underground utility. All underground utilities damaged by the Contractor shall be immediately repaired with approved materials and appropriately skilled workmen. Damage to all known underground systems, shall be repaired at no additional expense to the City or the FAA. The Contractor's attention is directed to the fact that subsurface systems may be damaged by stresses imposed by construction equipment and heavy vehicles and that movement of all such equipment must be confined to approved limits including haul routes. Cost incurred due to coordination of utilities shall be incidental to the work.

100-1.4 Under no circumstances is the Contractor to commence any phase of the work without first conferring with the Engineer regarding the area in which to begin operations and to what extent that particular operation is to be carried. All scheduling of the work shall be subject to the approval of the Engineer.

100-1.5 The plans are generally diagrammatic and the Contractor shall harmonize the work of the different trades so that interferences between conduits, ducts, piping and equipment will be avoided. In case interference develops, the Engineer will decide which equipment, piping, etc., must be relocated, regardless of which was installed first.

100-1.6 Salvaged Materials and Equipment. All material, equipment, etc., removed under this contract shall remain the property of the City and shall be turned over to the proper authorities as instructed by the Engineer, unless otherwise instructed by airport staff. Contractor shall dispose of any items as directed by the City.

100-1.7 Standards. All work done shall be in accordance with the applicable sections of the National Electrical Code, latest edition and all local codes and ordinances.

100-1.8 Airport lighting equipment and materials shall have the prior approval of the Federal Aviation Administration, Airports Service, Washington, D.C. 20590, and shall be listed in Advisory Circular 150/5345-53B, Approved Airport Lighting Equipment, latest edition.

In addition to above, all lighting equipment and materials require prior approval of the Engineer. FAA approval, of itself, does not guarantee acceptance by the Engineer. Contractor assumes all risk in proposing material without Engineer's prior approval.

100-1.9 All lighting equipment for this project shall be interchangeable with existing airport equipment of similar use. Where optical assemblies are employed, these optical assemblies shall be interchangeable. Lamps, fusing, housing, gaskets, and other major components shall be interchangeable.

100-1.10 All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the Engineer.

100-1.11 Shop Drawings. Contractor shall submit shop drawings for approval by the Engineer, prior to purchase of any electrical equipment. Contractor shall put his shop drawing check stamp on all shop drawings submitted to the Engineer for approval.

AS BUILT DRAWINGS

100-2.1 The Contractor shall, at all times, maintain a complete, accurate and up to date set of as built drawings. These as built drawings shall be available to the Engineer at all times for his review. At the completion of the contract, the Contractor shall submit a clean, legible and complete set of as built drawings to the Engineer prior to his final request for payment.

CODES, PERMITS AND FEES

100-3.1 The Contractor is presumed to be knowledgeable of national and local code requirements. If he believes any requirement of the drawings or specifications is not in conformance with code or other applicable requirements, he shall so notify the Engineer before the work is installed. The decision of the Engineer in interpreting the drawings, specifications and code requirements relating thereto for a specific application under this contract shall be considered final.

100-3.2 The Contractor shall give all necessary notices, obtain all permits, pay all inspection and other fees required by governmental authorities having jurisdiction over the work under this contract.

100-3.3 Receipt of all required approvals, clearances and certificates by the Owner shall be a prerequisite to acceptance and final payment for the work.

MATERIALS AND WORKMANSHIP

100-4.1 Materials furnished shall be new, shall be undamaged when installed, and shall conform to all established and applicable standards and test requirements of Underwriters Laboratories (U.L.), National Electrical Manufacturers Association (NEMA), and American National Standards Institute (ANSI), Institute of Electrical and Electronics Engineers (IEEE), and ETL Testing Laboratories. All equipment shall be new.

100-4.2 CONCRETE. Concrete testing and quality control shall conform to the requirements in Section 500 of the Georgia Department of Transportation Standard Specifications. Concrete mix shall be ¾-inch maximum size coarse aggregate with a minimum 28 day compressive strength of 3,000 psi. Where reinforced duct banks are specified, reinforcing steel shall conform to ASTM A 615 Grade 60. Concrete and reinforcing steel are incidental to the respective item of which they are a component part.

METHOD OF MEASUREMENT

100-5.1 The items described in this section are incidental to other sections and shall not be measured for payment.

BASIS OF PAYMENT

100-6.1 No direct payment shall be made for the work described in this section. The work described in this section is incidental to other items and shall be paid for in the respective bid item of which it is a component part.

END OF SECTION L-100

SECTION L-108

AIRPORT UNDERGROUND CABLE

DESCRIPTION

108-1.1 This item shall consist of furnishing and installing underground cable in accordance with these specifications at the locations shown in the plans. This item shall include the excavation and backfill of the trench for the installation of counterpoise and the installation of cable in duct or conduit. It shall include splicing, cable marking, and testing of the installation and all incidentals necessary to place the cable in operating condition as a completed unit to the satisfaction of the Engineer. Additionally, this item shall involve the installation of ground rods. This item shall not include the installation of the duct or conduit.

EQUIPMENT AND MATERIALS

108-2.1 GENERAL.

a. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall have the prior approval of the FAA, and are listed in Advisory Circular (AC) 150/5345-53B, Airport Lighting Equipment Certification Program. The Contractor shall furnish the cable manufacturer's certificate of compliance with FAA Specification prior to installation of cable under this contract.

b. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when requested by the Engineer.

108-2.2 CABLE. Underground cable shall conform to the requirements of AC 150/5345-7, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits, latest edition. The "primary cable" shall have black insulation and all lighting equipment is to be connected to this identified conductor. The return conductor will have a red tracer in the insulation.

Where counterpoise conductors are to be installed where soil conditions would adversely affect bare copper wire, thermoplastic wire conforming to Fed. Spec. J-C-30, Type TW, 600 volt, may be used.

Cable type, size, number of conductors, strand and service voltage shall be specified in the plans and/or proposal.

108-2.3 BARE COPPER WIRE (COUNTERPOISE). Bare copper wire for counter-poise installations shall be solid wire conforming to ASTM Specifications B 3 and B 8.

108-2.4 CABLE CONNECTIONS. Electrical connections between primary cable and isolating transformers, and for splicing primary cable, shall be by means of FAA L-823 type primary connector kits properly sized to the cable being used. No supplementary protection such as taping or heat shrink tubing is permitted. These kits shall conform to all of the following requirements:

a. Each kit shall consist of a Style 3 (plug) and Style 10 (receptacle), and shall meet all requirements of FAA AC 150/5345-26C (Type I, Class B), verified by inclusion in the current version of FAA AC 5345-53B Appendix 3 Addendum which is updated monthly, and may be downloaded from http://www.faa.gov/arp/publications/acs/534553ad.pdf.

b. After assembly, the connection between the connector housings (both plug and receptacle) and the cable must be capable of withstanding a static longitudinal pull test of 50 kg. This shall be confirmed by a pull test in which the connector housings shall be held or pulled in such a manner as not to impart a crimping or clamping action to the cable, and the cable shall be held or pulled from the conductor only (to prevent separation of the insulation from the remainder of the cable). A force of at least 50 kg shall be applied and then released. A change in position between a connector housing and the outside of the cable of more than 10 mm shall be cause for rejection.

c. Each plug and receptacle housing shall have a metal insert molded into the rubber, which shall mate with a corresponding part of the appropriate pin or socket, to provide a permanent metal to metal connection between the housing and the pin or socket.

d. Each plug and receptacle shall have a permanently molded pull over sleeve at the interface end, to be pulled over completed connections, thus providing a full seal against dirt, and a second seal against water entry. The sleeve shall be reusable for the life of the connector.

e. Cable connector shall be waterproof and fully functional in submerged conditions.

108-2.5 GROUND RODS. Ground rods shall be copper-clad steel. The ground rods shall be of the length and diameter specified on the plans, but in no case shall they be less than 10-feet long nor less than 5/8 inch in diameter. Ground rods for counterpoise shall not be less than ¾ inch in diameter.

108-3.1 GENERAL. The Contractor shall install the specified cable at the approximate locations indicated in the airport lighting layout plans. The Engineer shall indicate specific locations.

Cable connections between lights will be permitted only at the light locations for connecting the underground cable to the primary leads of the individual insulating transformers. Each cable shall be spliced in each light base or manhole. The Contractor shall be responsible for providing cable in continuous lengths for home runs or other long cable runs without connections, unless otherwise authorized in writing by the Engineer or shown in the plans.

108-3.2 INSTALLATION IN DUCT OR CONDUIT. This item includes the installation of the cable in duct or conduit as described below. The maximum number and voltage ratings of cables installed in each single duct or conduit, and the current-carrying capacity of each cable shall be in accordance with the latest National Electric Code, or the code of the local agency having jurisdiction.

Lighting circuits shall be dual conductor with both cables of series circuit installed in the same conduit.

The Contractor shall make no connections or joints of any kind in cables installed in conduits or ducts.

The duct or conduit shall be installed as a separate item in accordance with Item L-110, “Airport Underground Electrical Duct." The Contractor shall make sure that the duct is open, continuous, and clear of debris before installing cable. The cable shall be installed in a manner to prevent harmful stretching of the conductor, injury to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape before pulling into the conduit and it shall be left sealed until connections are made. Where more than one cable is to be installed in a duct under the same contract, all cable shall be pulled in the duct at the same time. The pulling of a cable through ducts or conduits may be accomplished by hand winch or power winch with the use of cable grips or pulling eyes. Pulling tensions should be governed by recommended standard practices for straight pulls or bends. A lubricant recommended for the type of cable being installed shall be used where pulling lubricant is required.

108-3.3 SPLICING. Connections of the type shown in the plans shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

a. Field-attached Plug-in Splices. These shall be assembled in accordance with manufacturer's instructions. These splices shall be made by plugging directly into mating connectors. In all cases the

joint where the connectors come together shall be wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-½ inches (37 mm) on each side of the joint.

b. Factory-Molded Plug-in Splices. These shall be made by plugging directly into mating connectors. In all cases, the joint where the connectors come together shall be wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-½ inches (37 mm) on each side of the joint.

The above described splice is for a straight-through splice.

108-3.4 BARE COUNTERPOISE WIRE INSTALLATION AND GROUNDING FOR LIGHTNING PROTECTION. A solid bare copper wire, No. 6 AWG minimum size, shall be installed for lightning protection of the underground cables installed inside duct or conduit. When installed in turf or PCC, the bare counterpoise wire shall be installed in the same trench for the entire length of the duct or conduit it is designed to protect, and shall be placed at a distance of approximately 4 inches above the duct or conduit when not installed adjacent to the full strength pavement. The counterpoise wire shall also be exothermic welded to copper or copper-clad ground rods installed not more than 500 feet apart around the entire circuit. The ground rods shall be of the length and diameter specified in the plans, but in no case shall they be less than 10-feet long nor less than ¾-inch in diameter.

The counterpoise system shall terminate at ground rods. The connections shall be made by exothermic welding. The ground rods for the airfield shall be installed 6” below grade in the turf unless otherwise shown.

108-3.5 TESTING. The Contractor shall furnish all necessary equipment and appliances for testing the underground cable circuits and Light Base ground after installation. The Contractor shall test and demonstrate to the satisfaction of the Engineer the following:

a. That all lighting power and control circuits are continuous and free from short circuits.

b. That all circuits are free from unspecified grounds.

c. That the insulation resistance to ground of all non-grounded series circuits is not less than 50 megohms.

d. That the insulation resistance to ground of all non-grounded conductors of multiple circuits is not less than 1000 megohms for new circuits and new portions of existing circuits.

e. That all circuits are properly connected in accordance with applicable wiring diagrams.

f. That all circuits are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than ½ hour.

g. The resistance to ground for the Light Base Ground shall be 25 ohms or less per measurement with a ground tester. It is the contractor’s responsibility to achieve this measurement. If initial measurement reading does not meet the established requirement, the contractor may drive additional ground rods installed in accordance with the National Electrical Code (NEC) to achieve the 25 ohms requirement. A new measurement shall be taken after additional ground rods are installed to illustrate that the 25 ohms measurement requirement is achieved. Any other alternative solutions that the contractor may want to use shall be submitted to the engineer for approval prior to implementation of alternative solution.

h. Test a sampling of ground rods for areas with spacing less than 50 feet. Testing shall occur randomly at least every 50 feet.

108-3.6 CABLE TAGS. The Contractor shall furnish and install identifying cable tags on all control wires and on all new cables added to the underground lighting and power system. Cable tags shall be of stainless steel construction, not less than 2" in diameter and not less than 1/16" thick. Identification marking designated on plans shall be stamped on tags by means of small tool dies. Characters shall be filled in with black enamel paint or by laser engraving. Each wire or cable shall have the proper cable tag attached on each side of each splice. Cable tags shall be attached securely by means of heavy nylon cord.

108-3.7 LIGHT BASE GROUND. A separate equipment (light base) ground system shall be provided in addition to the counterpoise wire using the following method: a ground rod installed at and securely attached to each light fixture and sign base and to all metal surfaces at junction/access structures. The safety ground must be a #6 AWG bare jumper connected to the ground lug at the fixture base to a 5/8 inch by 10 foot minimum ground rod installed beside the fixture. The resistance to ground must be 25 ohms or less per measurement with a ground tester.

METHOD OF MEASUREMENT

108-4.1 Trenching shall be incidental to the item being installed in the trench. No separate measurement shall be made for trenching.

108-4.2 Counterpoise wire with ground rods installed in trench shall be measured by the number of linear feet of cable or counterpoise wire installed in trenches, ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in duct or conduit. Ground rods used for the counterpoise system installed on the airfield shall be incidental to the counterpoise.

Ground rods used for the grounding system shall be measured by the number of ground rods installed, tested, and accepted as satisfactory.

108-4.3 Cable wire installed in duct or conduit shall be measured by the number of linear feet (meters) measured in place, completed, ready for operation, and accepted as satisfactory. Cable tags shall be measured as a separate item. The L-823 Connector kits shall be measured per each connector installed. No separate measurement or payment shall be made for installation of the cable tags.

Separate measurement shall be made for each cable or counterpoise wire installed in duct or conduit.

BASIS OF PAYMENT

Payment will be made under:

Item L-108-1	#8 AWG, FAA Specification L-824, Type "C", 5000 Volt--per linear foot.
Item L-108-2	Bare Counterpoise Wire, installed in trench, including ground rods and exothermic welded connection --per linear foot.
Item L-108-3	3/4" x 10' Copper Clad Steel Ground Rod, for Safety Grounding – per each
Item L-108-4	L-823 Connector Kit – per each
Item L-108-5	Cable Tag – Per each

MATERIAL REQUIREMENTS

AC 150/5345-7E	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits

AC 150/5345-26C	Specification for L-823 Plug and Receptacle Cable Connectors
Fed.Spec.J-C-30	Cable and Wire, Electrical Power, Fixed Installation
HH-I-595	Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic, for Low-Temperature Application
ASTM B 3	Soft or Annealed Copper Wire
ASTM B 8	Concentric-Lay-Stranded Copper Conductor, Hard, Medium-Hard or Soft
MIL-I-3825	Insulation Tape, Electrical, Self-Fusing, For Use in Electronics, Communications, and Allied Equipment
MIL-I-7798	Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic

END OF SECTION L-108

SECTION L-110
AIRPORT UNDERGROUND ELECTRICAL DUCT

DESCRIPTION

110-1.1 This item shall consist of underground electrical ducts underground conduits installed in accordance with this specification at the locations and in accordance with the dimensions, designs, and details shown in the plans. It shall also include all trenching, backfilling, removal, and restoration of any paved or turfed areas; connections to manholes, concrete encasement, mandreling and duct markers, capping, and the testing of the installation as a completed duct system ready for installation of cables, to the satisfaction of the Engineer.

EQUIPMENT AND MATERIALS

110-2.1 GENERAL. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the Engineer.

110-2.2 CONCRETE. Concrete testing and quality control shall conform to the requirements in Section 500 of the Georgia Department of Transportation Standard Specifications. Concrete mix shall be ¾-inch maximum size coarse aggregate with a minimum 28 day compressive strength of 3,000 psi. Where reinforced duct banks are specified, reinforcing steel shall conform to ASTM A 615 Grade 60. Concrete and reinforcing steel are incidental to the respective item of which they are a component part.

110-2.3 PLASTIC CONDUIT. Plastic conduit and fittings shall conform to the requirements of Fed. Spec. W-C-1094 and shall be one of the following, as specified in the proposal:

a. Type I - suitable for underground uses either directly in the earth or encased in concrete.

b. Type II - suitable for either above ground or underground use.

110-2.4 FLOWABLE BACKFILL. Flowable material used to back fill conduit and duct bank trenches shall conform to the requirements of Low Strength/Low Slump Concrete found in Section P-501.

110-2.5 DETECTABLE WARNING TAPE. Plastic, detectable, color as noted magnetic, red tape shall be polyethylene film with a metallized foil core and shall be 6 inches wide. Detectable tape is incidental to the respective bid item.

110-2.6 PULL STRINGS. Contractor shall install pull strings in all conduits.

CONSTRUCTION METHODS

110-3.1 GENERAL. The Contractor shall install underground ducts at the approximate locations indicated in the airport layout plans. The Engineer shall indicate specific locations as the work progresses. Ducts shall be of the size, material, and type indicated in the plans or specifications. Where no size is indicated in the plans or specifications, the ducts shall be not less than 2 inches inside diameter. All duct lines shall be laid so as to grade toward handholes, manholes and duct ends for drainage. Grades shall be at least 3 inches per 100 feet. On runs where it is not practicable to maintain the grade all one way, the duct lines

shall be graded from the center in both directions toward manholes, handholes, or duct ends. Pockets or traps where moisture may accumulate shall be avoided.

The Contractor shall mandrel each duct. An iron-shod mandrel, not more than ¼-inch smaller than the bore of the duct shall be pushed through each duct by means of jointed conduit rods. The mandrel shall have a leather or rubber gasket slightly larger than the duct hole. For proposed duct, no additional payment will be made for the mandrelling of ducts.

All ducts installed shall be provided with a nylon rope for pulling the permanent wiring. Sufficient length shall be left in manholes or handholes to bend the pull rope back to prevent it from slipping back into the duct. Where spare ducts are installed, as indicated on the plans, the open ends shall be plugged with removable tapered plugs, designed by the duct manufacturers, or with hardwood plugs conforming accurately to the shape of the duct and having the larger end of the plug at least ¼-inch greater in diameter than the duct.

All ducts shall be securely fastened in place during construction and progress of the work and shall be plugged to prevent seepage of grout, water, or dirt. Any duct section having a defective joint shall not be installed.

All ducts, installed under runways, taxiways, aprons, and other paved areas shall be encased in a concrete envelope.

Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored.

Trenches for ducts may be excavated manually or with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Blades of road patrols or graders shall not be used to excavate the trench. The Contractor shall ascertain the type of soil or rock to be excavated before bidding. All excavation shall be unclassified.

110-3.2 DUCTS ENCASED IN CONCRETE. Unless otherwise shown in the plans, concrete-encased ducts shall be installed so that the top of the concrete envelope is not less than 4’ 6" below the finished sub grade where installed under runways, taxiways, aprons, or other paved areas, and not less than 18 inches below finished grade where installed in unpaved areas as shown in the duct profiles. Ducts under paved areas shall extend at least 3 feet beyond the edges of the pavement or 3 feet beyond any underdrains, which may be installed alongside the paved area. Trenches for concrete-encased ducts shall be opened the complete length before concrete is laid so that if any obstructions are encountered, proper provisions can be made to avoid them. Where two or more ducts are encased in concrete, the Contractor shall space them not less than 3 inches apart (measured from outside wall to outside wall) using spacers applicable to the type of duct. As the duct laying progresses, concrete not less than 3 inches thick shall be placed around the sides and top of the duct bank. The Contractor shall adequately vibrate the concrete to insure that no voids remain in the concrete envelope. End bells or couplings shall be installed flush with the concrete encasement where required.

110-3.3 DUCTS WITHOUT CONCRETE ENCASEMENT. Trenches for single-duct lines shall be not less than 6 inches nor more than 12 inches wide, and the trench for 2 or more ducts installed at the same level shall be proportionately wider. Trench bottoms for ducts without concrete encasement shall be made to conform accurately to grade so as to provide uniform support for the duct along its entire length.

A layer of fine earth material, at least 4 inches thick (loose measurement) shall be placed in the bottom of the trench as bedding for the duct. The bedding material shall consist of soft dirt, sand or other fine fill, and it shall contain no particles that would be retained on a ¼-inch sieve. The bedding material shall be tamped until firm.

Unless otherwise shown in plans, ducts for direct burial shall be installed so that the tops of all ducts are at least 18 inches below the finished grade.

When two or more ducts are installed in the same trench without concrete encasement, they shall be spaced not less than 2 inches apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches apart in a vertical direction.

Trenches shall be opened the complete length before duct is installed so that if any obstructions are encountered, proper provisions can be made to avoid them.

110-3.4 BACKFILLING. After concrete-encased ducts have been properly installed and the concrete has had time to set, the trench shall be backfilled as shown on the plan details.

Trenches shall not be excessively wet and shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled per plan details level with the adjacent surface: except that, when sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of in accordance with instructions issued by the Engineer.

For ducts without concrete envelope, 8 inches of sand, soft earth, or other fine fill (loose measurement) shall be placed around the ducts and carefully tamped around and over them with hand tampers. The remaining trench may be filled with regular run of excavated material and thoroughly tamped as specified above.

110-3.5 RESTORATION. Where sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by the trenching, storing of dirt, cable laying, pad construction and other work shall be restored to its original condition. The restoration shall include any necessary topsoiling, fertilizing, liming, seeding, sprigging, or mulching. All such work shall be performed in accordance with the FAA Standard seeding and mulching Specifications. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance.

110-3.6 MARKERS. The location of each end and of each change of direction of conduits and duct banks shall be marked by a concrete slab marker 2 feet (60 cm) square and 4-6 inches (100-150 mm) thick extending approximately 1 inch (25 mm) above the surface. The markers shall also be located directly above the ends of all conduits or duct banks, except where they terminate in a junction/access structure or building, as well as any other location called out on plans sheets or in plan details.

The Contractor shall impress the word “DUCT” or “CONDUIT” on each marker slab. The Contractor shall also impress on the slab the number and size of conduits beneath the marker along with all other necessary information as determined by the Engineer. The letters shall be 4 inches (100 mm) high and 3 inches (75 mm) wide with width of stroke 1/2-inch (12 mm) and 1/4-inch (6 mm) deep or as large as the available space permits. Furnishing and installation of duct markers is incidental to the respective duct pay item.

METHOD OF MEASUREMENT

110-4.1 Underground ducts shall be measured by the linear feet of duct installed, measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

110-4-2 The trenching, including the excavation, backfill and restoration of pavement, shall be incidental to the item being installed in the trench. No separate measurement shall be made for trenching.

BASIS OF PAYMENT

110-5.1 Payment will be made at the contract unit price for each type and size of single-way or multi-way duct completed and accepted. This price shall be full compensation for furnishing all materials and for all

preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

110-5.2 Payment for rock removal for installation of light bases, conduit, pull cans or ground cable installed in ducts, shall be incidental to the cost of the installation of the item. No additional payment will be made.

Payment will be made under:

Item L-110-1	2” Schedule 80 PVC Duct, Concrete Encased under New Shoulder Pavement – Per linear foot
Item L-110-2	2” Schedule 80 PVC Duct, Concrete Encased under New PCC Pavement – Per linear foot
Item L-110-3	2” Schedule 40 PVC Duct, Direct Earth Buried – per linear foot
Item L-110-4	Mandrel and Swab Existing 2” Conduit – Per linear foot
Item L-110-5	2-Way 4” Schedule 80 PVC Duct, Concrete Encased – Per linear foot

MATERIAL REQUIREMENTS

Fed.Spec.W-C-571	Conduit and Fittings, Nonmetal, Rigid; (Asbestos-Cement or Fire-Clay Cement), (For Electrical Purposes)
Fed.Spec.W-C-1094	Conduit and Fittings; Nonmetallic, Rigid, (Plastic)

Underwriters Laboratories Standard 6	Rigid Metal Conduit	Underwriters Laboratories Standard 543
Underwriters Laboratories Standard 514	Fittings for Conduit an Outlet Boxes	Underwriters Laboratories Standard 1242

END OF SECTION L-110

SECTION L-111
UNDERGROUND ELECTRICAL MANHOLES

DESCRIPTION

111-1.1 This item shall consist of underground electrical manholes constructed, equipped, and installed in accordance with this specification at the locations and in conformity with the dimensions, design and details shown on the plans. Included in this item shall be the furnishing and installing of all manhole hardware, equipment, and manhole grounding system.

111-1.2 Concrete. The concrete for the manholes shall be proportioned, placed and cured in accordance with ITEM D-751 "Manholes, Catch Basins and Inlets".

111-1.3 Reinforcing Steel. Reinforcing steel bars shall be intermediate or structural grade deformed type bars and shall meet the requirements of AASHTO M-31-42.

111-1.4 Ground Rods. Ground rods shall be ¾" x 10'-0" copperweld.

111-1.5 Other Equipment. Manhole frame and cover, and pulling irons shall be size, quality and strength indicated on drawings. Manhole shall be rated for commercial aircraft weights. Lettering shall be FM or electrical as indicated.

111-1.6 All fittings required to connect drains to storm manifolds or underdrain system shall be furnished and installed by the contractor.

111-1.7 Contractor shall complete attached diagram for each side of each manhole, showing the installation of circuits in each individual conduit.

CONSTRUCTION METHODS

111-2.1 General. The Contractor shall construct the manholes at locations indicated on the drawings and as staked out by the Contractor.

The Contractor shall furnish and install all accessory equipment as specified herein and shown on the drawings.

111-2.2 Floor, Walls and Top. The Contractor shall construct the floor, walls and top in accordance with details shown on the drawings. Reinforcing steel shall be placed as shown on the drawings and secured in position to prevent displacement during the pouring of the concrete.

111-2.3 The external surfaces of the concrete shall be thoroughly worked, during the operation of placing, in such a manner as to force all coarse aggregate from the surface and thoroughly work the mortar against the forms to produce a smooth finish, free from water, air pockets and honeycomb.

111-2.4 The floor shall have a float finish and shall slope to drain as indicated on the drawings. The top shall have steel troweled finish similar to surface of surrounding pavement.

111-2.5 Precast Manholes may be used ONLY when complete shop drawings, bearing the signature and stamp of a Georgia Registered Professional Engineer, certifying that the construction is structurally equivalent to these specified and as shown on the drawings, are submitted and approved by the Engineer.

111-2.6 Grounding. Each manhole shall be provided with a #4/0 copper bus completely circling the manhole and connected to a ¾" x10' copperweld ground rod located inside of the manhole. All cable racks shall be connected to the ground bus with #6 AWG bare stranded copper.

111-2.7 Trench and Excavation Protection. The Contractor shall do such trench bracing, sheathing, or shoring necessary to perform and protect the excavation as required for safety and conformance to governing laws. The bracing, sheathing, or shoring shall not be removed in one operation but shall be done in successive stages as determined by the Engineer to prevent overloading of structure during backfill operations. The cost of the bracing, sheathing, or shoring and the removal of same shall be included in the Lump Sum price BID for trench and excavation protection.

111-2.8 Cable Installation. Cable shall be installed in manholes such that they are neatly racked along the manhole walls as shown in the Plans.

METHOD OF MEASUREMENT

111-3.1 The quantity to be paid for under this item shall be the number of manholes constructed in place, equipped and ready for operation, and accepted by the Airport as a complete unit.

BASIS OF PAYMENT

111-4.1 Payment shall be at the contract unit price for each complete manhole installation which price and payment shall constitute full compensation for furnishing and placing all material; all excavation, backfill; for furnishing of concrete and reinforcement; for furnishing and installing manhole frame and cover, cable racks, clips, insulators, pulling irons, ground rod, ground wire; for disposal of surplus materials, for maintenance of disturbed areas; and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item L-111-1 Electric Manhole - Per Each

CABLE & MANHOLE ROUTING

Date: **MANHOLE DESIGNATION - _____**

By: (fill in)

_____ WALL CONDUIT LAYOUT

(direction)

1	**2**	**3**	**4**
5	**6**	**7**	**8**
9	**10**	**11**	**12**
13	**14**	**15**	**16**

END OF SECTION L-111

SECTION L-112
AIRFIELD ELECTRICAL INSTALLATION TESTING

DESCRIPTION

112-1.1 This item shall consist of furnishing all equipment, materials and appliances necessary for testing of airfield lighting circuit installations and associated systems.

a. The Contractor shall provide testing to confirm installations are acceptable for ground rod testing and the Contractor shall obtain the service of an independent agency to perform the Hi-Pot Test.

b. Requirements under this item shall be coordinated with the Engineer. Specification requirements for approvals, reviews or other involvement of the Engineer and shall be transmitted by the Contractor through the Engineer.

EQUIPMENT AND MATERIALS

112-2.1 GENERAL. Equipment, materials and equipment covered by this item shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when requested by the Engineer.

CONSTRUCTION METHODS

112-3.1 GENERAL. The Contractor shall furnish all necessary equipment and appliances for testing installations as indicated below.

112-3.2 GROUND ROD TESTING.

a. Contractor shall provide equipment and personnel to measure the resistance to earth for all ground rods installed using Fall of Potential Method. Earth resistance measurement tests shall adhere to recommendations of IEEE Standard 142, latest edition. Contractor shall submit testing procedure, equipment and report form to the Engineer for approval.

b. Tests shall be administered as each rod is installed. Any rod which does not have a resistance to ground of 25 ohms or less shall be augmented by an additional sectional ground rod or another rod not less than 6 feet away. Testing results shall be submitted to the Engineer for approval.

112-3.3 AIRFIELD LIGHTING CIRCUITS TESTING. The Contractor shall notify the Engineer 24 hours prior to cable testing. All testing shall be conducted in the presence of the Engineer. All test results shall be simultaneously recorded by the Contractor and the Engineer. Contractor shall provide test report information to the Engineer for approval. Test procedures for the following required tests, including field test report forms, shall be submitted to the Engineer for approval prior to testing.

a. Testing Requirements.

(1) Testing Required for Existing Circuits and Existing Portions of Circuits to be Extended. The existing part of circuits to be extended shall be subjected to Low Voltage Tests in accordance with paragraph b.1 below. Test results shall be submitted to the Engineer for approval prior to extending or revising the existing circuit.

(2) Testing Required for Existing Circuits with Circuit Modifications and/or Extensions Completed. Each existing series circuit that has been modified and/or extended shall be subjected to Low Voltage Tests following paragraph b.(1) below. These shall be performed with the lighting isolation transformers and other lighting system devices connected. Circuits tested shall meet the requirements of paragraph c.(2) below. Any faults indicated by these tests shall be corrected before proceeding with additional testing. Test results shall be submitted to the Engineer for approval.

(3) Testing Required For New Circuits and New Portions of Existing Circuits. Each new series circuit, or new part of existing circuits being extended or replaced, shall be tested as follows:

(a) After new cable with new connectors is installed and prior to connecting light fixture transformers, the following tests shall be performed.

(i) Low Voltage Continuity and Insulation Resistance (IR) Tests following paragraph b.1 below, to determine if the total insulation resistance of each circuit is satisfactory, so that the series lighting circuit will operate without excessive leakage current when energized. Circuits tested shall meet the requirements of paragraph c.(3)(a) below. Any faults indicated by these tests shall be corrected before proceeding with additional testing. All test results shall be submitted to the Engineer for approval.

(ii) After meeting the requirements of paragraph a.(3)(a)(i) above, new circuits shall then be subjected to a Hi-Pot Test following paragraph b.2 below. Circuits tested shall meet the requirements of paragraph c.(3)(b) below. Any faults indicated by the test shall be corrected before proceeding with additional testing. All test results shall be submitted to the Engineer for approval.

(b) New segments of existing circuits meeting the requirements of paragraph a.(3)(a) above shall then have the isolation transformers connected and shall <u>again</u> be subjected to the Low Voltage Continuity and Insulation Resistance (IR) Tests of paragraph b.(1). Any faults indicated by these tests shall be corrected before energizing the circuit. All test results shall be submitted to the Engineer for approval.

(4) All Circuits. Upon completion of all rewiring of each circuit, the Low Voltage Tests shall be performed on the completed circuit following paragraph b.(1) below. All isolation transformers and other lighting system devices shall be connected to the completed circuit. Circuits tested shall meet the requirements of paragraph c.(3)(a) below. Any faults indicated by these tests shall be corrected before proceeding with additional testing. All test results shall be submitted to the Engineer for approval.

b. Testing Procedures.

(1) Low Voltage Tests. Low Voltage Continuity and Insulation-Resistance (IR) Tests

(a) Test Required. As noted in paragraph a(2) above, circuits and segments of circuits shall be subjected to a low voltage continuity test and to a 2,500 volt Insulation Resistance (IR) (megger) test. IR tests shall test the insulation resistance (to ground) of each lighting system conductor.

(b) Test Equipment. Contractor shall provide a 2,500 volt direct current IR test set for low voltage testing. IR test set shall be a 120V AC device, non-crank type, manufactured by Associated Research Meg-Check, the James Biddle Megger, General Radio Megohmmeter or approved equivalent. The Contractor shall be responsible for providing any required 120V AC power source at testing locations remote from available power. Equipment calibration information shall be readily available for review by the Engineer, if requested.

(c) Test Procedures. "Lock-Out Procedure" requirements, established by the Airport, shall be followed. Test procedures for the required tests, including field test report forms, shall be submitted to the Engineer for approval prior to testing.

1. Test equipment grounding electrode shall be adjacent to the test equipment and be a part of/connected to the airfield grounding counterpoise/ground rod system.
2. Verify that all devices and accessories connected to the cable are rated for the test voltage to be applied.
3. Ground other cables in the same conduit as cable under test.
4. Clean and isolate “remote” end of cable to be tested.
5. Ground the cable for a minimum of one (1) minute prior to testing.

6. Test cable.
7. After testing is complete, cable shall be discharged to the grounding electrode using resistor designed for the purpose. Solidly ground the cable after discharge. Cable shall remain solidly grounded for a minimum of 5 minutes.

(d) Test Results. Cable specimens that do note meet the test criteria given in paragraphs c.(2) for existing circuits that have been modified and/or extended, and c.(3)(a) for new circuits and new segments of existing circuits, shall be considered unacceptable. Refer to paragraph d. below for cables not meeting testing requirements.

(2) Hi-Pot Test. DC High Potential/High Voltage Current Leakage Test

(a) Test Required. As noted in paragraph a. above, all circuits installed in conduit shall have all sections of new cable Hi-Pot Tested. A section may be comprised of multiple segments joined by L-823 connectors without isolation transformers installed.

(b) Test Agency. All Hi-Pot tests shall be performed by an independent agency certified by the National Electrical Testing Association (NETA) with certified technicians using properly calibrated equipment and standard procedures. The independent agency must be approved by the Engineer.

(c) Test Equipment. The test instrument shall be a suitable high voltage tester which has a steady, filtered direct current output voltage. The high voltage tester shall include an accurate voltmeter and micrometer for reading the voltage applied to the circuit and resultant insulation leakage current. Voltages in excess of the test values specified below shall not be applied.

(d) Test Procedures. "Lock-Out Procedure" requirements established by the Aviation Lighting Supervisor shall be followed. Prepare cable and conduct test in accordance with IEEE 400 and NEMA WC-7 requirements and as required by testing agency. The Contractor shall comply with the following procedure:

1. Ground all conductors except the one to be tested.
2. Ensure adequate clearance of the tested specimen from ground to prevent flashover.
3. Carefully clean test conductor surface to remove any dust or other miscellaneous debris.
4. “Corona-proof" the cable test specimen to minimize corona discharge.
5. Secure test site and fence off perimeter for the safety of personnel working in the area.
6. Perform IR testing of cable specimen immediately prior to Hi-Pot testing. Any cable that exhibits low insulation resistance readings is questionable and should be investigated before performing the DC Hi-pot test.
7. Connect the output of test set to cable specimen and attach the ground terminal of the set and an approved grounding electrode adjacent to the test equipment. Grounding electrode shall be a part of/connected to the airfield grounding counterpoise/ground rod system.
8. Bring the DC voltage up to the prescribed maximum test voltage of 20 kV in five equal steps. Raise the voltage at an even rate to obtain each required step in not less than 10 seconds. Hold the voltage at each step for 60 seconds. Read and record the leakage current at the end of each hold period.
9. Hold the maximum test voltage of 20 kV for approximately 10 minutes. Read and record the leakage current at 15 second intervals during the first 2 minutes and then every minute thereafter for the remainder of the test.
10. Bring the test voltage control quickly and smoothly to zero. Read and record the voltage remaining on the cable after 30 seconds and again after one minute.
11. Discharge the cable to the ground using a properly terminated resistor stick. When the test set voltmeter indicates zero volts on the cable, solidly ground the cable specimen and then disconnect the test set and resistor stick. Cable specimen shall remain solidly grounded to the grounding electrode a minimum of 15 minutes.

12. Test each subsequent lighting cable segment/section/circuit in the same manner as described above.

13. During the tests, plot the leakage current versus the applied test voltage ion appropriate log graph paper to field certify the integrity of the cable insulation. Submit copies of the test data to the Engineer for approval.

(e) Test Results. Cable specimens that do not meet the test criteria given in paragraph c. below shall be considered completely unacceptable. Refer to paragraph d. below for cables not meeting testing requirements.

(3) For all Testing. All existing and/or new cables, equipment and materials damaged during testing shall be repaired and/or replaced by the Contractor at no additional cost to the City as directed by the Engineer. Tests shall be performed and faulty installations corrected until satisfactory results are obtained. Exact correction procedures for specific faulty installation circumstances shall be as specified and approved by the Engineer. The Contractor is not responsible for the repair of existing cables that are to be modified or extended that are deemed by the Engineer to be faulty prior to modification of extension unless directed by the Contract Documents.

c. Testing Results.

(1) Existing Circuits and Existing Segments of Circuits to be Extended or Modified. Low voltage continuity test results and insulation resistance test results shall be submitted to the Engineer for determination of suitability for extension or modification and any remedial action that may be appropriate.

(2) Existing Circuits and Existing Segments of Circuits That Have Been Extended or Modified. Low Voltage Tests shall demonstrate to the satisfaction of the Engineer the following:

(i) All circuits are properly connected in accordance with the applicable wiring diagrams.

(ii) All lighting power and control circuits are continuous and free from short circuits.

(iii) All circuits are free from unspecified grounds.

(iv) The insulation resistance to ground is equal to or greater than its original value prior to circuit modifications.

(3) New Circuits and New Segments of Existing Circuits.

(a) Low Voltage Tests shall demonstrate to the satisfaction of the Engineer the following:

(i) All circuits are properly connected in accordance with the applicable wiring diagrams.

(ii) All lighting power and control circuits are continuous and free from short circuits.

(iii) All circuits are free from unspecified grounds.

(iv) The insulation resistance to ground is equal to or greater than 1000 megohms for all new circuits and new segments of existing circuits. Isolation transformers shall be connected. In addition, new circuits and new segments of existing circuits shall maintain an insulation resistance of not less than 500 megohms, with isolation transformers connected, through the end of the construction warranty period.

(v) Insulation resistance of cables of approximately the same length installed in the same duct bank shall not show a comparison ratio of over 3 to 1.

(b) Hi-Pot Tests shall demonstrate to the satisfaction of the Engineer the following most significant insulation leakage current characteristics necessary to evaluate the condition of the cable:

(i) The leakage current increases in a linear function as the test voltage is increased between zero and the prescribed maximum test voltage.

(ii) The leakage current stabilizes or decreases to a slightly lower stable value after the maximum test voltage is obtained and during the maximum test voltage hold period.

d. Deficient Testing Results (Circuits Not Meeting Requirements).

(1) Existing Circuits and Existing Segments of Circuits That Have Been Extended or Modified.

(a) Cables that do not meet the test criteria of paragraph c.(2) above shall be considered unacceptable and shall not be energized until corrected.

(b) If all requirements of the “Lockout Procedure” have been satisfied by the Contractor and the Engineer determines non-complying circuits or segments of circuits are the responsibility of the City, then the Contractor shall provide to Aviation Lighting Supervisor, all test reports identifying locations of non-complying cables.

(2) New Circuits and New Portions of Existing Circuits. Cables that do not meet the test criteria of paragraph c.(3) above shall be considered unacceptable and shall not be energized until corrected.

e. Submittal of Testing Data.

(1) Low Voltage Tests. Contractor shall submit 5 copies of test reports for approval of the Engineer and Aviation Lighting Supervisor. Report shall include all measured data including applied voltage, time length of voltage application, and calculated megohms from each segment of cable within a circuit.

Data shall show the calculations for acceptable leakage current from each cable section tested. The Low Voltage Tests data form shall also include, as a minimum:

DATE	CABLE NUMBER
START TIME	OPERATING VOLTAGE
END TIME	MAX. TEST VOLTAGE
CABLE B/M NO.	FROM EQUIPMENT
DESCRIPTION	TO EQUIPMENT
TEMP. MEASURE EQUIP. NO.	HUMID. MEASURE EQUIP. NO.
CALIBRATION DUE DATE	CALIBRATION DUE DATE
AMBIENT TEMPERATURE	RELATIVE HUMIDITY

(2) Hi-Pot Tests. Contractor shall submit 5 copies of Hi-Pot Test reports for approval of the Engineer and Aviation Lighting Supervisor. Report shall include all measured data including leakage current, applied voltage, time length of voltage application, and calculated megohms from each segment of cable within a circuit.

Data shall show the calculations for acceptable leakage current from each cable section tested. The Hi-Pot Test form shall also include, as a minimum:

DATE	CABLE NUMBER
START TIME	OPERATING VOLTAGE
END TIME	MAX. TEST VOLTAGE
CABLE B/M NO.	FROM EQUIPMENT
DESCRIPTION	TO EQUIPMENT
TEMP. MEASURE EQUIP. NO.	HUMID. MEASURE EQUIP. NO.
CALIBRATION DUE DATE	CALIBRATION DUE DATE
AMBIENT TEMPERATURE	RELATIVE HUMIDITY

112-3.4 SYSTEM TESTS. After the airfield lighting systems installation is complete and at such times as the Engineer may direct, the Contractor shall conduct airfield lighting systems operating tests for approval.

a. The equipment shall be demonstrated to operate in accordance with the requirements of this specification. The test shall be performed in the presence of the Engineer. The Contractor shall furnish all equipment and personnel required for the test.

b. The circuit regulators are installed under project construction, regulator output ampacity shall be adjusted for proper outputs following the manufacturer's recommendations and requirements to insure proper circuit operation.

c. Systems tests shall confirm by demonstration in service that all lighting circuits are in good operating condition to the satisfaction of the Engineer. If the tests are unsatisfactory, lighting systems installed shall be corrected and systems tests shall again be implemented.

112-3.5 PHOTOMETRIC TESTING

a. General. Photometric testing of all the airfield lighting fixtures, except taxiway edge lights and signs, installed under this contract shall be performed by an independent firm with demonstrated capability for field measurement of photometric performance of airfield lighting fixtures. The firm shall have experience in evaluating the test results against international (ICAO) as well as FAA standards and manufacturers performance criteria. Suggested contacts for this service include the following or an approved equal:

Navaid Lighting Associates, Inc.
6120 Malone Road
Olive Branch, MS 38654
Tel: (662) 895-0349
Fax: (662) 890-6367
Mr. David Rainey

GSI, Inc.
3051 Pine Street
Clearwater, Florida 33763-0914
Phone 813-799-4316
Fax 813-724-0212
Mr. Tim Godfrey

Photometric testing shall be performed at night with minimum interference with airport operations. Not more than 24 hours prior to starting the test, the Contractor shall clean and align all the light fixtures to assure that the system is ready for the photometric testing. Contractor shall also verify calibration of constant current regulator output using a true RMS ammeter prior to photometric testing. If lights do not meet the photometric testing requirements, the failed lights shall be repaired by the contractor at the contractor's expense. Retesting of the light fixtures shall be at the contractor's expense. If the light fixtures are properly installed, cleaned, re-lamped, level and at the proper elevation, the contractor may need to grind the pavement around the light fixture. The grinding of the pavement shall be at the contractor's expense and incidental to the installation of the light.

b. Test System. The photometric test system shall be comprised of:

(1) An array of accurate measurement sensors configured to measure light from each light source as system moves away from that light source. There shall be no loss of accuracy at speeds up to at least 50mph.

(2) A sensor to trigger measurements simultaneously from all sensors approximately every 4 inches.

(3) The capability (including additional sensors) to accurately track the position of each measurement sensor relative to the specified main beam area of each light source being measured.

(4) The capability to automatically calculate the average intensity (in candela) in the main beam area and estimate vertical and horizontal beam alignment (in degrees) by identifying the position of the brightest part of the light beam measured.

(5) The capability to log data during surveys, display results, and identify locations where the average main beam intensity is below agreed levels and/or the beam is misaligned either vertically or horizontally.

c. Runway Access Time: In order to minimize the impact on airport operations, the collection of data shall be undertaken while the survey system is traveling along the runway. Typically, the total runway access time to survey one direction of a runway centerline lighting service shall be less than 15 minutes.

d. Test Report: Interim reports will be submitted periodically during the progress of the work so that corrective measures may be taken as necessary. If the corrective measures are made promptly, the circuits and fixtures involved will be retested during the scheduled period of field testing to assure that proper performance has been achieved. If the retesting cannot be done within this period, additional time and costs shall be borne by the Contractor.

The final test results shall be documented in a Final Report of which six copies shall be submitted to the Engineer. The Final Report shall document the photometric testing and shall include the following:

1. Performance Bar Chart for each service. This provides a visual indication of overall performance for the service and identifies the relative position of sub-standard fixtures.

2. Tabular list of the performance (in candela and as a percentage of the ICAO/FAA standard) and color at each location.

3. A list of locations where alignment may be a problem.

4. A list of locations where average main beam intensity is below an agreed level.

Each light source shall be uniquely identified using a combination of the following information:

1. Runway or Taxiway Reference/Direction

2. Service Type

3. Location Number (defining position along/across the runway/taxiway service)

4. Runway/Taxiway Side (North/South/East/West)

e. Spares: The Contractor shall furnish spare lamps, lenses, and fixtures for use in correcting any deficiencies at no additional cost to the contract.

f. Corrective Action: The Contractor shall be responsible for correcting any deficient condition identified as a result of the photometric testing. If satisfactory corrective actions cannot be completed within the originally scheduled test period, necessary additional site visits by the testing firm shall be at the Contractor's expense.

METHOD OF MEASUREMENT

112-4.1 Ground rod earth resistance testing shall not be measured separately, but considered subsidiary to the associated counterpoise or light fixture installation.

112-4.2 Low Voltage Testing and Hi-Pot Testing of all airfield lighting circuits shall not be measured separately, but considered as subsidiary to the bid items in the L-108, Installation of Underground Cable for Airports specification.

112-4.3 The System Tests shall not be measured for payment, but considered subsidiary to the various pay items.

112-4.4 Photometric Testing shall be measured on a lump sum basis as tested and accepted by the Engineer.

BASIS OF PAYMENT

112-5.1 Payment for photometric testing will be made at the contract unit price tested, and accepted by the Engineer. Payment for this item will not be allowed until formal report is received summarizing the photometric testing results at each fixture.

Payment will be made under:

L-112-1 Photometric Testing of the Lighting System – per lump sum

END OF SECTION L-112

SECTION L-116
DIRECTIONAL BORE

01) DESCRIPTION

(a) SCOPE OF WORK. The work specified in this Section documents the approved construction methods, procedures and materials for Directional Boring, also commonly called Horizontal Directional Drilling (HDD).

(b) GENERAL. HDD is a trenchless method for installing a product that serves as a conduit for liquids, gasses, or as a duct for pipe, cable, or wire line products. It is a multi-stage process consisting of site preparation and restoration, equipment setup, and drilling a pilot bore along a predetermined path and then pulling the product back through the drilled space. When necessary, enlargement of the pilot bore hole may be necessary to accommodate a product larger than the pilot bore hole size. This process is referred to as back reaming and is done at the same time the product is being pulled back through the pilot bore hole.

Accomplish alignment of the bore by proper orientation of the drill bit head as it is being pushed into the ground by a hydraulic jack. Determine orientation and tracking of the drill bit by an above ground radio detection device which picks up a radio signal generated from a transmitter located within the drill bit head. Then electronically translate the radio signal into depth and alignment. In order to minimize friction and prevent collapse of the bore hole, introduce a soil stabilizing agent (drilling fluid) into the annular bore space from the trailing end of the drill bit. The rotation of the bit in the soil wetted by the drilling fluid creates a slurry. The slurry acts to stabilize the surrounding soil and prevent collapse of the bore hole as well as provides lubrication.

Select or design drilling fluids for the site specific soil and ground water conditions. Confine free flowing (escaping) slurry or drilling fluids at the ground surface during pull back or drilling. Accomplish this by creating sump areas or vacuum operations to prevent damage or hazardous conditions in surrounding areas. Remove all residual slurry from the surface and restore the site to preconstruction conditions.

02) MATERIALS

(a) GENERAL. Materials are defined as pipe or conduit that becomes the installed product. Incidental materials that may or may not be used to install the product depending on field requirements are not paid for separately and will be included in the cost of the installed product.

(b) MATERIAL TYPE. The following material standards are to be interpreted as the minimum in place standards. Use materials that are appropriate for the stresses generated by the selected equipment and field conditions. It is not intended to portray that the use of materials with these minimum material standards will retain their required properties if the stress limits are exceeded for which they were designed during installation. Ensure that the appropriate material is used to retain compliance once it is installed.

Material Standards for HDD Installation		
Material Type	Non-Pressure	Pressure
Polyethylene (PE)	ASTM D 2447	ASTM 2513 ASTM D 2447
High Density Polyethylene (HDPE)	ASTM D 2447 ASTM D 3350 ASTM F714	ASTM D 2447 ASTM D 3350 ASTM F714

		ASTM 2513
Polyvinyl-Chloride (PVC)	ASTM F 789	N/A
Steel	ASTM A139 Grade B (1)	AWWA C200 API 2B(2)
(1) No hydrostatic test required (2) Dimensional tolerances only		

03) CONSTRUCTION SITE REQUIREMENTS

(a) LEGAL PROVISIONS. Comply with the following site condition provisions:

1) Use methods for marking utilities that minimize impact on other construction or maintenance activities, including mowing operations, which may be conducted throughout the project on a cyclic basis. Limit marking to painting unless approved by the Owner's Representative. When and where flagging of existing utilities is required, limit flagging to an area for which construction can be accomplished in no more than 14 consecutive days, unless approved by the Owner's Representative.

2) The Americans With Disabilities Act. When and where product lines are temporarily allowed to be exposed through sidewalk areas for periods exceeding two consecutive work days, ensure that an alternate route is provided that meets ADA requirements.

(b) SITE CONDITIONS:

1) Carry out excavation for entry, exit, recovery pits, slurry sump pits, or any other excavation as specified in Section 120. Sump pits are required to contain drilling fluids if vacuum devices are not operated throughout the drilling operation, unless approved by the Owner's Representative.

2) Within 48 hours of completing installation of the boring product, clean the work site of all excess slurry or spoils. Take responsibility for the removal and final disposition of excess slurry or spoils. Ensure that the work site is restored to pre-construction conditions or as identified on the plans.

3) Provide MOT in accordance with the Owner Design Standards and the MUTCD when and where the former is silent.

4) Exposure of product shall be limited to 3 feet and 14 consecutive days unless approved by the Owner's Representative.

(c) DAMAGE RESTORATION. Take responsibility for restoration for any damage caused by heaving, settlement, separation of pavement, escaping drilling fluid (frac-out), or the directional drilling operation, at no cost to the Owner.

(d) REMEDIATION PLANS. When required by the Owner's Representative, provide detailed plans which show how damage to any roadway facility will be remedied. These details will become part of the As-Built Plans Package. Remediation Plans must follow the same guidelines for development and presentation of the As-Built Plans. When remediation plans are required, they must be approved by the Owner's Representative before any work proceeds.

04) QUALITY CONTROL

(a) GENERAL. Take control of the operation at all times. Have a representative who is thoroughly knowledgeable of the equipment, boring and Owner procedures, present at the job site during the entire installation and available to address immediate concerns and emergency operations. Notify the Owner's Representative 48 hours in advance of starting work. Do not begin installation until

the Owner's Representative is present at the job site and agrees that proper preparations have been made.

(b) PRODUCT TESTING. When there is any indication that the installed product has sustained damage and may leak, stop all work, notify the Owner's Representative and investigate damage. The Owner's Representative may require a pressure test and reserves the right to be present during the test. Perform pressure test within 24 hours unless otherwise approved by the Owner's Representative. Furnish a copy of test results to the Owner's Representative for review and approval. The Owner's Representative is allowed up to 72 hours to approve or determine if the product installation is not in compliance with the specifications. The Owner's Representative may require non-compliant installations to be filled with excavatable flowable fill.

(c) TESTING METHODS. Testing may consist of one of the following methods and must always meet or exceed the Owner's testing requirements:

1) Follow the product manufacturer's pressure testing recommendations.

2) Ensure that product carrier pipes installed without a casing meet the pressure requirements set by the Owner. If the Owner does not require pressure testing, the Owner's Representative may require at least one test.

3) A water tight pipe and joint configuration where the product is installed beneath any pavement (including sidewalk) and front shoulders is required. The Owner's Representative will determine when and where water tight joint requirements will be applied to the ultimate roadway section for future widening. When a product is located elsewhere, the pipe and joint configuration must meet or exceed soil tight joint requirements. Conduct tests for joint integrity for one hour. The test for a soil tight joint allows up to 0.1 gallon of water leakage at a sustained pressure of 2 PSI. The water tight joint criteria allows no leakage at all for a sustained pressure of 5 PSI.

(d) FAILED BORE PATH. If conditions warrant removal of any materials installed in a failed bore path, as determined by the Owner's Representative, it will be at no cost to the Owner. Promptly fill all voids by injecting all taken out of service products that have any annular space with excavatable flowable fill.

(e) PRODUCT LOCATING AND TRACKING. The method of locating and tracking the drill head during the pilot bore will be shown in the plans. The Owner recognizes walkover, wire line, and wire line with surface grid verification, or any other system as approved by the Owner's Representative, as the accepted methods of tracking directional bores. Use a locating and tracking system capable of ensuring that the proposed installation is installed as intended. If an area of radio signal interference is expected to exceed 5 feet, the Owner's Representative may specify the use of a suitable tracking system. The locating and tracking system must provide information on:

1) Clock and pitch information

2) Depth

3) Transmitter temperature

4) Battery status

5) Position (x,y)

6) Azimuth, where direct overhead readings (walkover) are not possible (i.e.subaqueous or limited access transportation facility)

7) Ensure proper calibration of all equipment before commencing directional drilling operation.

8) Take and record alignment readings or plot points such that elevations on top of and offset dimensions from the center of the product to a permanent fixed feature are provided. Such permanent fixed feature must have prior approval of the Owner's Representative. Provide elevations and dimensions at all bore alignment corrections (vertical and horizontal) with a minimum distance between points of 100 feet. Provide a sufficient number of elevations and offset distances to accurately plot the vertical and horizontal alignment of the installed product. A minimum of three elevation and plot points are required.

   Install all facilities such that their location can be readily determined by electronic designation after installation. For non-conductive installations, attach a minimum of two separate and continuous conductive tracking (tone wire) materials, either externally, internally or integral with the product. Use either a continuous green sheathed solid conductor copper wire line (minimum #12 AWG for external placement or minimum #14 AWG for internal placement in the conduit/casing) or a coated conductive tape. Conductors must be located on opposite sides when installed externally. Connect any break in the conductor line before construction with an electrical clamp, or solder, and coat the connection with a rubber or plastic insulator to maintain the integrity of the connection from corrosion. Clamp connections must be made of brass or copper and of the butt end type with wires secured by compression. Soldered connections must be made by tight spiral winding of each wire around the other with a finished length minimum of 3 inches overlap. Tracking conductors must extend 2 feet beyond bore termini. Test conductors for continuity. Each conductor that passes must be identified as such by removing the last 6 inches of the sheath. No deductions are allowed for failed tracking conductors. Failed conductor ends must be wound into a small coil and left attached for future use.

(f) PRODUCT BORE HOLE DIAMETER. Minimize potential damage from soil displacement/settlement by limiting the ratio of the bore hole to the product size. The size of the back reamer bit or pilot bit, if no back reaming is required, will be limited relative to the product diameter to be installed as follows:

Maximum Pilot or Back-Reamer Bit Diameter When Rotated 360 Degrees	
Nominal Inside Pipe Diameter Inches	Bit Diameter Inches
2	4
3	6
4	8
6	10
8	12
10	14
12 and greater	Maximum Product OD plus 6

(g) DRILLING FLUIDS. Use a mixture of bentonite clay or other approved stabilizing agent mixed with potable water with a minimum pH of 6.0 to create the drilling fluid for lubrication and soil stabilization. Vary the fluid viscosity to best fit the soil conditions encountered. Do not use any other chemicals or polymer surfactants in the drilling fluid without written consent from the Design Consultant. Certify to the Design Consultant in writing that any chemicals to be added are environmentally safe and not harmful or corrosive to the facility. Identify the source of water for mixing the drilling fluid. Approvals and permits are required for obtaining water from such sources as streams, rivers, ponds or fire hydrants. Any water source used other than a potable water may require a pH test.

(h) EQUIPMENT REQUIREMENTS. Ensure that appropriate equipment is provided to facilitate the installation as follows:

HDD Equipment				
System Description	Pipe (1) Diameter Inches	Bore Length Feet	Torque Ft-Lbs	Trust/Pullback Lbs
Maxi-HDD	18 and greater	>1,000	>10,000	>70,000
Midi-HDD	Up to 16	Up to 1,000	1,900 to 9,999	20,001 to 69,999
Mini-HDD	Up to 6	Up to 600	Up to 1,899	Up to 20,000
(1) For the above, multiple pipe or conduit installations must not exceed the total outside pipe diameters stated above.				

Match equipment to the size of pipe being installed. Obtain the Design Consultant's approval for installations differing from the above chart. Ensure that the drill rod can meet the bend radius required for the proposed installation.

(i) THRUST/PULLBACK REQUIREMENTS. Unless approved by the Owner's Representative, limit use of HDD equipment to installing the following product sizes and lengths based on the following product size, force and length relationships.

HDD Bore Equipment Thrust/Pullback Capacity						
Lbs	5,000 to 7,000	7,001 to 12,000	12,001 to 16,000	16,001 to 25,000	25,001 to 40,000	>40,000
Product Size (1) Inches	Maximum Pullback Distance In Feet					
4 or <	400 or <					
6 or <		600 or <				
8 or <			800 or <			
10 or <				1,000 or <		
12 or <					2,000 or <	
> 12						Owner's Representative's Discretion
(1) for the above, where a single pull of multiple conduits is to be attempted, the applicable product size must be determined by the diameter of a circle that will circumscribe the individual conduits as a group.						

05) DRILLING OPERATIONS

(a) INSTALLATION PROCESS. Ensure adequate removal of soil cuttings and stability of the bore hole by monitoring the drilling fluids such as the pumping rate, pressures, viscosity and density during the pilot bore, back reaming and pipe installation. Relief holes can be used as necessary to relieve excess pressure down hole. Obtain the Owner's Representative's approval of the location and all conditions necessary to construct relief holes to ensure the proper disposition of drilling fluids is maintained and unnecessary inconvenience is minimized to other facility users. To minimize heaving during pull back, the pull back rate is determined in order to maximize the removal of soil cuttings without building excess down hole pressure. Contain excess drilling fluids at entry and exit points until they are recycled or removed from the site or vacuumed during drilling operations. Ensure that entry and exit pits are of sufficient size to contain the expected return of drilling fluids and soil cuttings. Ensure that all drilling fluids are disposed of or recycled in a manner acceptable to the appropriate local, state, or federal regulatory agencies. When drilling in suspected contaminated ground, test the drilling fluid for contamination and appropriately dispose of it.

Remove any excess material upon completion of the bore. If in the drilling process it becomes evident that the soil is contaminated, contact the Owner's Representative immediately. Do not continue drilling without the Owner's Representative's approval. The timing of all boring processes is critical. Install a product into a bore hole within the same day that the pre-bore is completed to ensure necessary support exists.

(b) BORING FAILURE. If an obstruction is encountered during boring which prevents completion of the installation in accordance with the design location and specification, the pipe may be taken out of service and left in place at the discretion of the Owner's Representative. Immediately fill the product left in place with excavatable flowable fill. Submit a new installation procedure and revised plans to the Owner's Representative for approval before resuming work at another location. If, during construction, damage is observed to the facility, cease all work until resolution to minimize further damage and a plan of action for restoration is obtained and approved by the Owner's Representative.

06) DOCUMENTATION REQUIREMENTS

(a) BORING PATH REPORT. Furnish a Bore Path Report to the Owner's Representative within seven days of the completion of each bore path. Include the following in the report:

1) Location of project and financial project number including the Permit Number when assigned

2) Name of person collecting data, including title, position and company name

3) Investigation site location (Contract plans station number, reference to a permanent structure within the project right-of-way, or the local airport grid coordinates)

4) Identification of the detection method used

5) Elevations and offset dimensions as required in 116-4.3

(b) AS-BUILT PLANS. Provide the Design Consultant a complete set of As-Built Plans showing all bores (successful and failed) within 30 calendar days of completing the work. Ensure that the plans are dimensionally correct copies of the Contract plans and include roadway plan and profile, cross-section, boring location and subsurface conditions as directed by the Design Consultant. The plans must show appropriate elevations and be referenced to a Owner Bench Mark when associated with a Owner project, otherwise to a USGS grid system and datum, or a specific location on top of an existing Owner head wall. Plans must be same scale in black ink on white paper, of the same size and weight as the Contract plans. Submittal of electronic plans data in lieu of hard copy plans is preferred and may be approved by the Design Consultant if compatible with the Owner software. Specific plans content requirements include but may not be limited to the following:

1) The Contract plan view shows the center line location of each facility installed, or installed and placed out of service, to an accuracy of 1 inch at the ends and other points physically observed in accordance with the bore path report.

2) As directed by the Design Consultant, provide either a profile plan for each bore path, or a cross-section of the roadway at a station specified by the Design Consultant, or a roadway centerline profile. Show the ground or pavement surface and crown elevation of each facility installed, or installed and placed out of service, to an accuracy within 1 inch at the ends and other exposed locations. On profile plans for bore paths crossing the roadway show stationing of the crossing on the Contract plans. On the profile plans for the bore paths paralleling the roadway, show the Contract plans stationing. If the profile plan for the bore

path is not made on a copy of one of the Contract profile or cross-section sheets, use a 10 to 1 vertical exaggeration.

3) If, during boring, an obstruction is encountered which prevents completion of the installation in accordance with the design location and specification, and the product is left in place and taken out of service, show the failed bore path along with the final bore path on the plans. Note the failed bore path as “Failed Bore Path - Taken Out of Service”. Also show the name of the Utility Owner, location and length of the drill head and any drill stems not removed from the bore path.

4) Show the top elevation, diameter and material type of all utilities encountered and physically observed during the subsoil investigation. For all other obstructions encountered during a subsoil investigation or the installation, show the type of material, horizontal and vertical location, top and lowest elevation observed, and note if the obstruction continues below the lowest point observed.

5) Include bore notes on each plan stating the final bore path diameter, product diameter, drilling fluid composition, composition of any other materials used to fill the annular void between the bore path and the product, or facility placed out of service. Note if the product is a casing as well as the size and type of carrier pipe placed within the casing as part of the Contract work.

07) METHOD OF MEASUREMENT

(a) The quantity of directional drill to be paid for shall be the number of linear feet, installed, measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

08) BASIS OF PAYMENT

(a) Payment shall be made at the contract unit price for each type and size of directional drill, complete and accepted. The price shall be full compensation for furnishing all material and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

(b) Payment will be made under:

Item L-116-1 2-way, 4” Directional Drill – per linear foot

Item L-116-2 4-way, 4” Directional Drill – per linear foot

END OF SECTION L-116

SECTION L-120 IN-PAVEMENT TAXIWAY CENTERLINE LIGHTS

01 DESCRIPTION

(a) The Contractor shall furnish and install the following items as hereinafter described. This shall include all accessories and incidentals items not specifically mentioned but which are required for the complete installation of totally functional units as herein described:

1) Taxiway centerline light, narrow beam, FAA L-852C(L) bidirectional, LED, green filters and modified for 12" diameter transformer housing and equipped with FAA L-823 figure A+B plug for connection to an isolation transformer.

2) Taxiway clearance bar light, narrow beam, FAA L-852C(L) uni-directional, LED, green filters and modified for 12"diameter transformer housing and equipped with FAA L-823 figure A+B plug for connection to an isolation transformer.

3) Taxiway centerline light, wide beam, FAA L-852D(L) bidirectional, LED, green filters and modified for 12" diameter transformer housing and equipped with FAA L-823 figure A+B plug for connection to an isolation transformer.

4) Individual lamp series-to-series type isolation transformer for 5,000 volt series circuit FAA specification L-830-3, or as required by selected fixture for installation in L-868 transformer housing.

5) Finishing ring for L-868 light bases. Finishing rings shall be of the correct height to bring light fixtures up to specified elevation. Fixture shall be adjusted to a tolerance of +0" -1/16" from finished taxiway surface.

6) Light base and transformer housing, FAA Specification L-868, size B, class 1, galvanized steel, 12" diameter, depth as required and per plans, with threaded hubs and anti-rotation fins.

7) Light base and transformer housing for installation in existing concrete paving, FAA Specification L-868, size B, class 1, galvanized steel, 12" diameter, depth as required and per plans, with threaded hubs and anti-rotation fins.

8) 3/8" 18-8, 410 or 416 Stainless steel bolts and two part 18-8 stainless steel washers for attachment of fixtures to FAA L-868 base. Bolts shall be proper length to insure 1/2" thread engagement in L-868 base.

9) 3/4" Grooved flange ring with O-ring gasket.

10) 3/4" Blank steel plate for installation on FAA L-868 light base/transformer housing.

(b) Attachment of all FAA Specification L-852 Optical modules shall be by 18-8, 410 or 416 stainless steel countersunk, slotted, flat head screws.

11) The light fixtures may be Style 2 or 3 with a 12-inch diameter. The light fixture shall be one single monolithic casting (not cartridges or multi-piece castings).

02 METHOD OF MEASUREMENT

(a) The quantity of lights to be paid for shall be the number of taxiway centerline lights installed as complete units, with lamp, and accepted by the Engineer.

03 BASIS OF PAYMENT

(a) Payment will be made at the Contract unit price for each complete light. These prices shall be full compensation for furnishing all materials; for all preparation, assembly, hauling, and installation of these materials; and for all labor, equipment, tools, and incidentals necessary to complete these items.

(b) Payment will be made under:

Item L-120-1 **L-852C(L) LED Taxiway Centerline Light, Bi-Directional, Green/Green on a New L-868B Base Can in New Pavement – per each**

The bid item shall include but not limited to an LED, L-852C (L) Taxiway Centerline Light, Narrow Beam, Green Filters, Twelve (12") Diameter, L-868B 28" Deep Base Can, including 3/4" Flange Ring with O-ring gasket, Spacer Ring, and appropriately sized Isolation Transformer.

Item L-120-2 **L-852D(L) LED Taxiway Centerline Light, Bi-Directional, Green/Green on a New L-868B Base Can in New Pavement – per each**

The bid item shall include but not limited to an LED, L-852D(L) Taxiway Centerline Light, Wide Beam, Green Filters, Twelve (12") Diameter, L-868B 28" Deep Base Can, including 3/4" Flange Ring with O-ring gasket, Spacer Ring, and appropriately sized Isolation Transformer.

Item L-120-3 **L-852C(L) LED Taxiway Clearance Bar Light, Uni-Directional Yellow on a New L-868B Base Can in New Pavement – per each**

The bid item shall include but not limited to an LED, L-852C(L) Taxiway Clearance Bar Light, Narrow Beam, Yellow Filter, Twelve (12") Diameter, L-868B 28" Deep Base Can, including 3/4" Flange Ring with O-ring gasket, Spacer Ring, and appropriately sized Isolation Transformer.

END OF SECTION L-120

SECTION L-121

MEDIUM INTENSITY TAXIWAY EDGE LIGHTS

01 DESCRIPTION

(a) The Contractor shall furnish and install the following items as hereinafter described. This shall include all accessories and incidentals items not specifically mentioned but which are required for the complete installation of totally functional units as herein described:

1) Medium intensity taxiway edge light, FAA Specification L-852T(L), Style 2, LED.

2) Light base and transformer housing, FAA Specification L-867 or L-868, Size "B", Class I, galvanized steel, 12" diameter 20" deep, with threaded hubs. Also include the adapter ring for an in-pavement light with an 11.25” bolt circle on an L-867 basecan with a 10.25” bolt circle where needed.

3) Individual lamp series/series type isolation transformer for 5000 volt series circuit, FAA Specification L-830-17 or as required by selected fixture.

4) Finishing ring for L-868 light bases. Finishing rings shall be of the correct height to bring light fixtures up to specified elevation. Fixture shall be adjusted to a tolerance of +0" -1/16" from finished taxiway surface. Spacer rings shall be provided for L-867 bases in order to bring them within elevation tolerances.

5) Light base and transformer housing for installation in existing concrete paving, FAA Specification L-867, size B, class 1, galvanized steel, 12" diameter, depth as required and per plans, 20" deep with threaded hubs and anti-rotation fins.

6) 3/8" 18-8, 410 or 416 Stainless steel bolts and two part 18-8 stainless steel washers for attachment of fixtures to FAA L-867 base. Bolts shall be proper length to insure 1/2" thread engagement in L-867 base.

7) 3/4" Grooved flange ring with O-ring gasket.

8) 3/8" 18-8, 410 or 416 Stainless steel attachment bolts.

9) Taxiway light construction material shall be metallic. Non-metallic unit is not acceptable.

02 METHOD OF MEASUREMENT

(a) The quantity of lights to be paid for under this item shall be the number of each medium intensity taxiway edge light installed on bases as completed units in-place, ready for operation, and accepted by the Engineer.

03 BASIS OF PAYMENT

(a) Payment shall be made at the contract unit price for each complete base mounted semi-flush medium intensity taxiway light installed in-place by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials; for all preparation, assembly, and installation of these materials; and for all labor, equipment, tools and incidentals necessary to complete this item.

(b) The quantity of L-867 bases and blank covers to be paid for shall be the number of bases of the type designated, installed as completed units, with concrete envelope, and accepted by the Engineer. All bases shall contain the required number of hubs to connect to the raceway system as shown on the plans. Grommets not acceptable.

(c) Payment will be made under:

Item L-121-1 L-852T(L) LED Taxiway Edge Light, on a new L-867B Base Can in Milled Shoulder Pavement – Per Each

Semi-Flush, LED Medium Intensity Taxiway Edge Light, Twelve (12") Diameter L-867 Base Mounted Complete with new Flange Ring, Spacer Ring, O-Ring Gasket with Properly Sized Isolation Transformer - Per each.

Item L-121-2 L-852T(L) LED Taxiway Edge Light, on a new L-867B Base Can in New Shoulder Pavement – Per Each

Semi-Flush, LED Medium Intensity Taxiway Edge Light, Twelve (12") Diameter L-867 Base Mounted Complete with new Flange Ring, Spacer Ring, O-Ring Gasket with Properly Sized Isolation Transformer - Per Each

Item L-121-3 L-852T(L) LED Taxiway Edge Light on a new L-868B Base Can in New Full Strength Pavement – Per Each

Semi-Flush, LED Medium Intensity Taxiway Edge Light, Twelve (12") Diameter L-868 Base Mounted Complete with new Flange Ring, Spacer Ring, O-Ring Gasket with Properly Sized Isolation Transformer - Per Each

Item L-121-4 L-852T(L) LED Taxiway Edge Light, Installed on Existing Base Can – Per Each

Semi-Flush, LED Medium Intensity Taxiway Edge Light, with new Flange Ring, O-Ring Gasket with Properly Sized Isolation Transformer - Per Each

END OF SECTION L-121

ITEM L-122 INTERNALLY LIGHTED TAXI GUIDANCE SIGNS

01 DESCRIPTION

(a) The Contractor shall install FAA Specification L-858(L), LED, Size 3, lighted Taxiway Guidance Signs. All support legs shall be equipped with frangible couplings.

02 CONSTRUCTION METHODS

a) All taxiway guidance signs shall be installed on re-enforced concrete base 24" wide at the narrowest point and extending a minimum of 6" beyond the sign on each end, or as shown on the plans. All runway and taxiway guidance sign equipment for this project shall be interchangeable with existing airport equipment of similar use. All assemblies shall be interchangeable including lamps, fusing, housing, gaskets, and other major components.

1) New concrete bases shall be a minimum of 8” deep. The surface of new concrete bases shall conform to applicable asphalt and infield grades. The top of the new bases shall be no more than ½" above grade at any point. Concrete bases, as well as the signs themselves, shall be installed level.

2) Restoration: As soon as possible after the backfilling is completed, all areas disturbed by trenching, L-867 base installation, storing of dirt, cable laying, sign base construction and other work shall be restored to its original condition. The restoration shall include any necessary top soiling, fertilizing, liming, seeding, sprigging, or mulching. All such work shall be performed in accordance with the FAA Standard Turfing Specifications. The Contractor shall be held responsible for erosion control and for maintaining all disturbed surfaces and replacement until final acceptance.

b) The power leg of the sign shall be adapted for mounting on FAA Specification L-867, Size B, Class I, 12" diameter light base and transformer housing which shall be an integral part of the sign base.

c) The isolation transformer shall be installed in a second FAA L-867, Size B, Class I, 12" diameter base as shown on the drawings. The Contractor shall furnish and install adequate length extension leads, with matching connectors, for connection to the secondary of the isolation transformer and to the sign.

d) Signs shall be anchored to the concrete base with 3/8" anchors and stainless steel bolts, or per manufacturer’s recommendations.

e) Translucent plastic joint shall be used between modules so that multi-module signs shall appear continuous from a distance.

f) Tops shall be removable for servicing and maintenance, and shall be secured with turn screws.

g) Sign construction shall be of aluminum extrusions for top and base, and aluminum castings for end panels. Sign construction shall be modular, with capability of assembly in any required length.

h) Legends shall be made with graphics on the inside surface, and then backed by retro reflective material that is also translucent and enhances the backlighting.

i) The Contractor shall furnish and install the following items of equipment. The signs are listed as style 5 however the contractor shall verify the number of brightness steps of the circuit which each sign will be powered from and modify the style to be ordered as necessary:

FAA Specification L-858 Size 3 Style 5 Mode 2, LED, Taxiway Guidance sign, three module.

FAA Specification L-858 Size 3 Style 5 Mode 2, LED, Taxiway Guidance sign, five module (multiple cabinets) (two cabinets).

L-858 Legend Panel, Yellow background with Black legend.

L-858 Legend Panel, Black background with Yellow legend.

Light base and transformer housing, FAA L-867, Size B, Class I, 12" diameter, 24” deep.

FAA Specification L-830-4 Isolation transformer 6.6/6.6 amp 100W (or as required for selected sign).

Sign tether anchor hard points must be provided on one sign mounting leg per module above the frangible breaking point. Tether anchor hard points must be provided so that one end of the tether attaches to the sign structure, and the other end attaches below the frangible point on the coupling to either one of the leg mounting bolts or an independent bolt in the concrete mounting pad.

All signs shall be class II.

METHOD OF MEASUREMENT

The quantity of Taxiway guidance signs to be paid for under this item shall be the number of each taxiway guidance sign of each size, installed on new concrete base as complete units, in-place, with isolation transformer, lamps, ready for operation, and accepted by the Engineer.

03 BASIS OF PAYMENT

(a) Payment shall be made at the contract unit price for each taxiway guidance sign installed on new concrete base, and accepted by the Engineer. This price shall be full compensation for furnishing all materials; for all preparation, assembly, and installation of these materials; and for all labor, equipment, tools, and incidentals necessary to complete this item.

(c) Payment shall be made under:

Item L-122-1 L-858(L), Taxiway Guidance Sign installed on new concrete base, 3-module - Per Each.

Item L-122-2 L-858(L), Taxiway Guidance Sign installed on new concrete base, 5-module - Per Each.

END OF SECTION L-122

SECTION L-124

REMOVAL OF AND CONNECTING TO EXISTING EQUIPMENT

DESCRIPTION

124-1.1 The Contractor shall remove existing items of electrical equipment and store at the direction of the Engineer, and perform other work described in the items listed for payment including breaking into and connecting to existing conduits, manholes and light bases, removal of existing cables from conduit system, cleaning and swabbing of existing conduits and removal of existing taxiway light fixtures, all complete with isolation transformers.

124-1.2 At no time will mechanical means of any kind be used for the removal of cables from conduits between lights installed in runway or taxiway surfaces.

124-1.3 The Contractor shall furnish and install the following items:

1/2 “ blank steel cover for FAA L-867 light base.
3/4 " blank steel cover for FAA L-868 light base.
3/8", 18-8 Stainless Steel attachment bolts.

124-1.4 If the Contractor sheers the top of the bolt or othewise damages a bolt in new or existing construction, the contractor shall drill out broken off 3/8" stainless steel bolts in runway and taxiway in-pavement light bases and re-tap for 3/8" bolts. Use proper size drill bit to allow for re-tapping for the installation of new 3/8" bolts. Adequate care must be taken to prevent unnecessary bolt breakage.

METHOD OF MEASUREMENT

124-2.1 The quantity of work shall consist of complete removal of equipment and other items of work specified for payment.

BASIS OF PAYMENT

124-3.1 Payment shall be at the contract unit price for all equipment removed and other items of work specified, which price and payment shall constitute full compensation for furnishing all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item L-124-1	Electrical Airfield Demolition – Per Lump Sum
Item L-124-2	Remove Existing Fixture and Install 3/4” Steel Plate on Existing L-868B Base Can (Permanent) – Per Each
Item L-124-3	Install 3/4” Steel Plate on Existing L-868B Base Can (Temporary) – Per Each
Item L-124-4	Remove Existing Fixture and Install 1/2” Steel Plate on Existing L-867B Base Can (Temporary) – Per Each

END OF SECTION L-124

SECTION L-125

TEMPORARY WIRING AND FIXTURES FOR CONTINUITY OF LIGHTING DURING NIGHTTIME AND INCLEMENT WEATHER

DESCRIPTION

125-1.1 The Contractor shall be responsible for installation and maintenance of all temporary cabling during the life of the contract. The Contractor shall furnish all necessary wire, transformers, bases, etc. All setup and removal, all circuit cut-ins, all repairs to damaged items and all other necessary functions to maintain temporary lighting as required above shall be performed by the Contractor as directed by the Engineer.

CONSTRUCTION METHODS

125-2.1 Splicing methods and materials shall be subject to the joint approval of the cable manufacturer and the Engineer. Splicing methods and materials shall be the prime recommendation of the cable manufacturer. The Contractor shall submit copies of detailed splicing instructions to the Engineer for approval and shall use the approved methods and materials for all splicing work.

125-2.2 Taxiway cable installed on the surface shall be protected by the Contractor. In areas where the Contractor`s equipment or other vehicular traffic may be crossing, the Contractor shall provide protection to the cable in these areas in order to prevent damage to the cables. The cables shall be attached at each light fixture using Blackburn WAA Service Wedge Clamp #W-62-1 and be strapped to the taxiway every six feet, as shown on the plans.

MATERIALS

125-3.1 Cable. Insulated cables shall be single conductor, 7 strand copper wire, #8 AWG with 5000 volt insulation, meeting the requirements of Section L-108 of these specifications.

125-3.2 Connectors. Cable connectors for temporary lighting circuits shall conform to the requirements of Item L-108, Airport Underground Cable, of these specifications.

125-3.3 Cables shall be attached at each fixture with Blackburn WWA Service Wedge Clamp #W-62-1.

125-3.4 Temporary L-861T(L) Taxiway Edge Lights shall be omni-directional blue, no more than 14” tall and meet FAA specifications for use on airfields, including being listed in FAA AC 150/5345-53D Airport Lighting Equipment Certification Program, latest edition.

METHOD OF MEASUREMENT

125-4.1 Temporary taxiway lighting may be paid as a percentage of lump sum after each phase of temporary lighting has been completed.

125-4.2 The contractor is responsible for maintaining the continuity of existing circuits outside the limits of any current construction areas. No pay item shall be provided to maintain temporary power to circuits extending across or on both sides of a construction zone. The use of jumpers is allowable but no separate payment for the use of jumper cables will be provided.

BASIS OF PAYMENT

125.1 Payment for temporary edge lighting system shall be a single lump sum although iterations of edge light locations shall be required per the plans. The lump sum cost shall include full compensation for all material, labor, and incidentals necessary to complete this item **in all iterations**.

Payment will be made under:

L-125-1 Installation of Temporary Edge Lighting System for Taxiway E-10, Complete, for All Phases – per lump sum

END OF SECTION L-125

CITY OF ATLANTA
DEPARTMENT OF AVIATION
HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

FC-8746

TAXIWAY PAVEMENT REPLACEMENT 2016

EXHIBIT "F" – INDEX OF DRAWINGS

The following drawings form a part of the contract:

TAXIWAY PAVEMENT REPLACEMENT 2016 INDEX OF DRAWINGS

GENERAL

G 00.01.1	COVER SHEET
G 01.01.1	INDEX OF DRAWINGS
G 02.01.1	GENERAL NOTES
G 03.01.1	SUMMARY OF QUANTITIES
G 03.02.1	CONSTRUCTION CONTROL PLAN
G 03.03.1	SAFETY NOTES
G 03.04.1	SAFETY NOTES
G 04.00.1	OVERALL PHASING PLAN
G 04.01.1	PHASE 1 TAXIWAY L6 SOUTH PHASING PLAN
G 04.02.1	PHASE 2 TAXIWAY L6 NORTH PHASING PLAN
G 04.03.1	PHASE 3 TAXIWAY E WEST & F3 NORTH PHASING PLAN
G 04.04.1	PHASE 4 TAXIWAY F3 SOUTH PHASING PLAN
G 04.05.1	PHASE 5 TAXIWAY E EAST PHASING PLAN
G 04.06.1	PHASE 6A TAXIWAY E10 PHASING PLAN
G 04.07.1	PHASE 6B TAXIWAY E10 PHASING PLAN
G 04.08.1	PHASE 7A TAXIWAY E10 PHASING PLAN
G 04.09.1	PHASE 7B TAXIWAY E10 PHASING PLAN
G 04.10.1	PHASE 8 TAXIWAY E10 PHASING PLAN
G 04.11.1	TAXIWAY RECONSTRUCTION PHASING DETAILS
G 04.12.1	PHASE 1 TEMPORARY MARKING AND LIGHTING PLAN
G 04.13.1	PHASE 2 TEMPORARY MARKING AND LIGHTING PLAN
G 04.14.1	PHASE 3 TEMPORARY MARKING AND LIGHTING PLAN
G 04.15.1	PHASE 4 TEMPORARY MARKING AND LIGHTING PLAN
G 04.16.1	NOT USED
G 04.17.1	PHASE 6A TEMPORARY MARKING AND LIGHTING PLAN
G 04.18.1	PHASE 6B TEMPORARY MARKING AND LIGHTING PLAN
G 04.19.1	PHASE 7A TEMPORARY MARKING AND LIGHTING PLAN
G 04.20.1	PHASE 7B TEMPORARY MARKING AND LIGHTING PLAN
G 05.01.1	EXISTING CONDITIONS PLAN
G 05.02.1	EXISTING CONDITIONS PLAN

G 05.03.1	EXISTING CONDITIONS PLAN
G 05.04.1	EXISTING CONDITIONS PLAN
G 07.01.1	HORIZONTAL CONTROL PLAN

CIVIL

C 01.01.1	PAVEMENT TYPICAL SECTIONS
C 01.02.1	PAVEMENT TYPICAL SECTIONS
C 03.01.1	DEMOLITION PLAN
C 03.02.1	DEMOLITION PLAN
C 03.03.1	DEMOLITION PLAN
C 03.03.2	DEMOLITION PLAN PHASE 8
C 03.04.1	DEMOLITION PLAN
C 04.01.1	GEOMETRY PLAN
C 04.02.1	GEOMETRY PLAN
C 04.03.1	GEOMETRY PLAN
C 04.04.1	GEOMETRY PLAN
C 05.01.1	JOINT PLAN
C 05.02.1	JOINT PLAN
C 05.03.1	JOINT PLAN
C 05.04.1	JOINT PLAN
C 05.09.1	JOINT DETAILS
C 06.01.1	PROFILES
C 06.02.1	PROFILES
C 06.03.1	PROFILES
C 07.01.1	GRADING PLAN
C 07.02.1	GRADING PLAN
C 07.03.1	GRADING PLAN
C 07.03.2	GRADING AND DRAINAGE PLAN PHASE 8
C 07.04.1	GRADING PLAN
C 07.05.1	ENLARGED GRADING PLAN
C 07.06.1	ENLARGED GRADING PLAN
C 07.07.1	ENLARGED GRADING PLAN
C 07.08.7	ENLARGED GRADING PLAN
C 07.09.1	ENLARGED GRADING PLAN
C 07.10.1	ENLARGED GRADING PLAN
C 07.11.1	DETAILED PAVEMENT ELEVATION PLAN
C 07.12.1	DETAILED PAVEMENT ELEVATION PLAN

C 07.13.1	DETAILED PAVEMENT ELEVATION PLAN
C 07.14.1	DETAILED PAVEMENT ELEVATION PLAN
C 07.15.1	DETAILED PAVEMENT ELEVATION PLAN
C 07.16.1	DETAILED PAVEMENT ELEVATION PLAN
C 07.17.1	DETAILED PAVEMENT ELEVATION PLAN
C 08.01.1	DRAINAGE PLAN
C 08.02.1	NOT USED
C 08.03.1	DRAINAGE PLAN
C 08.04.1	DRAINAGE PLAN
C 08.05.1	DRAINAGE PROFILES
C 08.06.1	DRAINAGE DETAILS
C 08.07.1	DRAINAGE DETAILS
C 08.08.1	DRAINAGE DETAILS
C 08.09.1	DRAINAGE DETAILS
C 11.01.1	UNDERDRAIN PLAN
C 11.02.1	UNDERDRAIN PLAN
C 11.03.1	UNDERDRAIN PLAN
C 11.04.1	UNDERDRAIN PLAN
C 11.05.1	UNDERDRAIN DETAILS
C 12.01.1	AIRFIELD MARKING PLAN
C 12.02.1	AIRFIELD MARKING PLAN
C 12.03.1	AIRFIELD MARKING PLAN
C 12.04.1	AIRFIELD MARKING PLAN
C 12.05.1	AIRFIELD MARKING DETAILS
C 13.01.1	EROSION CONTROL PLAN
C 13.02.1	EROSION CONTROL PLAN
C 13.03.1	EROSION CONTROL PLAN
C 13.04.1	EROSION CONTROL PLAN
C 13.05.1	EROSION CONTROL DETAILS
C 13.21.1	SOD AND GRASSING PLAN
C 13.22.1	SOD AND GRASSING PLAN
C 13.23.1	SOD AND GRASSING PLAN
C 13.24.1	SOD AND GRASSING PLAN
C 19.01.1	PAVEMENT CORE LOCATION PLAN

ELECTRICAL

EA 00.01.1	AIRFIELD ELECTRICAL LEGEND AND NOTES
EA 01.01.1	AIRFIELD ELECTRICAL DEMOLITION PLAN
EA 01.02.1	AIRFIELD ELECTRICAL DEMOLITION PLAN
EA 01.03.1	AIRFIELD ELECTRICAL DEMOLITION PLAN
EA 01.04.1	AIRFIELD ELECTRICAL DEMOLITION PLAN

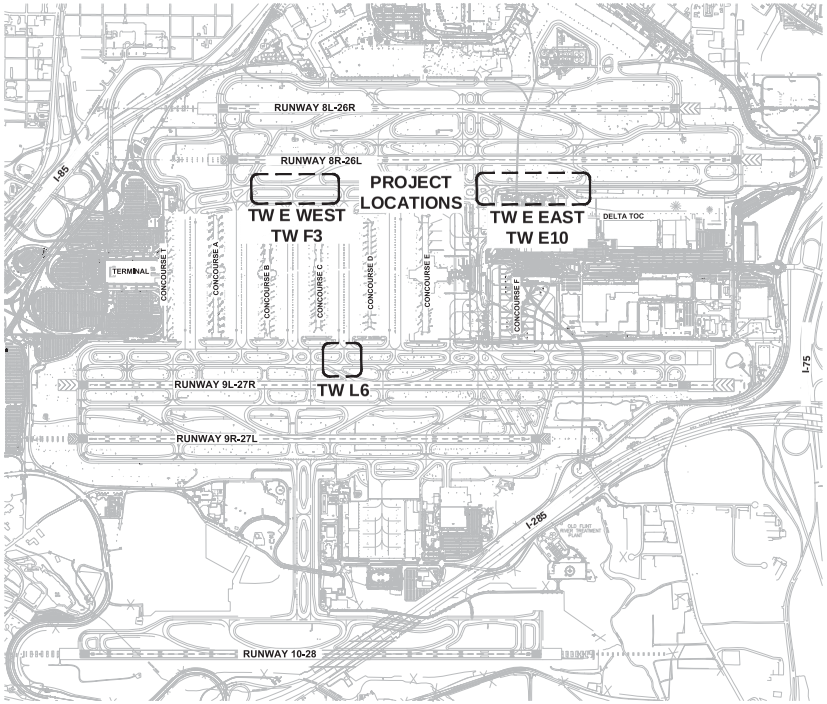
EA 02.01.1	AIRFIELD ELECTRICAL LIGHTING LAYOUT PLAN
EA 02.02.1	AIRFIELD ELECTRICAL LIGHTING LAYOUT PLAN
EA 02.03.1	AIRFIELD ELECTRICAL LIGHTING LAYOUT PLAN
EA 02.04.1	AIRFIELD ELECTRICAL LIGHTING LAYOUT PLAN
EA 02.21.1	AIRFIELD ELECTRICAL FIXTURE AND SIGN ID PLAN
EA 02.22.1	AIRFIELD ELECTRICAL FIXTURE AND SIGN ID PLAN
EA 02.23.1	AIRFIELD ELECTRICAL FIXTURE AND SIGN ID PLAN
EA 02.24.1	AIRFIELD ELECTRICAL FIXTURE AND SIGN ID PLAN
EA 02.31.1	AIRFIELD ELECTRICAL FIXTURE LOCATION TABLES
EA 02.32.1	AIRFIELD ELECTRICAL FIXTURE LOCATION TABLES
EA 02.33.1	AIRFIELD ELECTRICAL FIXTURE LOCATION TABLES
EA 03.01.1	AIRFIELD ELECTRICAL LIGHTING CIRCUITING PLAN
EA 03.02.1	AIRFIELD ELECTRICAL LIGHTING CIRCUITING PLAN
EA 03.03.1	AIRFIELD ELECTRICAL LIGHTING CIRCUITING PLAN
EA 03.04.1	AIRFIELD ELECTRICAL LIGHTING CIRCUITING PLAN
EA 03.11.1	AIRFIELD ELECTRICAL DUCT BANK PROFILES
EA 04.01.1	AIRFIELD ELECTRICAL LIGHTING DETAILS
EA 04.02.1	AIRFIELD ELECTRICAL LIGHTING DETAILS
EA 04.03.1	AIRFIELD ELECTRICAL LIGHTING DETAILS
EA 04.04.1	AIRFIELD ELECTRICAL LIGHTING DETAILS
EA 04.05.1	AIRFIELD ELECTRICAL LIGHTING DETAILS
EA 04.06.1	AIRFIELD ELECTRICAL LIGHTING DETAILS
EA 04.07.1	AIRFIELD ELECTRICAL LIGHTING DETAILS
EA 04.08.1	AIRFIELD ELECTRICAL LIGHTING DETAILS
EA 04.09.1	AIRFIELD ELECTRICAL LIGHTING DETAILS
EA 04.10.1	AIRFIELD ELECTRICAL LIGHTING DETAILS
EA 04.11.1	AIRFIELD ELECTRICAL LIGHTING DETAILS
EA 04.12.1	AIRFIELD ELECTRICAL LIGHTING DETAILS

CITY OF ATLANTA
HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

TAXIWAY PAVEMENT REPLACEMENT 2016

FEBRUARY, 16 2016

ISSUED FOR BID



CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
COA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

COVER SHEET

SHEET No

G 00.01.1

NOT ISSUED FOR CONSTRUCTION

2/15/2016 10:42 AM
C:\PW_WORK\ATRHAGA01\GRA7517\DMS0449\46586-G 00.01-1 COVER SHEET.DWG

TAXIWAY PAVEMENT REPLACEMENT 2016 INDEX OF DRAWINGS

SHEET NO.	SHEET TITLE	ISSUED FOR BID
GENERAL		
G 00.01.1	COVER SHEET	2/16/2016
G 01.01.1	DRAWING INDEX	2/16/2016
G 02.01.1	SUMMARY OF QUANTITIES	2/16/2016
G 03.01.1	GENERAL NOTES	2/16/2016
G 03.02.1	CONSTRUCTION CONTROL PLAN	2/16/2016
G 03.03.1	CONSTRUCTION SAFETY AND PHASING PLAN NOTES	2/16/2016
G 03.04.1	CONSTRUCTION SAFETY AND PHASING PLAN NOTES	2/16/2016
G 04.00.1	OVERALL PHASING PLAN	2/16/2016
G 04.01.1	PHASE 1 TAXIWAY L6 SOUTH PHASING PLAN	2/16/2016
G 04.02.1	PHASE 2 TAXIWAY L6 NORTH PHASING PLAN	2/16/2016
G 04.03.1	PHASE 3 TAXIWAY E WEST & F3 NORTH PHASING PLAN	2/16/2016
G 04.04.1	PHASE 4 TAXIWAY F3 SOUTH PHASING PLAN	2/16/2016
G 04.05.1	PHASE 5 TAXIWAY E EAST PHASING PLAN	2/16/2016
G 04.06.1	PHASE 6A TAXIWAY E10 PHASING PLAN	2/16/2016
G 04.07.1	PHASE 6B TAXIWAY E10 PHASING PLAN	2/16/2016
G 04.08.1	PHASE 7A TAXIWAY E10 PHASING PLAN	2/16/2016
G 04.09.1	PHASE 7B TAXIWAY E10 PHASING PLAN	2/16/2016
G 04.10.1	PHASE 8 TAXIWAY E10 PHASING PLAN	2/16/2016
G 04.11.1	TAXIWAY RECONSTRUCTION PHASING DETAILS	2/16/2016
G 04.12.1	PHASE 1 TEMPORARY MARKING AND LIGHTING PLAN	2/16/2016
G 04.13.1	PHASE 2 TEMPORARY MARKING AND LIGHTING PLAN	2/16/2016
G 04.14.1	PHASE 3 TEMPORARY MARKING AND LIGHTING PLAN	2/16/2016
G 04.15.1	PHASE 4 TEMPORARY MARKING AND LIGHTING PLAN	2/16/2016
G 04.16.1	NOT USED	
G 04.17.1	PHASE 6A TEMPORARY MARKING AND LIGHTING PLAN	2/16/2016
G 04.18.1	PHASE 6B AND 8 TEMPORARY MARKING AND LIGHTING PLAN	2/16/2016
G 04.19.1	PHASE 7A TEMPORARY MARKING AND LIGHTING PLAN	2/16/2016
G 04.20.1	PHASE 7B TEMPORARY MARKING AND LIGHTING PLAN	2/16/2016
G 05.01.1	EXISTING CONDITIONS PLAN	2/16/2016
G 05.02.1	EXISTING CONDITIONS PLAN	2/16/2016
G 05.03.1	EXISTING CONDITIONS PLAN	2/16/2016
G 05.04.1	EXISTING CONDITIONS PLAN	2/16/2016
G 07.01.1	HORIZONTAL CONTROL PLAN	2/16/2016
CIVIL		
C 01.01.1	PAVEMENT TYPICAL SECTIONS	2/16/2016
C 01.02.1	PAVEMENT TYPICAL SECTIONS	2/16/2016
C 03.01.1	DEMOLITION PLAN	2/16/2016
C 03.02.1	DEMOLITION PLAN	2/16/2016
C 03.03.1	DEMOLITION PLAN	2/16/2016
C 03.04.1	DEMOLITION PLAN	2/16/2016
C 04.01.1	GEOMETRY PLAN	2/16/2016
C 04.02.1	GEOMETRY PLAN	2/16/2016
C 04.03.1	GEOMETRY PLAN	2/16/2016
C 04.04.1	GEOMETRY PLAN	2/16/2016
C 05.01.1	JOINT PLAN	2/16/2016
C 05.02.1	JOINT PLAN	2/16/2016
C 05.03.1	JOINT PLAN	2/16/2016
C 05.04.1	JOINT PLAN	2/16/2016
C 05.09.1	JOINT DETAILS	2/16/2016
C 06.01.1	PROFILES	2/16/2016
C 06.02.1	PROFILES	2/16/2016
C 06.03.1	PROFILES	2/16/2016
C 07.01.1	GRADING PLAN	2/16/2016
C 07.02.1	GRADING PLAN	2/16/2016
C 07.03.1	GRADING PLAN	2/16/2016
C 07.03.2	GRADING AND DRAINAGE PLAN PHASE 8	2/16/2016
C 07.04.1	GRADING PLAN	2/16/2016
C 07.05.1	ENLARGED GRADING PLAN	2/16/2016
C 07.06.1	ENLARGED GRADING PLAN	2/16/2016
C 07.07.1	ENLARGED GRADING PLAN	2/16/2016
C 07.08.7	ENLARGED GRADING PLAN	2/16/2016
C 07.09.1	ENLARGED GRADING PLAN	2/16/2016
C 07.10.1	ENLARGED GRADING PLAN	2/16/2016
C 07.11.1	DETAILED PAVEMENT ELEVATION PLAN	2/16/2016
C 07.12.1	DETAILED PAVEMENT ELEVATION PLAN	2/16/2016
C 07.13.1	DETAILED PAVEMENT ELEVATION PLAN	2/16/2016
C 07.14.1	DETAILED PAVEMENT ELEVATION PLAN	2/16/2016
C 07.15.1	DETAILED PAVEMENT ELEVATION PLAN	2/16/2016
C 07.16.1	DETAILED PAVEMENT ELEVATION PLAN	2/16/2016
C 07.17.1	DETAILED PAVEMENT ELEVATION PLAN	2/16/2016

TAXIWAY PAVEMENT REPLACEMENT 2016 INDEX OF DRAWINGS

SHEET NO.	SHEET TITLE	ISSUED FOR BID
CIVIL CONT'D		
C 08.01.1	DRAINAGE PLAN	2/16/2016
C 08.02.1	NOT USED	2/16/2016
C 08.03.1	DRAINAGE PLAN	2/16/2016
C 08.04.1	DRAINAGE PLAN	2/16/2016
C 08.05.1	DRAINAGE PROFILES	2/16/2016
C 08.06.1	DRAINAGE DETAILS	N.I.S.
C 08.07.1	DRAINAGE DETAILS	N.I.S.
C 08.08.1	DRAINAGE DETAILS	N.I.S.
C 11.01.1	UNDERDRAIN PLAN	2/16/2016
C 11.02.1	UNDERDRAIN PLAN	2/16/2016
C 11.03.1	UNDERDRAIN PLAN	2/16/2016
C 11.04.1	UNDERDRAIN PLAN	2/16/2016
C 11.05.1	UNDERDRAIN DETAILS	2/16/2016
C 12.01.1	AIRFIELD MARKING PLAN	2/16/2016
C 12.02.1	AIRFIELD MARKING PLAN	2/16/2016
C 12.03.1	AIRFIELD MARKING PLAN	2/16/2016
C 12.04.1	AIRFIELD MARKING PLAN	2/16/2016
C 12.05.1	AIRFIELD MARKING DETAILS	2/16/2016
C 13.01.1	EROSION CONTROL PLAN	2/16/2016
C 13.02.1	EROSION CONTROL PLAN	2/16/2016
C 13.03.1	EROSION CONTROL PLAN	2/16/2016
C 13.04.1	EROSION CONTROL PLAN	2/16/2016
C 13.05.1	EROSION CONTROL DETAILS	2/16/2016
C 13.21.1	SOD AND SEEDING PLAN	2/16/2016
C 13.22.1	SOD AND SEEDING PLAN	2/16/2016
C 13.23.1	SOD AND SEEDING PLAN	2/16/2016
C 13.24.1	SOD AND SEEDING PLAN	2/16/2016
C 19.01.1	PAVEMENT CORE LOCATION PLAN	2/16/2016
AIRFIELD ELECTRICAL		
EA 00.01.1	AIRFIELD ELECTRICAL LEGEND AND NOTES	2/16/2016
EA 01.01.1	AIRFIELD ELECTRICAL DEMOLITION PLAN	2/16/2016
EA 01.02.1	AIRFIELD ELECTRICAL DEMOLITION PLAN	2/16/2016
EA 01.03.1	AIRFIELD ELECTRICAL DEMOLITION PLAN	2/16/2016
EA 01.04.1	AIRFIELD ELECTRICAL DEMOLITION PLAN	2/16/2016
EA 02.01.1	AIRFIELD ELECTRICAL LIGHTING LAYOUT PLAN	2/16/2016
EA 02.02.1	AIRFIELD ELECTRICAL LIGHTING LAYOUT PLAN	2/16/2016
EA 02.03.1	AIRFIELD ELECTRICAL LIGHTING LAYOUT PLAN	2/16/2016
EA 02.04.1	AIRFIELD ELECTRICAL LIGHTING LAYOUT PLAN	2/16/2016
EA 02.21.1	AIRFIELD ELECTRICAL FIXTURE AND SIGN ID PLAN	2/16/2016
EA 02.22.1	AIRFIELD ELECTRICAL FIXTURE AND SIGN ID PLAN	2/16/2016
EA 02.23.1	AIRFIELD ELECTRICAL FIXTURE AND SIGN ID PLAN	2/16/2016
EA 02.24.1	AIRFIELD ELECTRICAL FIXTURE AND SIGN ID PLAN	2/16/2016
EA 02.31.1	AIRFIELD ELECTRICAL FIXTURE LOCATION TABLES	2/16/2016
EA 02.32.1	AIRFIELD ELECTRICAL FIXTURE LOCATION TABLES	2/16/2016
EA 02.33.1	AIRFIELD ELECTRICAL FIXTURE LOCATION TABLES	2/16/2016
EA 03.01.1	AIRFIELD ELECTRICAL LIGHTING CIRCUITING PLAN	2/16/2016
EA 03.02.1	AIRFIELD ELECTRICAL LIGHTING CIRCUITING PLAN	2/16/2016
EA 03.03.1	AIRFIELD ELECTRICAL LIGHTING CIRCUITING PLAN	2/16/2016
EA 03.04.1	AIRFIELD ELECTRICAL LIGHTING CIRCUITING PLAN	2/16/2016
EA 03.11.1	AIRFIELD ELECTRICAL DUCTBANK PROFILES	2/16/2016
EA 04.01.1	AIRFIELD ELECTRICAL LIGHTING DETAILS	2/16/2016
EA 04.02.1	AIRFIELD ELECTRICAL LIGHTING DETAILS	2/16/2016
EA 04.03.1	AIRFIELD ELECTRICAL LIGHTING DETAILS	2/16/2016
EA 04.04.1	AIRFIELD ELECTRICAL LIGHTING DETAILS	2/16/2016
EA 04.05.1	AIRFIELD ELECTRICAL LIGHTING DETAILS	2/16/2016
EA 04.06.1	AIRFIELD ELECTRICAL LIGHTING DETAILS	2/16/2016
EA 04.07.1	AIRFIELD ELECTRICAL LIGHTING DETAILS	2/16/2016
EA 04.08.1	AIRFIELD ELECTRICAL LIGHTING DETAILS	2/16/2016
EA 04.09.1	AIRFIELD ELECTRICAL LIGHTING DETAILS	2/16/2016
EA 04.10.1	AIRFIELD ELECTRICAL LIGHTING DETAILS	2/16/2016
EA 04.11.1	AIRFIELD ELECTRICAL LIGHTING DETAILS	2/16/2016
EA 04.12.1	AIRFIELD ELECTRICAL LIGHTING DETAILS	2/16/2016

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	NA
DRAWN BY	NA
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
COA PROJECT No	HHW
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

DRAWING INDEX

SHEET No

G 01.01.1

NOT ISSUED FOR CONSTRUCTION

2/15/2016 9:42 AM
C:\PW_WORK\ATRNAD01\D0586174\M0056449\46586-G 01.01.1 DRAWING INDEX.DWG

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QTY
DOA SPECIFICATIONS			
SP-1-1	MOBILIZATION	LS	1.00
SP-2-1	PROJECT CONTINGENCY	AL	1.00
SP-3-1	SUSPENSION TIME (7 HOUR CLOSURE)	PER	2.00
SP-3-2	STANDBY TIME	MIN	500.00
SP-3-3	DOWN-TIME (8 HOUR CLOSURE)	PER	4.00
SP-4-1	TRAFFIC CONTROL	LS	1.00
SP-5-1	UTILITY COORDINATION & SCHEDULING	LS	1.00
SP-6-1	WATERING FOR DUST CONTROL	HRS	250.00
SP-7-1	AS-BUILTS	LS	1.00
SP-8-1	AIRCRAFT MOVEMENT AREA (AMA) ESCORTING	LS	1.00
P-101-1	BITUMINOUS PAVEMENT CRACK REPAIR	LF	1,000.00
P-150-1	REMOVAL OF PAVEMENT AND BASE COURSES, VARIABLE THICKNESS	SY	46,900.00
P-150-2	REMOVE AND RELOCATE SIGN	EA	2.00
P-150-3	REMOVE AND RELOCATE LIGHT POLE	EA	1.00
P-152-1	SELECTIVE GRADING	SY	84,500.00
P-152-2	ROCK EXCAVATION	CY	100.00
P-152-3	TRENCH ROCK EXCAVATION	CY	100.00
P-152-4	BACKFILL	CY	80.00
P-152-5	EXCESS EMBANKMENT	CY	4,400.00
P-152-6	SUBGRADE PREPARATION	SY	45,000.00
P-156-1	SEDIMENT/EROSION CONTROL	LS	1.00
P-156-2	INLET SEDIMENT TRAP	EA	28.00
P-156-3	BLOCK FILTER	LF	80.00
P-156-4	SLOTTED BOARD DAM	EA	1.00
P-402-1	BITUMINOUS LEVELING COURSE	TON	9,200.00
P-402-2	RECYCLED ASPHALTIC CONCRETE, 12.5 MM SUPERPAVE, GP 1 OR 2, INCLUDING BITUMINOUS MATERIAL & H LIME	TON	2,500.00
P-402-3	RECYCLED ASPHALTIC CONCRETE, 25 MM SUPERPAVE, GP 1 OR 2, INCLUDING BITUMINOUS MATERIAL & H LIME	TON	7,500.00
P-432-1	MILL BITUMINOUS PAVEMENT, 2" DEPTH	SY	1,500.00
P-501-1	NON-REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT, 20" THICK	SY	26,975.00
P-501-2	REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT, 20" THICK	SY	4,900.00
P-501-3	NON-REINFORCED VARIABLE DEPTH PORTLAND CEMENT CONCRETE PAVEMENT, 20"-26" THICK	SY	4,010.00
P-501-4	REINFORCED VARIABLE DEPTH PORTLAND CEMENT CONCRETE PAVEMENT, 20"-26" THICK	SY	3,650.00
P-501-5	NON-REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT, 16" THICK	SY	860.00
P-501-6	REINFORCED VARIABLE DEPTH PORTLAND CEMENT CONCRETE PAVEMENT, 16"-20" THICK	SY	430.00
P-501-7	LOW SLUMP, LOW STRENGTH PCC	CY	495.00
P-501-8	NON-REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT AT TAXIWAY E10, 16" THICK	SY	2,500.00
P-501-9	REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT AT TW E10, 16" THICK	SY	765.00
P-502-1	GRIND CONCRETE PAVEMENT	SY	1,350.00
P-602-1	BITUMINOUS PRIME COAT	GAL	4,010.00
P-603-1	BITUMINOUS TACK COAT	GAL	6,500.00
P-605-1	COLD APPLIED SEALANT, CONTRACTION, CONSTRUCTION, LONGITUDINAL JOINTS	LF	29,600.00
P-605-2	ASPHALT/PCC JOINT	LF	6,400.00
P-605-3	COLD APPLIED SEALANT, EXPANSION JOINTS	LF	3,400.00
P-615-1	CONCRETE DRAINAGE FLUME	SF	800.00
P-621-1	PAVEMENT STRIPING AND MARKING REMOVAL	SF	36,100.00
P-621-2	PERMANENT PAVEMENT STRIPING AND MARKING	SF	53,350.00
P-621-3	TEMPORARY PAVEMENT STRIPING AND MARKING	SF	26,100.00
P-629-1	COAL TAR SEALER/REJUVENATOR	GAL	2,350.00
P-630-1	THERMOPLASTIC COAL TAR EMULSION SEALCOAT	GAL	600.00
D-701-1	STORM SEWER, RCP, 24" DIAMETER, CLASS V	LF	75.00
D-701-2	PIPE BEDDING, TYPE C	LF	75.00
D-701-3	TRENCH AND EXCAVATION PROTECTION	LS	1.00
D-705-1	6" PERFORATED UNDERDRAIN PIPE	LF	5,050.00
D-705-2	8" PERFORATED UNDERDRAIN PIPE	LF	6,400.00
D-705-3	8" NON-PERFORATED CONCRETE ENCASED PVC PIPE	LF	1,700.00
D-705-4	UNDERDRAIN CLEANOUT	EA	20.00
D-705-5	COARSE AGGREGATE UNDERDRAIN BACKFILL, #89 STONE	CY	2,950.00
D-751-1	INLET TYPE "C"	EA	3.00
D-751-2	DRAINAGE MANHOLE	EA	2.00
D-751-3	RESET EXISTING INLET/MANHOLE TO GRADE	EA	2.00
D-751-4	MISCELLANEOUS CONCRETE	CY	100.00
T-901-1	SEEDING	AC	29,900.00
T-901-2	TEMPORARY SEEDING	AC	29,900.00
T-901-4	WATERING FOR GRASSED AREAS	HRS	355.00
T-904-1	SODDING	SY	10,600.00
T-905-1	TOPSOILING, 4-INCH DEPTH	SY	29,900.00
T-905-2	TOPSOILING, 1-INCH DEPTH	SY	10,600.00
T-908-1	ASPHALT SPRAY MULCHING	SY	60,000.00
U-150-1	INSTALL 36" DIA. SPLIT STEEL SLEEVE AROUND EXISTING WATERMAIN	LF	30.00

ITEM	ITEM DESCRIPTION	UNIT	QTY
L-108-1	#8 AWG, FAA SPECIFICATION L-824, TYPE "C", 5000 VOLT BARE COUNTERPOISE WIRE, INSTALLED IN TRENCH, INCLUDING GROUND RODS AND EXOTHERMIC WELDED	LF	42,000
L-108-2	CONNECTION	LF	18,000
L-108-3	3/4" X 10' COPPER CLAD STEEL GROUND ROD, FOR SAFETY GROUNDING	EA	340
L-108-4	L-823 CONNECTOR KIT	EA	672
L-108-5	CABLE TAG	EA	1,344
L-110-1	2" SCHEDULE 80 PVC DUCT, CONCRETE ENCASED UNDER NEW SHOULDER PAVEMENT	LF	6,500
L-110-2	2" SCHEDULE 80 PVC DUCT, CONCRETE ENCASED UNDER NEW PCC PAVEMENT	LF	6,500
L-110-3	2" SCHEDULE 40 PVC DUCT, DIRECT EARTH BURIED	LF	2,000
L-110-4	MANDREL AND SWAB EXISTING 2" CONDUIT	LF	3,000
L-110-5	2-WAY 4" SCHEDULE 80 PVC DUCT, CONCRETE ENCASED	LF	150
L-111-1	ELECTRICAL MANHOLE	EA	8
L-112-1	PHOTOMETRIC TESTING OF THE LIGHTING SYSTEM	LS	1
L-116-1	2-WAY, 4" DIRECTIONAL DRILL	LF	525
L-116-2	4-WAY, 4" DIRECTIONAL DRILL	LF	500
L-120-1	L-852C(L) LED TAXIWAY CENTERLINE LIGHT, BI-DIRECTIONAL, GREEN/GREEN ON A NEW L-868B BASE CAN IN NEW PAVEMENT	EA	72
L-120-2	L-852D(L) LED TAXIWAY CENTERLINE LIGHT, BI-DIRECTIONAL, GREEN/GREEN ON A NEW L-868B BASE CAN IN NEW PAVEMENT	EA	111
L-120-3	L-852C(L) LED TAXIWAY CLEARANCE BAR LIGHT, UNI-DIRECTIONAL YELLOW ON A NEW L-868B BASE CAN IN NEW PAVEMENT	EA	3
L-121-1	L-852T(L) LED TAXIWAY EDGE LIGHT, ON A NEW L-867B BASE CAN IN MILLED SHOULDER PAVEMENT	EA	6
L-121-2	L-852T(L) LED TAXIWAY EDGE LIGHT, ON A NEW L-867B BASE CAN IN NEW SHOULDER PAVEMENT	EA	81
L-121-3	L-852T(L) LED TAXIWAY EDGE LIGHT ON A NEW L-868B BASE CAN IN NEW FULL STRENGTH PAVEMENT	EA	16
L-121-4	L-852T(L) LED TAXIWAY EDGE LIGHT, INSTALLED ON EXISTING BASE CAN	EA	4
L-122-11	L-858(L) TAXIWAY GUIDANCE SIGN INSTALLED ON NEW CONCRETE BASE, 3-MODULE	EA	17
L-122-22	L-858(L) TAXIWAY GUIDANCE SIGN INSTALLED ON NEW CONCRETE BASE, 5-MODULE	EA	2
L-124-1	ELECTRICAL AIRFIELD DEMOLITION	LS	1
L-124-2	REMOVE EXISTING FIXTURE AND INSTALL 3/4" STEEL PLATE ON L-868B BASE CAN (PERMANENT)	EA	2
L-124-3	INSTALL 3/4" STEEL PLATE ON EXISTING L-868B BASE CAN (TEMPORARY)	EA	16
L-124-3	REMOVE EXISTING FIXTURE AND INSTALL 1/2" STEEL PLATE ON L-867B BASE CAN (TEMPORARY)	EA	4
L-125-2	INSTALLATION OF TEMPORARY EDGE LIGHTING SYSTEM FOR TAXIWAY E-10, COMPLETE, FOR ALL PHASES	LS	1

2/12/2016 7:06 PM
C:\PW_WORK\ATRANA001\D0586174\M0056449\46586-G 03.01.1 SUMMARY OF QUANTITIES.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

SUMMARY OF QUANTITIES

SHEET No

G 02.01.1

GENERAL NOTES

1. ALL COORDINATES ARE BASED ON ATLANTA AIRPORT GRID.
2. ALL ELEVATIONS ARE FROM NAVD88 SURVEY CONTROL.
3. ALL MATERIALS AND CONSTRUCTION METHODS TO BE IN ACCORDANCE WITH THE DEPARTMENT OF AVIATION STANDARDS, AS APPLICABLE.
4. PRIOR TO STARTING WORK, THE CONTRACTOR SHALL SUBMIT A WRITTEN ENVIRONMENTAL COMPLIANCE PLAN FOR APPROVAL, PER THE GENERAL CONDITIONS.
5. DEVIATION FROM THESE PLANS AND SPECIFICATIONS WITHOUT THE PRIOR WRITTEN CONSENT OF THE ENGINEER MAY CAUSE THE WORK TO BE UNACCEPTABLE.
6. IN THE CASE OF UNFORESEEN CONSTRUCTION COMPLICATIONS OR DISCREPANCIES, THE CONTRACTOR IS TO NOTIFY THE OWNER'S REPRESENTATIVE PRIOR TO CONTINUING WITH THE WORK.
7. A CITY REPRESENTATIVE MUST BE PRESENT AT EACH CONSTRUCTION LOCATION WHENEVER THE CONTRACTOR IS PRESENT.
8. THERE MAY BE ADDITIONAL UTILITIES OTHER THAN THOSE SHOWN ON THESE PLANS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR LOCATIONS SHOWN AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS AND NECESSARY INVERTS OF ALL UTILITIES WITHIN THE LIMITS OF CONSTRUCTION. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE DEPARTMENT OF THE UTILITY COMPANIES. THE CONTRACTOR IS RESPONSIBLE FOR THE NOTIFICATIONS AND LIAISON WITH UTILITY COMPANIES IN THE PROCESS OF LOCATING, RELOCATING AND TIE–IN TO THE PUBLIC UTILITIES. IF NECESSARY, THE CONTRACTOR SHALL POTHOLE EXISTING UTILITIES TO VERIFY LOCATION AND ELEVATION.
9. THE CONTRACTOR SHALL HAVE AIRPORT SECURITY BADGED SUPERVISORY PERSONNEL ON ALL WORK SITES. ALL ESCORT PERSONNEL SHALL HAVE AIRPORT SECURITY BADGES. SEE GENERAL CONDITIONS FOR BADGING REQUIREMENTS. DUE TO THE TIME NECESSARY TO COMPLETE THE BADGING AND FINGERPRINTING PROCESS, THE CONTRACTOR MAY START THE PROCESS AFTER CONTRACT AWARD AND BEFORE CONSTRUCTION NOTICE–TO–PROCEED.
10. ALL CONSTRUCTION ACTIVITIES SHALL BE COORDINATED WITH AIRPORT PERSONNEL THROUGH H–JCM. CONTRACTOR SHALL COORDINATE WITH EXISTING AND FUTURE CONTRACTORS WORKING IN THE AREA AND AT ALL TIMES WILL COORDINATE THEIR EFFORTS TO MAINTAIN NECESSARY CONSTRUCTION ACCESS ROUTES AND TO PREVENT CONTRACT DELAYS. CONTRACTOR SHALL, AT ALL TIMES, BE RESPONSIVE TO THE OVERALL NEEDS OF THE AIRPORT COMMUNITY AND LEND FULL COOPERATION TO AIRPORT AUTHORITIES WHEN NEEDED TO ASSURE CONTINUING AIRPORT OPERATIONS. THIS MAY INCLUDE, BUT NOT BE LIMITED TO, SPECIAL TRAFFIC NEEDS, SUCH AS VIP VISITS, CHANGES IN CONSTRUCTION SEQUENCING, ETC. THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS SUCH THAT THE OVERALL AIRPORT FUNCTION IS MAINTAINED. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS THAT ARE PERTINENT TO THIS WORK. THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY TO OBTAIN AND PAY ALL COSTS ASSOCIATED WITH THE PERMITS AND LICENSES REQUIRED TO ACCOMPLISH THIS WORK.
11. FAA REGULATION FOR USE OF CRANES AND OTHER ELEVATED EQUIPMENT WILL BE STRICTLY ENFORCED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING ALL NECESSARY FORMS TO THE CITY AND OBTAINING FAA APPROVAL PRIOR TO CONTRACTOR'S USE OF ANY ELEVATED EQUIPMENT.
12. THE CONTRACTOR SHALL COOPERATE WITH THE FAA AND THE DOA WHEN ALIGNING HIS CONSTRUCTION FLOOD LIGHTS SO AS NOT TO INTERFERE WITH AIRCRAFT PILOTS OR AIR TRAFFIC CONTROLLERS VISION.
13. ALL ESCORTING SHALL BE IN ACCORDANCE WITH GENERAL CONDITIONS, EXHIBIT A. AMA ESCORTS AND CONTRACTOR ESCORTS WILL BE REQUIRED IN THIS PROJECT.
14. THE CONTRACTOR SHALL CONTROL DUST AND DEBRIS FROM THEIR OPERATION TO A LEVEL ACCEPTABLE TO THE CITY AT ALL TIMES. THE CONTRACTOR SHALL HAVE ON THE PROJECT SITE VACUUM SWEEPERS, WATERING TRUCKS AND OTHER EQUIPMENT NECESSARY TO CONTROL DUST AT ALL TIMES. ALL METHODS FOR CONTROLLING DUST SHALL BE SUBJECT TO THE CITY'S APPROVAL. DUST CONTROL SHALL BE STRICTLY MONITORED DUE TO IT'S IMPACT ON AIRCRAFT SAFETY. FAILURE TO PROPERLY CONTROL DUST OR TO RESPOND TO ANY REQUEST TO DO SO WILL RESULT IN CONSTRUCTION ACTIVITIES BEING STOPPED. UPON DAILY COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE AN OPERATOR WITH A VACUUM SWEEPER TO CLEAN AIRFIELD PAVEMENT OF DUST AND DEBRIS.
15. ALL EXCESS MATERIAL PRODUCED BY THE CONTRACTOR'S OPERATIONS SHALL BE DISPOSED OF OFF AIRPORT PROPERTY AT NO COST TO THE CITY.
16. AT NO TIME SHALL EQUIPMENT BE LEFT UNATTENDED ON THE CONSTRUCTION SITE UNLESS APPROVED BY THE ENGINEER, EQUIPMENT SHALL BE KEPT IN DESIGNATED STAGING AREAS.
17. UNINTENDED DAMAGE TO ANY EXISTING STRUCTURE SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CITY.
18. REFER TO SHEET G 03.02.1 FOR CONSTRUCTION CONTROL PLAN AND STAGING AREA.

2/12/2016 7:07 PM
C:\PW_WORK\ATKNADA01\SRA7517\DA6064440\46686-G 02.01.1 GENERAL NOTES.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

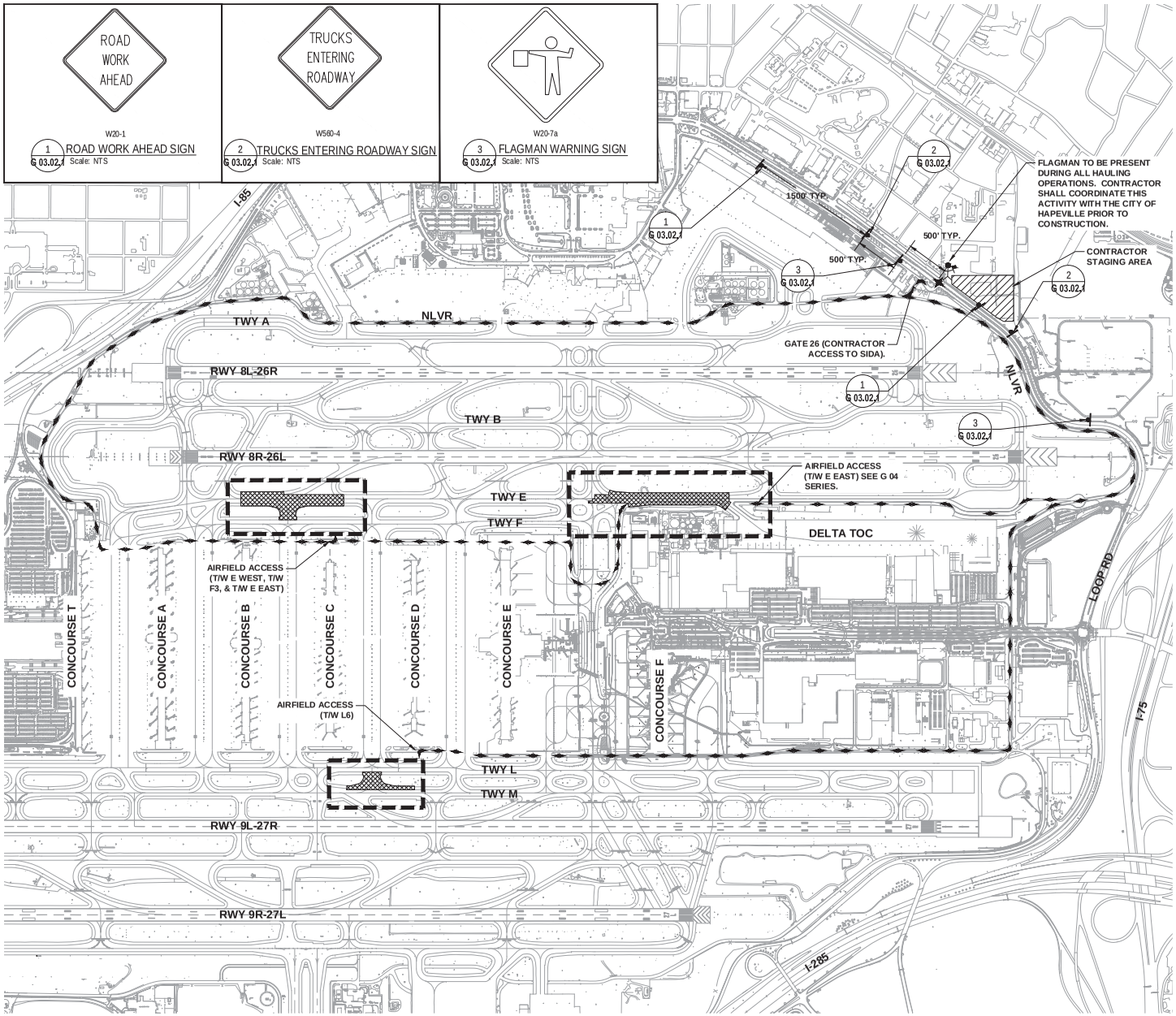
FEBRUARY 16, 2016

SHEET NAME

GENERAL NOTES

SHEET No

G 03.01.1



LEGEND

- PROPOSED LIMITS OF CONSTRUCTION
- PROJECT ACCESS
- HAUL ROUTE
- FLAGMAN REQUIRED DURING CONSTRUCTION HAULING
- ORANGE DIAMOND CONSTRUCTION SIGN

NOTES

1. THE CONTRACTOR WITH THE APPROVAL OF THE AIRPORT SHALL ESTABLISH THE EXACT LIMITS OF THE STAGING AREA FOR MATERIAL STOCKPILING AND OFFICE TRAILERS IN THE AREA SHOWN ON THIS SHEET. THE STAGING AREA SHALL BE ENCLOSED WITH TEMPORARY SECURITY FENCING ACCEPTABLE TO THE AIRPORT TO SEPARATE THE CONTRACTOR'S AREA FROM OTHER OPERATIONS.
2. CONTRACTOR STAGING AREA SHALL INCLUDE:
   - CONTRACTOR OFFICE TRAILER COMPLEX
   - STORAGE OF EQUIPMENT AND MATERIALS
   - MATERIALS STOCKPILE AREA
   - WATER TRUCK FILL STATION
   - BATCH PLANT
4. AIRFIELD ACCESS SHOWN IS FOR INFORMATIONAL PURPOSES. ACCESS BEYOND ZIPPER LINES SHALL BE PERMISSIBLE ONLY BASED ON APPROVED CONTRACTOR WORK PLAN, PHASING, AND APPROVED RUNWAY/TAXIWAY CLOSURES.
5. ALL CONTRACTOR VEHICLES AND TRAFFIC SHALL REMAIN WITHIN THE DESIGNATED CONSTRUCTION OR HAUL AREAS.
6. CONTRACTOR EQUIPMENT MAY NOT BE PARKED WITHIN THE RUNWAY OBJECT FREE AREA WHILE RUNWAYS ARE ACTIVE.
7. ALL REQUIRED UTILITIES FOR THE CONTRACTOR'S STAGING AND OPERATIONAL AREAS IF REQUIRED SHALL BE ARRANGED AND PROMPTLY PAID FOR BY THE CONTRACTOR DIRECTLY WITH THE APPROPRIATE UTILITY AGENCY. UTILITY ARRANGEMENTS SHALL BE SUBJECT TO THE APPROVAL OF THE AIRPORT. NO SEPARATE PAYMENT SHALL BE MADE FOR ANY ITEM REQUIRED FOR THE CONTRACTOR TO ENCLOSE AND SET UP HIS OPERATIONAL AREAS. THE CONTRACTOR SHALL RESTORE THE SITE TO ITS ORIGINAL CONDITION, TO THE SATISFACTION OF THE AIRPORT, UPON COMPLETION OF THE CONTRACTOR WORK. GRASSING IS PART OF THE SITE RESTORATION IF APPLICABLE.
8. CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE DONE TO PAVEMENT DUE TO HAULING OPERATIONS AT A COST INCIDENTAL TO CONSTRUCTION.
9. THE CONTRACTOR'S STAGING AREA AND HAUL ROUTES SHOWN ON THE PLANS ARE GENERAL AND FOR INFORMATIONAL PURPOSES ONLY. THE ACTUAL SIZE AND LOCATION OF STAGING AREA AND HAUL ROUTES SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION.
10. THE CONTRACTOR'S PUBLIC ACCESS ROUTE TO THE STAGING AREA SHALL BE VIA LOOP ROAD ON THE NORTHEAST SIDE OF THE AIRPORT. THE ACCESS ROUTE TO THE PROJECT SITES SHALL BE THROUGH GATE NO. 26, THEN VIA THE AIRPORT'S NON LICENSED VEHICLE ROAD (NLVR) SYSTEM TO THE CONSTRUCTION SITES AS SHOWN.
11. DUST CONTROL SHALL BE STRICTLY MONITORED.
12. REFER TO GENERAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
13. CONTRACTOR TO PROVIDE TRAFFIC CONTROL MEASURES AT THE INTERSECTION OUTSIDE THE STAGING AREA. COORDINATION WITH CITY OF HAPEVILLE IS REQUIRED PRIOR TO CONSTRUCTION.

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	--
H-ZIP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

CONSTRUCTION CONTROL PLAN

SHEET No

G 03.02.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 7:04 PM
C:\PW_WORK\ATRNAGA01\GSR27517\DMS0449\46586~G 03.02.1 CONSTRUCTION CONTROL PLAN.DWG

THIS CONSTRUCTION SAFETY PHASING PLAN, AS REQUIRED BY FAA ADVISORY CIRCULAR 150/5370-2F, STIPULATES RESPONSIBILITIES TO MAINTAIN OPERATIONAL SAFETY ON THE AIRPORT DURING CONSTRUCTION. ALL CONSTRUCTION OPERATIONS EXECUTED DURING THIS CONSTRUCTION PROJECT SHALL CONFORM TO THIS PLAN. INCLUDED IN THE CSPP, THE CONTRACTOR IS REQUIRED TO SUBMIT A SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) TO THE AIRPORT FOR APPROVAL TO BE ISSUED PRIOR TO THE NOTICE-TO-PROCEED (NTP). THE CONTRACTOR WILL DEFINE IN THE SPCD DETAILS HOW THEY WILL ABIDE WITH THE REQUIREMENTS PLACED IN THE CSPP. THE SPCD IS A SUBSET OF THE CSPP, SIMILARLY HOW THE SHOP DRAWING REVIEW IS A SUBSET TO THE TECHNICAL SPECIFICATIONS.

SCOPE OF WORK:
THIS PROJECT CONSISTS OF REPLACING TAXIWAY PAVEMENT AND SHOULDERS IN AND AROUND TAXIWAYS F3, L6 E10 AND ALONG PORTIONS OF TAXIWAY E. THIS WORK WILL INCLUDE EXISTING PAVEMENT REMOVAL, RE-GRADING, PLACEMENT OF PCC AND BITUMINOUS ASPHALT PAVEMENT, SODDING & GRASSING, DRAINAGE STRUCTURE INSTALLATION, UNDERDRAIN REMOVAL AND REPLACEMENT, AND ASSOCIATED AIRFIELD ELECTRICAL ITEMS TO INCLUDE TAXIWAY CENTERLINE & EDGE LIGHTS AND AIRFIELD SIGNAGE.

1. COORDINATION:
COORDINATION MEETINGS ARE HELD THROUGHOUT DESIGN, CONTRACT PROCUREMENT, AND DURING CONSTRUCTION. OPERATIONAL SAFETY IS A STANDING AGENDA TOPIC DURING EVERY PHASE OF THE PROJECT.

A. CONTRACTOR PROGRESS MEETINGS – AIRPORT OPERATORS AND/OR TENANTS IMPACTED DURING CONSTRUCTION HAVE OR WILL HAVE THE OPPORTUNITY TO POSE QUESTIONS AT STAKEHOLDER, PRE-BID, AND PRE-CONSTRUCTION MEETINGS. IN ADDITION, CONSTRUCTION PROGRESS MEETINGS, SCOPE OR SCHEDULE CHANGES, AND MEETINGS WITH THE FAA AIR TRAFFIC ORGANIZATION (ATO) WILL BE HELD AS REQUIRED THROUGH THE PERFORMANCE OF THE CONTRACT.
   1) STAKEHOLDER MEETINGS SHALL BE CONDUCTED TO ENSURE THE SPONSOR, ENGINEER, CONTRACTOR, AND OTHER INTERESTED PARTIES ARE AWARE OF THE PROJECT REQUIREMENTS AND HAVE AN UNDERSTANDING OF THEIR INDIVIDUAL RESPONSIBILITIES, AS WELL AS THE TECHNICAL REQUIREMENTS OF THE CONTRACT.
   2) THE CITY OF ATLANTA (CITY) WILL NOT CONDUCT A PRE-BID CONFERENCE FOR THIS PROJECT. HOWEVER THERE WILL BE A MEETING HELD BY THE ENGINEER TO CLARIFY AND EXPLAIN CONSTRUCTION METHODS, PROCEDURES, AND SAFETY MEASURES REQUIRED BY THE CONTRACT. THE PARTICIPANTS NORMALLY INCLUDE PROSPECTIVE BIDDERS, SUBCONTRACTORS, AND MATERIAL SUPPLIERS.
   3) PRE-CONSTRUCTION CONFERENCE WILL BE HELD WITH THE CONTRACTOR IMMEDIATELY FOLLOWING NTP. A PRE-ACTIVITY MEETING WILL BE HELD PRIOR TO THE START OF EACH CONSTRUCTION ACTIVITY. MEETING ATTENDEES SHALL INCLUDE: AIRSIDE OPERATIONS, LOCAL AIR TRAFFIC CONTROL MANAGEMENT, LOCAL FAA REPRESENTATIVES, DESIGN ENGINEER, CONTRACTOR PERSONNEL, CONSTRUCTION MANAGEMENT STAFF, AIRLINE REPRESENTATIVES, AND OTHER STAKEHOLDERS. THIS PLAN, ALONG WITH THE SPCD, WILL BE REVIEWED AT THE MEETING.
   4) UPON NTP, WEEKLY CONTRACTOR PROGRESS MEETINGS WILL BE HELD THROUGHOUT THE DURATION OF THE PROJECT. AT A MINIMUM, ATTENDEES WILL INCLUDE CONTRACTOR PERSONNEL, CONSTRUCTION MANAGEMENT STAFF, AND AIRSIDE OPERATIONS. OPERATIONAL SAFETY SHALL BE A STANDING AGENDA ITEM FOR DISCUSSION.

B. SCOPE OR SCHEDULE CHANGES – ANY SCOPE AND SCHEDULE CHANGES WILL BE DOCUMENTED BY THE PROJECT CONSTRUCTION MANAGER AND ADDRESSED IN WEEKLY PROGRESS MEETINGS. ANY CHANGES TO THE CSPP WILL REQUIRE DEPARTMENT OF AVIATION (DOA) AND FAA APPROVAL.

C. FAA ATO COORDINATION – POTENTIAL IMPACTS TO NAVIGATIONAL AIDS (NAVAIDS) OR CHANGES TO GRADES SHALL REQUIRE EARLY COORDINATION WITH FAA. STAKEHOLDER MEETINGS SHALL BE SCHEDULED AS NEEDED TO IDENTIFY AND ADDRESS ANY OPERATIONAL IMPACTS. NO IMPACTS TO NAVAIDS ARE ANTICIPATED DURING CONSTRUCTION OF THIS PROJECT.
FAA REGULATIONS FOR THE USE OF CRANES AND OTHER ELEVATED EQUIPMENT WILL BE STRICTLY ENFORCED. FAA APPROVAL WILL BE REQUIRED PRIOR TO THE CONTRACTOR'S USE OF ANY ELEVATED EQUIPMENT. A MINIMUM OF 60 DAYS WILL BE REQUIRED FOR FAA APPROVAL OF FORM(S) 7460 – 1. THIS 60-DAY PERIOD BEGINS THE DATE DOA SUBMITS THE 7460 – 1 TO THE FAA.

2. PHASING:
A. PHASE ELEMENTS – SPECIFIC ACTIVITIES WILL BE COMPLETED INDEPENDENTLY OF EACH OTHER WITH A SEPARATE TAXIWAY CLOSURE.
   1) ALL TAXIWAY CLOSURES WILL REQUIRE COORDINATION AND APPROVAL FROM AIRSIDE OPERATIONS AT LEAST 48-HOURS PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES. FAILURE TO REQUEST CLOSURE AT LEAST 48-HOURS IN ADVANCED MAY RESULT IN WORK BEING CANCELED AT NO COST TO THE CITY. THE TAXIWAY CONSTRUCTION CONTROL PLAN (REFER TO SHEET G 03.02.1) SHOWS AREAS THAT REQUIRE SPECIFIC COORDINATION PRIOR TO CLOSING.
   2) CLOSURE REQUESTS SHALL BE MADE THROUGH THE CONSTRUCTION MANAGER TO AIRSIDE OPERATIONS. AIRSIDE OPERATIONS SHALL COORDINATE APPROVAL AND ALTERNATIVE TRAFFIC ROUTES WITH THE FAA. SOME PRIMARY ROUTES MAY NOT BE CLOSED SIMULTANEOUSLY TO ENSURE CONTINUED TRAFFIC. TAXIWAY CLOSURE BOUNDARIES SHALL BE LIMITED BY THE SCOPE OF WORK TO BE ACCOMPLISHED DURING A CLOSURE PERIOD. CONTRACTOR SHOULD ANTICIPATE NO MORE THAN ONE TAXIWAY CLOSURE PER PROJECT LOCATION AT A TIME. REQUESTS FOR ADDITIONAL TAXIWAY CLOSURES SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL.
   3) THE CONTRACTOR SHALL SCHEDULE ITS' OPERATION TO COMPLETE ALL WORK WITHIN THE SPECIFIED TIME PERIODS AND SHALL HAVE SUFFICIENT LABOR, MATERIALS, AND EQUIPMENT ON HAND TO ACCOMPLISH THIS.
   4) THE INTENT OF CLOSURES IS TO PROVIDE THE CONTRACTOR SUFFICIENT WORK AREAS TO COMPLETE THE WORK WITHIN THE TIME PERIODS SPECIFIED AND TO ADEQUATELY MAINTAIN AIRCRAFT OPERATIONS. THE CONTRACTOR WILL BE ALLOWED ACCESS TO ONLY THE PORTIONS OF THE RUNWAY OR TAXIWAY CLOSURE AREA THAT CAN BE COMPLETED DURING THE CLOSURE TIME FRAME.
   5) CONTRACT DURATION IS 330 DAYS. NIGHT WORK ON TAXIWAYS WILL BE ACCOMPLISHED FROM 2330 – 0630 AND THE LAST TAXIWAY RE-OPENING MUST OCCUR BY 0630. REFER TO PHASE NOTES FOR DURATION ON THE CONSTRUCTION PHASING PLAN DRAWINGS. ONCE A PHASE AREA IS CLOSED FOR CONSTRUCTION, CONTRACTOR IS TO WORK 24/7 UNTIL PHASE AREA IS REOPENED.
   6) AIRFIELD AREAS SCHEDULED FOR CLOSURE FOR CONSTRUCTION ACTIVITIES WILL NOT BE CLOSED UNTIL ALL PERSONNEL, EQUIPMENT, AND MATERIALS ARE STAGED AND READY TO MOVE INTO THE WORK AREA.
   7) AIRPORT RESCUE AND FIRE FIGHTING (ARFF) ACCESS ROUTES AND ROUTES USED BY SUPPORT VEHICLES WILL NOT BE AFFECTED BY THIS CONSTRUCTION. IF ANY ACTIVITY HAS THE POTENTIAL TO IMPACT AN ACCESS ROUTE, ALL AFFECTED AGENCIES WILL BE NOTIFIED.
   8) REFER TO SHEET G 03.02.1. FOR CONSTRUCTION STAGING AREA AND HAUL ROUTES. STAGING AREA INCLUDES MATERIAL STORAGE AREA, EQUIPMENT STAGING, AND PARKING. CONSTRUCTION ACCESS TO THE PROJECT SITE SHALL BE THROUGH THE INDICATED ACCESS GATES.
   9) DURING ALL PHASES OF OPERATION THE CONTRACTOR'S FIRST RESPONSIBILITY SHALL BE SAFETY. THUS, THE CONTRACTOR SHALL BE REQUIRED TO KEEP THE ROADWAYS, TAXIWAYS, AND APRONS FREE OF ALL EQUIPMENT, DEBRIS AND WASTE PRODUCTS EXCEPT FOR THOSE EXCLUSIVELY REQUIRED IN THE CONTRACTOR'S WORK AREA. AS AN ADDED MEASURE OF SAFETY, THE CONTRACTOR SHALL MAINTAIN ACCESS TO VACUUM SWEEPERS, WATERING TRUCKS AND OTHER EQUIPMENT NECESSARY TO CONTROL DUST AT ALL TIMES ON THE PROJECT. DUST CONTROL SHALL BE STRICTLY MONITORED DUE TO ITS IMPACT ON AIRCRAFT SAFETY, FAILURE TO PROPERLY CONTROL DUST OR TO RESPOND TO ANY REQUEST TO DO SO WILL RESULT IN CONSTRUCTION ACTIVITIES BEING STOPPED AT NO COST TO THE CITY.

B. CONSTRUCTION SAFETY DRAWINGS – REFER TO PHASING DRAWINGS FOR TRAFFIC CONTROL, SCHEDULING CLOSURES FOR CONSTRUCTION, NAVAID CRITICAL AREAS, HAUL ROUTES, AND REQUIRED HAZARD MARKING AND LIGHTING.

3. AREAS AND OPERATIONS AFFECTED BY CONSTRUCTION ACTIVITIES:
RUNWAYS AND TAXIWAYS SHALL REMAIN IN USE BY AIRCRAFT TO THE MAXIMUM EXTENT POSSIBLE WITHOUT COMPROMISING SAFETY. PRE-MEETINGS WITH THE FAA ATO WILL ADDRESS OPERATIONAL AFFECTS.
A. IDENTIFICATION OF AFFECTED AREAS – THIS PROJECT WILL REQUIRE LIMITING CERTAIN AIRCRAFT OPERATIONS ON THE RUNWAY AND TAXIWAY BY RESTRICTING THE USABLE AREA.
IMPACTS WILL VARY BASED ON NORMAL OPERATIONS OF AN AREA, CONSTRUCTION PHASE, AND DURATION OF WORK.
B. MITIGATION OF EFFECTS – TEMPORARY CHANGES TO TAXI OPERATIONS; MAINTENANCE OF ESSENTIAL UTILITIES; TEMPORARY CHANGES TO AIR TRAFFIC CONTROL PROCEDURES.

4. PROTECTION OF NAVAIDS:
BEFORE COMMENCING CONSTRUCTION ACTIVITY, PARKING VEHICLES, OR STORING CONSTRUCTION EQUIPMENT AND MATERIALS NEAR A NAVAID, THE CONTRACTOR SHALL COORDINATE WITH AIRPORT ENGINEERING AND OPERATIONS WHO WILL COORDINATE TO EVALUATE THE EFFECT OF CONSTRUCTION ACTIVITY, AND DETERMINE THE REQUIRED DISTANCES AND DIRECTION FROM THE NAVAID. CONTRACTOR PERSONNEL SHALL BE AWARE OF CRITICAL AREA LOCATIONS AND REMAIN CLEAR OF THE AREAS DURING LOW VISIBILITY. NO MATERIAL OR CONSTRUCTION WILL BE STOCKPILED OR STORED NEAR ANY NAVAIDS.

5. CONTRACTOR ACCESS:
A. LOCATION OF STOCKPILED CONSTRUCTION MATERIALS – THE CONTRACTOR MAY SET UP A STAGING AREA OUTSIDE OF THE AOA AS DEPICTED ON SHEET G 03.02.1. THIS AREA SHALL BE USED FOR MATERIAL STOCKPILING, LAYDOWN, AND OFFICE TRAILERS. THE EXACT LIMITS OF THE CONTRACTOR'S STAGING AREA SHALL BE ESTABLISHED BY THE CONTRACTOR WITH THE APPROVAL OF THE CONSTRUCTION MANAGER IN THE AREA SHOWN. THE PUBLIC ACCESS AREAS SHALL BE ENCLOSED BY TEMPORARY SECURITY FENCING ACCEPTABLE TO THE CITY. ALL REQUIRED UTILITIES FOR THE CONTRACTOR'S STAGING AREA SHALL BE ARRANGED AND PROMPTLY PAID FOR BY THE CONTRACTOR DIRECTLY WITH THE APPROPRIATE UTILITY AGENCY. UTILITY ARRANGEMENTS SHALL BE SUBJECT TO THE APPROVAL OF THE CITY. THE CONTRACTOR SHALL RESTORE THE SITE TO A CONDITION THAT IS CLEAN AND FREE OF DEBRIS WITH A GRAVEL SURFACE AND FENCE INTACT UPON COMPLETION OF THE PROJECT. THE CONTRACTOR MAY SET UP A CONCRETE BATCH PLANT IN THE STAGING AREA WITH THE APPROVAL OF THE CITY. ADDITIONALLY, THE CONTRACTOR SHALL RESTORE THE SITE TO ITS ORIGINAL CONDITION UPON COMPLETION OF THE PROJECT.
B. VEHICLE AND PEDESTRIAN OPERATIONS – THE CONTRACTOR'S ACCESS ROUTES TO THE PROJECT SITES SHALL BE VIA SECURITY GATE 26 AND THE NON-LICENSED VEHICLE ROAD (NLVR), UNLESS OTHERWISE COORDINATED WITH THE CONSTRUCTION MANAGER. THE CONTRACTOR MAY OPEN THE GATE TO ALLOW THE EQUIPMENT AND VEHICLES TO PASS THROUGH INTO THE AIRCRAFT OPERATING AREA (AOA), PROVIDED THE VEHICLES HAVE PASSES AND THE CONTRACTOR'S REPRESENTATIVE HAS A VALID SECURITY BADGE.
THE CONTRACTOR'S ACCESS ROUTE TO THE PROJECT SITE AND HAUL ROUTE ARE SHOWN ON SHEET G 03.02.1 CONSTRUCTION CONTROL PLAN. THE HAUL ROUTE IS FOR USE BY MULTIPLE CONTRACTORS. ALL HAUL ROADS REQUIRED BY THE CONTRACTOR SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND ANY ASSOCIATED COST SHALL BE INCLUDED IN THE GENERAL COST OF THE WORK. THE CONTRACTOR SHALL REPAIR ANY AND ALL HAUL ROUTES DAMAGED BY HIS OR HER CONSTRUCTION/HAULING ACTIVITIES AT NO COST TO THE OWNER. USE OF UNAUTHORIZED HAUL ROUTES SHALL NOT BE PERMITTED. ROADS USED BY THE CONTRACTOR FOR ACCESS OR HAULING SHALL BE KEPT CLEAN AND ACCESSIBLE TO ALL OTHER AIRPORT TRAFFIC FOR THE ENTIRE DURATION OF THE PROJECT. NO SEPARATE PAYMENT SHALL BE MADE FOR KEEPING THE ROADS CLEAR AND ACCESSIBLE.
HAUL TRUCKS MUST BE COVERED AND ANY SPILLAGE OR DEBRIS BUILDUP PROMPTLY REMOVED FROM ALL HAUL ROUTES ON AIRPORT OR ON PUBLIC ROADS.
WHEN MOVING EQUIPMENT ACROSS ACTIVE TAXIWAYS AND TAXILANES IS REQUIRED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PRIOR APPROVAL FROM AIRSIDE OPERATIONS AND USE AIRCRAFT MOVEMENT AREA (AMA) CROSSING GUARDS OR ESCORTS. FOR EACH ACTIVE TAXIWAY AND TAXILANE CROSSING, THE CONTRACTOR SHALL PROVIDE AN OPERATOR WITH A VACUUM SWEEPER CONSTANTLY KEEPING THE CROSSING FREE FROM DUST AND DEBRIS.
C. MECHANISMS TO PREVENT IMPROPER MOVEMENT: CONTRACTOR OPERATIONS WITHIN THE SECURITY IDENTIFICATION DISPLAY AREA (SIDA) OR AOA ARE LIMITED TO THE WORK AREAS SHOWN ON THE PLANS. A VISUAL DELINEATION WILL BE PROVIDED BY THE CONTRACTOR BETWEEN THE WORK AREAS AND THE RUNWAY SAFETY AREA AND TAXIWAY OBJECT FREE AREA WHEN DIRECTLY ADJACENT TO ONE ANOTHER. THE PLANS SHOW LOCATIONS OF WORK AREA BOUNDARIES, WHICH GENERALLY FOLLOW OBJECT FREE AREAS OF ADJACENT OPEN PAVEMENT. CONSTRUCTION VEHICLES AND PERSONNEL MUST NOT CROSS BARRICADES OR OTHER VISUAL IDENTIFIERS AT ANY TIME WITHOUT AN ESCORT FROM AIRSIDE OPERATIONS PERSONNEL OR APPROVAL FROM GROUND CONTROL.
D. PARKING AREAS FOR PERSONAL VEHICLES AND EQUIPMENT: CONTRACTOR EMPLOYEE PERSONAL VEHICLES MAY NOT BE PARKED OR DRIVEN IN THE SIDA OR AOA. EMPLOYEE PARKING AREAS ARE IDENTIFIED ON THE PLANS.
CONTRACTOR VEHICLES AND EQUIPMENT ARE ALLOWED INSIDE OF THE PROJECT WORK AREA WITHIN THE SIDA WHERE APPROVED BY THE AIRPORT FOR EACH PHASE. EQUIPMENT STAGING AND PARKING AREAS ARE AS SHOWN IN THE PLANS. NO NON-ACTIVE CONTRACTOR EQUIPMENT IS PERMITTED WITHIN AN ACTIVE RUNWAY OBJECT FREE AREA (400-FT FROM CENTERLINE) OR TAXIWAY OBJECT FREE AREA (193-FT FROM CENTERLINE TAXIWAY M, 160-FT FROM CENTERLINE FOR ALL OTHER TAXIWAYS).
E. CONTRACTOR VEHICLE MARKING AND LIGHTING: EACH CONTRACTOR LICENSED VEHICLE MUST MEET THE REQUIREMENTS OF THE AIRPORT SECURITY OFFICE REQUIREMENTS. IN ADDITION, MARKING AND LIGHTING OF VEHICLES SHALL BE IN ACCORDANCE WITH FAA AC 150/5210-5D – PAINTING, MARKING AND LIGHTING OF VEHICLES USED ON AIRPORTS.
F. DRIVING, TRAINING, AND SITUATIONAL AWARENESS: THE FOLLOWING RULES OF OPERATION MUST BE FOLLOWED AT ALL TIMES WHEN DRIVING ON THE AIRPORT:
   1) CONTRACTOR SHALL TRAIN ALL PERSONNEL DRIVING ON THE AIRPORT AND SHALL MAKE THEM AWARE OF AIRPORT PROCEDURES, SAFETY, RISKS, AND THE FACT THAT AIRCRAFT ALWAYS HAVE THE RIGHT-OF-WAY. CONTRACTOR SHALL REFER TO AC 150/5210-20 – GROUND VEHICLE OPERATIONS ON AIRPORTS, FOR MORE INFORMATION.
   2) NO PERSON SHALL OPERATE MOTORIZED VEHICLES OR EQUIPMENT OF ANY KIND ON THE AIRPORT UNLESS IN POSSESSION OF VALID OPERATOR'S LICENSE FOR THE TYPE OF VEHICLE BEING OPERATED.
   3) NO PERSON SHALL OPERATE A MOTORIZED VEHICLE WITHIN THE SIDA UNLESS THEY HAVE A "D" DESIGNATION ON THEIR SIDA BADGE OR THEY ARE BEING ESCORTED BY AN AIRPORT APPROVED ESCORT. TO OBTAIN A "D" DESIGNATION, PERSONNEL MUST TAKE AND PASS THE AIRSIDE OPERATIONS DRIVER'S TRAINING COURSE.
   4) NO PERSON SHALL OPERATE A MOTOR VEHICLE OR OTHER MOTORIZED EQUIPMENT OF ANY KIND ON THE AIRPORT IN A RECKLESS OR NEGLIGENT MANNER OR WITHOUT CAUTION OR IN ANY MANNER THAT ENDANGERS OR IS LIKELY TO ENDANGER PERSONS OR PROPERTY, OR IN EXCESS OF THE POSTED SPEED LIMIT.
   5) ALL VEHICLES AND PEDESTRIANS SHALL GIVE RIGHT-OF-WAY TO AIRCRAFT TRAFFIC, NO EXCEPTIONS. ALL GROUND VEHICLES SHALL PASS TO THE REAR OF TAXIING AIRCRAFT AFTER ACCOUNTING FOR POSSIBLE JET BLAST EFFECTS.
   6) NO PERSON UNDER THE INFLUENCE OF ALCOHOL OR DRUGS SHALL OPERATE A MOTOR VEHICLE ON THE AIRPORT.
   7) CONTRACTOR WILL NOT BE ALLOWED TO OPERATE MOTOR VEHICLES OUTSIDE OF THE DESIGNATED WORK AREAS AS IDENTIFIED BY BARRICADES INCLUSIVE OF THE APPROVED CONTRACTOR HAUL ROUTE. NO CROSSING OF A ZIPPER LINE IS PERMITTED WITH THE EXCEPTION OF A DESIGNATED HAUL ROUTE. NO CROSSING OF ACTIVE TAXIWAYS IS PERMITTED WITH THE EXCEPTION OF A CROSSING THAT INCLUDES A FLAGMAN OR ESCORT VEHICLE THAT HAS RADIO CONTACT WITH THE AIR TRAFFIC CONTROL TOWER. ABSOLUTELY NO CROSSING OF ACTIVE RUNWAYS OR INCURSIONS INTO ACTIVE RUNWAY SAFETY AREAS IS PERMITTED.
   8) DRIVERS SHALL BE ESPECIALLY COGNIZANT AND AWARE WHILE DRIVING ON AIRPORT. VEHICLE DRIVERS MUST CONFIRM BY PERSONAL OBSERVATION THAT NO AIRCRAFT IS APPROACHING THEIR POSITION (EITHER IN THE AIR OR ON THE GROUND) WHEN GIVEN CLEARANCE TO CROSS A TAXIWAY, OR ANY OTHER AREA OPEN TO AIRSIDE OPERATIONS.
   9) OTHER RESTRICTIONS AS DEFINED BY THE ATL SECURITY AND SAFETY GUIDELINES INCLUDED IN THE GENERAL PROVISIONS AND IN THE AIRSIDE OPERATIONS DRIVER'S TRAINING COURSE SHALL BE FOLLOWED.
G. RADIO COMMUNICATIONS – WHEN OPERATING VEHICLES ON OR NEAR OPEN RUNWAYS OR TAXIWAYS, ALL PARTIES MUST UNDERSTAND THE CRITICAL IMPORTANCE OF MAINTAINING RADIO CONTRACT, AS DIRECTED BY AIRSIDE OPERATIONS DURING AMA DRIVER TRAINING. THE TRAINING PROVIDED BY AIRSIDE OPERATIONS ENCOMPASSES SITUATIONAL AWARENESS, FAMILIARIZATION, PROPER RADIO PHRASEOLOGY, AND FREQUENCIES. AIRSIDE OPERATIONS MAY DESIGNATE THE CONSTRUCTION MANAGEMENT INSPECTOR, AND IN ADDITION TO, AN AMA ESCORT OR CROSSING GUARD TO COMMUNICATE WITH THE FAA ATCT TO PROVIDE THE CONTRACTOR AND THEIR PERSONNEL WITH ESCORTS OR CROSSING POINTS ON THE AMA. THE INSPECTOR, AMA ESCORT, AND CROSSING GUARD SHALL COORDINATE WITH AIRSIDE OPERATIONS FOR APPROPRIATE FREQUENCIES TO BE USED.
H. SECURITY – ALL CONTRACTOR PERSONNEL INCLUDING SUBCONTRACTORS SHALL HAVE A CONTRACTOR PROVIDED PHOTO ID. ALL CONTRACTOR PERSONNEL AND SUBCONTRACTORS WORKING WITHIN THE SIDA/AOA SHALL HAVE AIRPORT SECURITY BADGES OR BE ESCORTED BY APPROVED CONTRACTOR BADGED ESCORT PERSONNEL. ALL PERSONNEL DRIVING ON THE AOA ARE REQUIRED TO PASS THE NECESSARY EXAMS AND DRIVER'S TEST AS SPECIFIED IN THE CONTRACT DOCUMENTS. SIDA INCLUDES ALL AREAS WITHIN THE AIRPORT SECURITY FENCE. THE AOA INCLUDES AREAS IN OR WITHIN CLOSE PROXIMITY TO AIRCRAFT MOVEMENT AREAS. SEE CONTRACT DOCUMENTS FOR BADGING REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BEING FAMILIAR WITH ALL REQUIREMENTS FOR ENTERING AND OPERATING IN THE AOA. ESCORT PERSONNEL SHALL BE APPROVED BY THE AIRPORT SECURITY OFFICE FOR WORKING WITHIN SIDA AND BY THE AIRSIDE OPERATIONS OFFICE FOR WORKING WITHIN THE AOA. EACH ESCORT VEHICLE IS ALLOWED TO ESCORT A MAXIMUM OF TWO VEHICLES. ALL ESCORT PERSONNEL SHALL HAVE AIRPORT BADGES. SEE CONTRACT DOCUMENTS FOR BADGING REQUIREMENTS.
ALL COST ASSOCIATED WITH ESTABLISHING AND MAINTAINING SIDA SECURITY, SECURITY GUARD POSTS, SECURITY GUARDS, AND SIDA ESCORTING SHALL BE INCLUDED IN THE PRICE BID FOR MOBILIZATION.
THE CONTRACTOR SHALL INSTALL A TEMPORARY SECURITY GUARD POST AT EXISTING GATES IN USE. AT NO TIME SHALL THE GATE BE UNLOCKED OR UNATTENDED. WHEN ACTIVELY IN USE, THIS SECURITY GUARD POST SHALL BE MANNED BY TWO UNIFORMED SECURITY GUARDS FURNISHED BY AND PAID FOR BY THE CONTRACTOR. THE GUARD'S DUTIES SHALL INCLUDE MONITORING TRAFFIC IN AND OUT OF THE SIDA AND PREVENTING UNAUTHORIZED PERSONNEL FROM ENTERING THE SECURE AREA. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE CITY WITH A SCHEDULE SHOWING THE NUMBER OF GUARDS AND TIMES NECESSARY TO SECURE EACH GUARD POST AT LEAST ONE WEEK IN ADVANCE. THE CONTRACTOR SHALL PAY ALL BILLS RELATIVE TO THE SECURITY SERVICES IN A TIMELY MANNER. FAILURE TO DO SO SHALL CAUSE PAYMENT TO BE WITHHELD FROM THE CONTRACTOR'S PERIODIC PAYMENT.
AT EACH GUARD POST, THE CONTRACTOR SHALL PROVIDE A BOOTH THAT IS HEATED, AIR CONDITIONED, ELECTRICALLY LIGHTED, AND PROVIDES SANITARY FACILITIES, AND AN ELECTRICALLY OPERATED GATE ARM. THE CONTRACTOR SHALL ALSO FURNISH AND MAINTAIN A PHONE IN ADDITION TO THE PORTABLE RADIO THAT OPERATES ON THE CITY'S OPERATIONAL FREQUENCY FOR THE GUARD POST. THE SECURITY GUARD SHALL MONITOR BOTH THE PHONE AND THE RADIO AND USE THEM TO INFORM THE APPROPRIATE AUTHORITIES IN THE EVENT OF A SECURITY VIOLATION.
THE CONTRACTOR SHALL OBTAIN PERMITS FOR THE VEHICLES HE ANTICIPATES UTILIZING IN THE PERFORMANCE OF THE WORK. ANY UN-PERMITTED VEHICLES, ALL EQUIPMENT AND ANY BADGED PERSONNEL SHALL BE ESCORTED TO AND FROM THE PROJECT WORK SITES BY ONLY ESCORTS APPROVED BY THE CITY'S SECURITY MANAGER AND PROVIDED BY THE CONTRACTOR. EACH ESCORT VEHICLE IS ALLOWED TO ESCORT A MAXIMUM OF TWO VEHICLES. BEFORE THE CONTRACTOR'S ESCORT VEHICLES ARE ALLOWED ON THE AOA TO ESCORT UNPERMITTED VEHICLES, THE CONTRACTOR'S ESCORT PERSONNEL MUST BE CERTIFIED BY AIRSIDE OPERATIONS. AN AIRSIDE OPERATIONS TRAINING CLASS MUST BE ATTENDED BY THE CONTRACTOR'S ESCORT PERSONNEL TO OBTAIN THIS CERTIFICATION. VEHICLES MUST MEET OCIP REQUIREMENTS.
ALL CONTRACTOR PERSONNEL INCLUDING SUBCONTRACTORS ON THE PROJECT SHALL HAVE AND DISPLAY PROPERLY AN OCIP SAFETY BADGE ISSUED BY THE DOA. THIS BADGE DISPLAYING A PHOTO OF EMPLOYEE SHALL BE WORN AT ALL TIMES WHILE ON THE AIRPORT. TO OBTAIN THIS BADGE EACH EMPLOYEE SHALL ATTEND A TWO – HOUR SAFETY CLASS GIVEN AT 7:00 AM EACH MORNING AT THE AIRPORT.

6. WILDLIFE MANAGEMENT:
CONTRACTOR MUST CAREFULLY CONTROL AND CONTINUOUSLY REMOVE WASTE OR LOOSE MATERIALS THAT MIGHT ATTRACT WILDLIFE. THE CONTRACTOR MUST BE AWARE OF AND AVOID CONSTRUCTION ACTIVITIES THAT CAN CREATE WILDLIFE HAZARDS ON THE AIRPORT. IN ADDITION, THE FEEDING OF WILDLIFE IS STRICTLY PROHIBITED. SUCH ACTIVITY SHALL BE NOTIFIED TO AIRSIDE OPERATIONS.
A. TRASH – ALL FOOD REMAINS AND TRASH SHALL BE COLLECTED AND STORED IN A SUITABLE CONTAINER EACH DAY. THE CONTAINER SHALL HAVE A STURDY LID AND REMAIN SECURELY CLOSED AT ALL TIMES.
B. STANDING WATER – STANDING WATER SHALL NOT BE PERMITTED. CONTRACTOR SHALL MANAGE OPERATIONS TO MINIMIZE STANDING WATER.
C. TALL GRASS AND SEEDS – CONTRACTOR SHALL NOT ALLOW GRASS OR WEEDS TO GROW HIGHER THAN 6" WITHIN THE WORK SITE. A MONOCULTURAL STAND OF GRASS MUST BE ESTABLISHED FOR ALL DISTURBED AREAS THAT ARE BEING RETURNED TO TURF THROUGHOUT THE AIRFIELD. CONTRACTOR SHALL ESTABLISH MOWING SCHEDULES TO MAINTAIN NEW GRASS UNTIL THE GRASS IS ACCEPTED AND TURNED OVER TO THE OPERATOR. IN ADDITION, MILLET GRASS SEED WILL NOT BE PERMITTED IN SEEDING OPERATIONS SINCE IT'S A BIRD ATTRACTANT. CONTRACTOR SHALL REFER TO SPECIFICATION T-901 IN THE CONTRACT FOR SEEDING REQUIREMENTS.
D. FENCING AND GATES – CONSTRUCTION SITE IS INSIDE THE AIRPORT SECURITY CHAIN LINK FENCE. ANY DAMAGE TO THE SIDA FENCE SHALL BE PROMPTLY REPAIRED, AND DOA SECURITY SHALL BE NOTIFIED.
E. DISTRIBUTION OF EXISTING WILDLIFE HABITAT – NO ENDANGERED OR THREATENED WILDLIFE SPECIES ARE KNOWN TO INHABIT THE CONSTRUCTION SITE. HOWEVER, THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION INSPECTOR SHOULD ANIMAL ACTIVITY BE OBSERVED IN THE CONSTRUCTION AREA. THE INSPECTOR SHALL NOTIFY AIRSIDE OPERATIONS.

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	--
H-JDP WBS No	D.02.90.017

PROJECT ELEMENT
AIRSIDE

PROJECT NAME
TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR
BID

DATE
DECEMBER 22, 2015

SHEET NAME
CONSTRUCTION SAFETY AND PHASING PLAN NOTES

SHEET No
G 03.03.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 7:28 PM
C:\PW_WORK\ATKNAGA01\ISRA7517\DMS06449\46586-G 03.04.1 SAFETY NOTES AND DETAILS.DWG

7. FOREIGN OBJECT DEBRIS (FOD) MANAGMENT:
   A. FOD AT AIRPORTS INCLUDES ANY OBJECT FOUND THAT CAN DAMAGE AIRCRAFT, EQUIPMENT, OR AIRPORT PERSONNEL. ON CONSTRUCTION SITES, FOD TYPICALLY IS COMPRISED OF LOOSE GRAVEL, BLOWING SAND, WIRE BRISTLES FROM SWEEPER HEADS, FOOD WRAPPERS, MATERIAL PACKAGING, AMONG OTHER DEBRIS. THE PRESENCE OF FOD IN THE AMA POSES A SIGNIFICANT THREAT TO THE SAFETY OF AIR TRAVEL. FOD HAS THE POTENTIAL TO DAMAGE AIRCRAFT DURING CRITICAL PHASES OF FLIGHT, WHICH CAN LEAD TO CATASTROPHIC LOSS OF LIFE AND AIRCRAFT, AND AT THE VERY LEAST INCREASED MAINTENANCE AND OPERATING COSTS. THE CONTRACTOR SHALL PREFORM CONSTRUCTION IN A MANNER THAT, AT THE END OF THE CLOSURE PERIOD, THE SAFETY AREAS AND AIRFIELD PAVEMENT ARE CLEAN AND IN A CONDITION SUITABLE FOR AIRSIDE OPERATIONS TO REOPEN THE PAVEMENT SECTION TO AIRCRAFT OPERATIONS.
   B. CONTRACTOR SHALL BE HELD RESPONSIBLE TO PROVIDE A FOD MANAGEMENT PREVENTION PLAN THAT SHOULD ADDRESS THE FOLLOWING:
      1) PROPER STORAGE, SHIPPING AND HANDLING OF MATERIAL COMPONENTS AND EQUIPMENT.
      2) COMPONENTS AND EQUIPMENT TECHNIQUES TO CONTROL DEBRIS.
      3) HOUSEKEEPING
      4) ACCOUNTABILITY/CONTROL OF TOOLS AND HARDWARE.
      5) CONTROL OF PERSONAL ITEMS, EQUIPMENT AND CONSUMABLES.
      6) QUALITY WORKMANSHIP ("CLEAN AS YOU GO" INSPECTIONS).
      7) FLIGHTLINE, TAXIWAY/TAXILANE, AND RAMP CONTROL METHODS.
      8) HOW TO REPORT FOD INCIDENTS OR POTENTIAL INCIDENTS.
   C. CONTRACTOR SHALL INSTRUCT PERSONNEL ABOUT THE IMPORTANCE OF MANAGING THEIR WASTE MATERIALS AND CONDUCT DAILY INSPECTION OF THE WORK SITE TO ENSURE THAT LOOSE MATERIALS ARE SECURED.
   D. CONTRACTOR OPERATIONS ON OR NEAR AIRCRAFT OPERATING SURFACES SHALL BE KEPT CLEAN OF LOOSE DEBRIS. DIRT AND DEBRIS CREATED BY CONTRACTOR OPERATIONS SHALL BE PROMPTLY REMOVED AND THE SURFACE CLEANED.
8. HAZARDOUS MATERIAL (HAZMAT) MANAGMENT:
   A. CONTRACTOR OPERATING ANY MECHANICAL EQUIPMENT ON AIRPORT MUST BE PREPARED TO IMMEDIATELY SUSPEND WORK TO MITIGATE AND CLEAN SPILLS FROM FUEL, HYDRAULIC FLUID, OR OTHER CHEMICAL SPILLS. THE CONTRACTOR IS EXPECTED TO NOTIFY AIRSIDE OPERATIONS AND AIRPORT COMMUNICATION CENTER (C4 – 404-530-6666) AS SOON AS A SPILL OCCURS. WASHING CHEMICAL DOWN A DRAIN OR INTO GRASS WITH WATER IS NEVER PERMITTED, AND AIRSIDE OPERATIONS AS WELL AS ENVIRONMENTAL SHALL BE NOTIFIED IMMEDIATELY. CONTRACTOR SHALL BE FAMILIAR WITH HAZMAT PROCEDURES PRIOR TO ISSUANCE OF NTP INCLUDING, BUT NOT LIMITED TO: FUEL STORAGE LOCATIONS, SPILL PROCEDURES, AND MATERIAL SAFETY DATA SHEETS (MSDS).
   B. CONTRACTOR SHALL MAINTAIN A COMPLETE FILE OF MSDS SHEETS ON SITE AS REQUIRED. COPIES OF MSDS SHEETS SHALL BE PROVIDED TO THE ENGINEER PRIOR TO BRINGING MATERIALS ONTO AIRPORT PROPERTY. CONTRACTOR SHALL MAINTAIN CLEANING AND CONTAINMENT EQUIPMENT ON SITE APPROPRIATE FOR ANY HAZARDOUS MATERIALS USED DURING CONSTRUCTION.
9. NOTIFICATION OF CONSTRUCTION:
   A. RESPONSIBLE REPRESENTATIVES/POINT OF CONTACTS – ENGINEER WILL PROVIDE THE CONTRACTOR WITH A REPRESENTATIVE CONTACT LIST DURING THE PRE-CONSTRUCTION CONFERENCE, TO INCLUDE EMERGENCY RESPONSE NUMBERS. THE CONTRACTOR SHALL PROVIDE A LIST OF RESPONSIBLE REPRESENTATIVES AND THEIR PHONE NUMBERS TO THE ENGINEER. LIST SHALL BE UPDATED AT EACH CONSTRUCTION PROGRESS MEETING AS REQUIRED.
   B. NOTICES TO AIRMEN (NOTAM) – ONLY THE AIRPORT MAY INITIATE OR CANCEL NOTAMS ON AIRPORT CONDITIONS, AND IS THE ONLY ENTITY THAT CAN CLOSE OR OPEN TAXIWAYS OR RUNWAYS. CONTRACTOR SHALL COMMUNICATE WITH THE ENGINEER ABOUT CONSTRUCTION ACTIVITIES A MINIMUM OF 48-HOURS IN ADVANCE. ENGINEER WILL NOTIFY AIRSIDE OPERATIONS SO THAT NOTAMS CAN BE ISSUED IN A TIMELY MANNER. ENGINEER SHALL KEEP AIRSIDE OPERATIONS INFORMED OF THE STATUS OF THE CONSTRUCTION ACTIVITY SO THAT NOTAM STATUS CAN BE MAINTAINED.
   C. EMERGENCY NOTIFICATIONS – IN CASE OF A LIFE THREATING SITUATION, CONTACT THE AIRPORT EMERGENCY NUMBER (C4 – 404-530-6666). THE CONSTRUCTION MANAGER'S SAFETY REPRESENTATIVE SHALL BE NOTIFIED.
      PERSONS WHO OBSERVE A SECURITY VIOLATION, SUSPICIOUS ACT OR ANY SERIOUS THREAT THAT MAY ENDANGER PERSONS OR PROPERTY, SHOULD IMMEDIATELY CALL C4.
   D. COORDINATION WITH ARFF PERSONNEL – ARFF SHALL BE NOTIFIED OF DEACTIVATION AND REACTIVATION OF WATER LINES AND FIRE HYDRANTS; REROUTING, BLOCKING, AND RESTORATION OF EMERGENCY ACCESS ROUTES; USE OF HAZARDOUS MATERIALS ON THE AIRFIELD.
   E. NOTIFICATION TO THE FAA:
      1) FAR PART 77, OBJECTS AFFECTING NAVIGABLE AIRSPACE – THE FAA MUST BE NOTIFIED OF ANY CONSTRUCTION OR ALTERATION OF OBJECTS THAT AFFECT NAVIGABLE AIRSPACE, AS DEFINED IN PART 77. THIS INCLUDES CONSTRUCTION EQUIPMENT AND PROPOSED PARKING AREAS FOR THIS EQUIPMENT (I.E. CRANES, GRADERS, OTHER EQUIPMENT) ON AIRPORTS. FAA FORM 7460-1, NOTICE OF PROPOSED CONSTRICTION OR ALTERATION, SHALL BE USED FOR THIS PURPOSE AND SUBMITTED TO THE APPROPRIATE FAA OFFICE BY THE DOA.
      2) FAR PART 157, NOTICE OF CONSTRUCTION, ALTERATION, ACTIVATION, AND DEACTIVATION OF AIRPORTS – PART 157 NOTIFICATIONS WILL NOT BE APPLICABLE FOR THIS PROJECT.
      3) NAVAIDS – FOR EMERGENCY (SHORT-NOTICE) NOTIFICATION ABOUT IMPACTS TO BOTH AIRPORT OWNED AND FAA OWNED NAVAIDS, CONTACT AIRSIDE OPERATIONS 404-787-6095.
         IF CONSTRUCTION OPERATIONS REQUIRE A SHUTDOWN OF A NAVAID FOR MORE THAN 24 – HOURS OR MORE THAN FOUR – HOURS DAILY ON CONSECUTIVE DAYS, THE AIRPORT MUST NOTIFY THE APPROPRIATE FAA ATO SERVICE AREA PLANNING AND REQUIREMENTS (P&R) GROUP A MINIMUM OF 45 DAYS PRIOR TO IMPLEMENTING AN EVENT THAT CAUSES IMPACTS TO NAVAIDS. AIRSIDE OPERATIONS WILL COORDINATE WORK FOR A NAVAID SHUTDOWN WITH THE LOCAL FAA ATO/TECHNICAL OPERATIONS OFFICE, INCLUDING ANY NECESSARY REIMBURSABLE AGREEMENTS AND FLIGHT CHECKS. FOR UTILITY OUTAGE, AND CABLE CUTS THAT COULD IMPACT NAVAIDS, THE CONTRACTOR SHALL PROVIDE PROCEDURES THAT WILL ADDRESS UNANTICIPATED UTILITY OUTAGES. REFER TO SECTION 11: UNDERGROUND UTILITIES.
10. INSPECTION REQUIREMENTS:
   A. DAILY INSPECTIONS – CONTRACTOR WILL PERFORM DAILY INSPECTIONS TO ASSURE ALL TRAFFIC CONTROL DEVICES ARE IN THE PROPER LOCATION AND WORKING ORDER AND THAT PAVEMENT AREA ARE FREE OF FOD OR OTHER CONTAMINANTS. AIRSIDE OPERATIONS PERSONNEL WILL PERFORM DAILY INSPECTIONS TO ENSURE COMPLIANCE WITH FAR PART 139. THE OWNER'S REPRESENTATIVE WILL HAVE FULL-TIME INSPECTORS MONITORING ACTIVITIES THROUGHOUT CONSTRUCTION.
   B. FINAL INSPECTIONS – A FINAL INSPECTION WILL BE CONDUCTED TO INSURE COMPLIANCE WITH THE PLANS AND SPECIFICATIONS. PERSONS REQUIRED TO ATTEND SHALL INCLUDE: CONTRACTOR, ENGINEERS, AIRSIDE OPERATIONS, AND AIRPORT MAINTENANCE REPRESENTATIVES (WHEN REQUIRED).
11. UNDERGROUND UTILITIES:
   A. WORK AROUND EXISTING UNDERGROUND UTILITIES SHALL BE PERFORMED IN A MANNER THAT WILL AVOID DAMAGES TO THE UTILITIES. PRIOR TO COMMENCING WITH WORK, THE CONTRACTOR SHALL ACCURATELY LOCATE OR CONTRACT THE APPROPRIATE UTILITY COMPANY TO LOCATE ABOVE AND BELOW GROUND WHICH MAY BE AFFECTED BY THE WORK. THE CONTRACTOR SHALL PROTECT ALL UTILITIES NOT DESIGNATED FOR REMOVAL, RELOCATION, OR REPLACEMENT IN THE COURSE OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE 72 – HOURS OF ADVANCED NOTICE TO THE UTILITY OWNER, CITY AND FAA PRIOR TO BEGINNING CONSTRUCTION IN THE VICINITY OF EXISTING UTILITY LINE. FOR EXISTING UTILITY LOCATION ASSISTANCE, CALL THE UNDERGROUND UTILITIES PROTECTION CENTER (UPC) AT 1-800-282-7411, FAA AT 404-559-6920, AND DOA ENGINEERING AT 404-530-5532.
   B. FAA UNDERGROUND CABLES WILL BE LOCATED AND MARKED BY FAA PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE FAA 30 DAYS IN ADVANCED, SO THAT THE FAA CAN SCHEDULE THE REQUIRED MARKING TO PROTECT CABLES DURING CONSTRUCTION. ANY CABLES THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR. THE CONTRACTOR SHALL PAY ALL COSTS ASSOCIATED WITH THE REPAIR OF THE DAMAGED CABLES AT NO COST TO THE CITY.
12. PENALTIES:
   THE FOLLOWING PENALTIES WILL BE ADMINISTERED BY THE AIRPORT, FAA, AND TRANSPORTATION SECURITY ADMINISTRATION (TSA) AS APPLICABLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACTIONS OF ITS EMPLOYEES AND SHALL ASSUME PENALTIES AND/OR FINES LEVIED AS A RESULT OF RUNWAY INCURSIONS OR OTHER SAFETY VIOLATIONS.
   A. VEHICLE/PEDESTRIAN DEVIATIONS ON THE AOA MAY RESULT IN SUSPENSION OF DRIVING PRIVILEGES, CONFISCATION OF BADGE, OR REMOVAL OF PERSONNEL FROM CONSTRUCTION SITE.
   B. INDIVIDUALS WHO VIOLATE AIRPORT SECURITY RULES AND REGULATIONS MAY BE SUBJECT TO PROSECUTION. PENALTIES MAY BE A FINE, IMPRISONMENT, LEASE VIOLATION OR IMPOUNDMENT OF VEHICLE. THE TSA CAN LEVY FINES UPWARD TO $11,000 PER SECURITY INCIDENT. IN ADDITION TO THESE PENALTIES, THE AIRPORT RESERVES THE RIGHT TO REMOVE OR EJECT FROM THE AIRPORT PREMISES ANY PERSON WHO VIOLATES ANY AIRPORT SECURITY RULES OR REGULATIONS.
   C. THE AIRPORT HAS A ZERO TOLERANCE APPROACH TOWARDS FOD. THE CONTRACTOR MAY BE SUBJECT TO DAMAGES AND/OR FINES FROM THE AIRPORT, FAA, OR OTHER AGENCIES FOR FAILURE TO PROPERLY MANAGE FOD DURING CONSTRUCTION ACTIVITIES.
13. SPECIAL CONDITIONS:
   CONSTRUCTION OPERATIONS WILL CEASE IMMEDIATELY IN THE EVENT OF AN AIRCRAFT ACCIDENT OR INCIDENT ON AIRPORT PROPERTY; NOTIFICATION OF AIRCRAFT IN DISTRESS; OR NOTIFICATION OF SEVERE WEATHER CONDITIONS IN THE AREA OF THE AIRPORT TO INCLUDE SEVERE THUNDERSTORMS, TORNADO WARNINGS, AND LOW VISIBILITY CONDITIONS. AIRSIDE OPERATIONS SHALL PROVIDE DIRECTION TO CONTRACTOR AND CONSTRUCTION MANAGEMENT TEAM.
14. RUNWAY AND TAXIWAY VISUAL AIDS:
   A. HAZARD MARKING AND LIGHTING PREVENTS PILOTS FROM ENTERING AREAS CLOSED TO AIRCRAFT, AND PREVENTS CONSTRUCTION PERSONNEL FROM ENTERING AREAS OPEN TO AIRCRAFT. TO THAT END, COMPREHENSIBLE WARNING INDICATORS FOR ANY AREA AFFECTED BY CONSTRUCTION THAT IS NORMALLY ACCESSIBLE TO AIRCRAFT, PERSONNEL, OR VEHICLES SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION OPERATIONS.
   B. LIGHTED RUNWAY CLOSURE "X's" WILL BE PLACED ON EACH RUNWAY END DURING CLOSURE TIMES. CONSTRUCTION MANAGEMENT STAFF WILL COORDINATE WITH DOA MAINTENANCE TO HAVE "X's" PLACED ON RUNWAY AT START OF CLOSURE PERIOD.
   C. LOW PROFILE LIGHTED BARRICADES WILL BE PLACED AT TAXIWAY INTERSECTIONS TO PREVENT AIRCRAFT FROM ENTERING CLOSED AREAS. REFER TO THE PHASING DETAIL SHEET FOR BARRICADE REQUIREMENTS.
   D. AIRPORT MARKINGS, LIGHTING, SIGNS, AND VISUAL NAVAIDS DIRECTING AIRCRAFT TO CLOSED AREAS OF THE AIRPORT WILL BE COVERED, REMOVED, OR DISABLED DURING CONSTRUCTION IN CONFORMANCE WITH AC 150/5340-1K – STANDARDS FOR AIRPORT MARKINGS.
15. MARKINGS AND SIGNS FOR ACCESS ROUTES:
   CONTRACTOR SHALL INSTALL APPROPRIATE SIGNAGE, CONFORMING TO THE FEDERAL HIGHWAY ADMINISTRATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND GEORGIA DEPARTMENT OF TRANSPORTATION (GDOT), ALONG ACCESS ROUTES TO DIRECT TRAFFIC AS REQUIRED.
16. HAZARD MARKING AND LIGHTING:
   A. PURPOSE – HAZARD MARKING AND LIGHTING PREVENTS PILOTS FROM ENTERING AREAS CLOSED TO AIRCRAFT, AND PREVENTS CONSTRUCTION PERSONNEL FROM ENTERING AREAS OPEN TO AIRCRAFT.
   B. EQUIPMENT – CONTRACTOR SHALL MARK THE LIMITS OF CONSTRUCTION WITH LOW-PROFILE BARRICADES TO WARN PILOTS OF AREAS UNDER CONSTRUCTION. CONTRACTOR SHALL PROVIDE A REPRESENTATIVE WHO WILL BE ON-CALL 24-HOURS A DAY TO PERFORM EMERGENCY MAINTENANCE OF ANY CONTRACTOR ERECTED SIGN, BARRICADE, OR WARNING LIGHTS DURING THE CONSTRUCTION PERIOD. AT A MINIMUM, CONTRACTOR SHALL INSTALL LOW PROFILE BARRICADES WHERE INDICATED ON PLANS.
      BARRICADES SHALL CONFORM TO FAA AC 150/5340-1K AND 150/5370-2F SPECIFICATIONS AND PERFORMANCE STANDARDS. SEE THE PHASING DETAIL SHEET FOR BARRICADE DETAIL AND ADDITIONAL REQUIREMENTS.
      RED LIGHTS MUST BE SECURELY MOUNTED ON BARRICADE AND SPACED NO MORE THAN 10 FEET APART. LIGHTS MUST BE OPERATED FROM SUNSET TO SUNRISE AND DURING PERIODS OF LOW VISIBILITY. THE LIGHTS MAY BE OPERATED BY PHOTOCELL; HOWEVER THE CONTRACTOR MAY HAVE TO TURN THEM ON MANUALLY AT TIMES DURING LOW VISIBILITY DURING DAYTIME HOURS.
      THE CONTRACTOR SHALL CONFORM TO THE FAA AND THE CITY WHEN ALIGNING CONSTRUCTION FLOODLIGHTS AS TO NOT INTERFERE WITH THE VISION OF AIRCRAFT PILOTS AND AIR TRAFFIC CONTROLLERS WHEN OPERATIONS ARE TAKING PLACE.
   C. CRANES – CONTRACTOR SHALL MARK THE TOPS OF CRANES WITH A FLASHING RED LIGHT AND AN ORANGE-AND-WHITE CHECKERED FLAG. CRANES WILL BE STORED IN A "NO-ENERGY" STATE (I.E., BOOM LOCKED OR LOWERED, NO POTENTIAL STORED ENERGY PRESENT) WHEN NOT IN USE.
17. PROTECTION:
   A. RUNWAY SAFETY AREA (RSA) – THE RSA IS A DEFINED SURFACE SURROUNDING THE RUNWAY WITHIN 250 FEET OF THE RUNWAY CENTERLINE AND 1,000 FEET OFF THE ENDS OF THE RUNWAY, SUITABLE FOR REDUCING THE RISK OF DAMAGE TO AIRCRAFT IN THE EVENT OF AN UNDERSHOOT, OVERSHOOT, OR EXCURSION FROM THE RUNWAY. NO CONSTRUCTION MAY OCCUR WITHIN THE RSA WHILE THE RUNWAY IS OPEN FOR AIRCRAFT OPERATIONS. OPEN TRENCHES OR EXCAVATIONS ARE NOT PERMITTED WITHIN THE RSA WHILE THE RUNWAY IS OPEN. SOIL EROSION MUST BE CONTROLLED TO MAINTAIN RSA STANDARDS.
   B. RUNWAY OBJECT FREE AREA (ROFA) – THE ROFA IS DEFINED AS AN AREA WITHIN 400 FEET OF THE RUNWAY CENTERLINE. CONSTRUCTION MAY BE PERMITTED IN THE ROFA PROVIDED THAT THE EQUIPMENT IS REMOVED WHEN NOT IN USE AND MATERIALS ARE NOT STOCKPILED WITHIN THE ROFA.
   C. TAXIWAY SAFETY AREA (TSA) – THE TSA IS A DEFINED SURFACE ALONGSIDE THE TAXIWAY PREPARED OF SUITABLE FOR REDUCING THE RISK OF DAMAGE TO AN AIRCRAFT UNINTENTIONALLY DEPARTING THE TAXIWAY. NO CONSTRUCTION MAY OCCUR WITHIN THE TSA WHILE THE TAXIWAY IS OPEN FOR AIRCRAFT OPERATIONS. TSA DIMENSIONS MAY BE TEMPORARILY ADJUSTED IF THE TAXIWAY IS RESTRICTED TO AIRCRAFT OPERATIONS REQUIRING A TSA THAT IS EQUAL TO THE TSA WIDTH AVAILABLE DURING CONSTRUCTION. AIRSIDE OPERATIONS WILL COORDINATE ADJUSTMENT WITH THE APPROPRIATE FAA OFFICE AND THE FAA AIR TRAFFIC MANAGER AND ISSUE A NOTAM. OPEN TRENCHES OR EXCAVATIONS ARE NOT PERMITTED WITHIN THE TSA WHILE THE TAXIWAY IS OPEN. SOIL EROSION MUST BE CONTROLLED TO MAINTAIN TSA STANDARDS.
   D. APRON RESTRICTIONS – IN APRON AREAS, NO CONSTRUCTION MAY OCCUR IN THE TAXILANE OBJECT FREE AREA OF AN AIRCRAFT MOVEMENT. THIS INCLUDES MOVEMENTS INTO GATE POSITIONS. THE ONLY EXCEPTIONS ARE WHEN THE WING WALKERS ARE USED OR AN AIRCRAFT TUG IS USED. IN THOSE CASES, CONSTRUCTION MAY OCCUR WITHIN A PREDETERMINED DISTANCE OF THE WING OF THE LARGEST AIRCRAFT EXPECTED TO USE THE ROUTE/GATE.
   E. TAXIWAY OBJECT FREE AREA (TOFA) – THE TOFA IS DEFINED AS AN AREA WITHIN 160' OF THE TAXIWAY CENTERLINE. NO CONSTRUCTION MAY OCCUR IN THE TOFA WHILE THE TAXIWAY IS OPEN FOR AIRCRAFT OPERATIONS. EXCEPTIONS MAY BE MADE PROVIDED THAT (1) TOFA DIMENSIONS ARE TEMPORARILY ADJUSTED TO A REDUCED TOFA THAT IS EQUAL TO THE TOFA WIDTH AVAILABLE; (2) OFFSET TAXIWAY PAVEMENT MARKINGS ARE USED TO PROVIDE THE REQUIRED TOFA; (3) OR APPROPRIATE NOTAMS ARE ISSUED, MARKING AND LIGHTING REQUIREMENTS ARE MET, AND FIVE-FOOT CLEARANCE IS MAINTAINED BETWEEN EQUIPMENT/MATERIALS AND ANY PART OF THE AIRCRAFT (INCLUDING WINGTIP OVERHANG).
   F. OBSTACLE FREE ZONE (OFZ) – PERSONNEL, EQUIPMENT, AND MATERIALS MAY NOT PENETRATE THE OFZ WHILE THE RUNWAY IS OPEN FOR AIRCRAFT OPERATIONS. IF NECESSARY, OPERATIONAL RESTRICTIONS MUST BE COORDINATED WITH THE APPROPRIATE FAA AIRPORTS OFFICE.
   G. RUNWAY APPROACH/DEPARTURE SURFACES – ALL PERSONNEL, MATERIALS, AND/OR EQUIPMENT MUST REMAIN CLEAR OF THE APPLICABLE THRESHOLD SITING SURFACES.
18. OTHER LIMITATIONS ON CONSTRUCTION:
   A. PROHIBITIONS – USE OF TALL EQUIPMENT WITHOUT A 7460-1 DETERMINATION, OPEN FLAME WELDING, ELECTRICAL BLASTING CAPS, AND NO USE OF FLARE POTS.
   B. RESTRICTIONS – SUSPENSION OF CONSTRUCTION ACTIVITIES DURING SPECIFIC AIRSIDE OPERATIONS (WEATHER); AREAS THAT MAY NOT BE WORKED SIMULTANEOUSLY, DAY OR NIGHT CONSTRUCTION RESTRICTIONS; SEASONAL CONSTRUCTION RESTRICTIONS.

CONTRACTOR'S RESPONSIBILITY:

THIS PROJECT IS LOCATED ADJACENT TO ACTIVE TAXIWAYS AND RUNWAYS; THEREFORE ALL CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED IN A MANNER ACCEPTABLE TO THE CITY, THE FAA, AND THE TSA, TO PROVIDE ACCEPTABLE LEVELS OF SAFETY FOR ALL AIRPORT OPERATIONS.

THIS PROJECT IS WITHIN AN AREA OF CONTINUOUS LARGE JET AIRCRAFT OPERATIONS. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT ITS' EMPLOYEES, EQUIPMENT, AND WORK IN PROGRESS FROM AIRCRAFT NOISE AND JET ENGINE BLAST.

THE CONTRACTOR SHALL COOPERATE WITH EXISTING AND FUTURE CONTRACTORS WORKING IN THE AREA AND AT ALL TIMES WILL COORDINATE EFFORTS TO MAINTAIN THE NECESSARY CONSTRUCTION ACCESS ROUTES, AND TO ASSURE THAT ALL CONTRACTS CONTINUE ON A TIMELY BASIS. AIRFIELD MARKINGS REPLACEMENT AND AIRFIELD REPAIRS 2014 WILL BE AMONGST OTHER CONCURRENT PROJECTS IN THE SAME AREA AS THIS PROJECT. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS THAT ARE PERTINENT TO THIS WORK. THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY TO OBTAIN AND PAY ALL COSTS ASSOCIATED WITH THE PERMITS AND LICENSES REQUIRED TO ACCOMPLISH THIS WORK.

CONTRACTOR(S) ARE RESPONSIBLE FOR CHECKING ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, AND DIMENSIONS FOR ACCURACY AND CONFIRMING THAT IF THERE ARE ANY QUESTIONS, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER BEFORE PROCEEDING WITH THE WORK IN QUESTION OR RELATED WORK.

CONTRACTOR(S) SHALL NOT SCALE DRAWINGS, WRITTEN DIMENSIONS SHALL ALWAYS GOVERN. SCALES SHOWN ARE FOR REFERENCE ONLY, AND CONTRACTOR SHALL FIELD VERIFY ALL SCALES AND DIMENSIONS. CONTRACTOR(S) REQUIRING DIMENSIONS NOT NOTED, SHALL CONTACT ENGINEER FOR SUCH INFORMATION PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.

LARGE SCALE DRAWINGS TAKE PRECEDENCE OVER SMALL SCALE, DETAILS TAKE PRECEDENCE OVER ALL. CONTRACTOR(S) SHALL NOTIFY ENGINEER OF CONFLICTS IN WRITING, PRIOR TO PROCEEDING WITH THE WORK IN QUESTION.

ALL PERMANENT SURVEY MARKERS, WHICH ARE DISTURBED DURING CONSTRUCTION SHALL BE TURNED OVER TO THE AIRPORT AND REPLACED IN KIND. THE CONTRACTOR SHALL PAY ALL COSTS ASSOCIATED TO ACCOMPLISH THIS WORK AT NO COST TO THE CITY.

<u>SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)</u>

<u>DESCRIPTION</u>

THE CITY'S CONSTRUCTION SAFETY AND PHASING PLAN (CSPP) AND THE CONTRACTOR'S SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) ARE TOOLS USED TO ENSURE SAFETY COMPLIANCE WHEN COORDINATING CONSTRUCTION ACTIVITIES WITH AIRPORT OPERATIONS. THESE DOCUMENTS IDENTIFY ALL ASPECTS OF THE CONSTRUCTION PROJECT THAT POSE A POTENTIAL SAFETY HAZARD TO AIRPORT OPERATIONS AND OUTLINE RESPECTIVE MITIGATION PROCEDURES FOR EACH HAZARD. THEY MUST PROVIDE ALL INFORMATION NECESSARY FOR THE AIRPORT OPERATIONS DEPARTMENT TO CONDUCT AIRFIELD INSPECTIONS AND EXPEDITIOUSLY IDENTIFY AND CORRECT UNSAFE CONDITIONS DURING CONSTRUCTION. ALL AVIATION SAFETY PROVISIONS INCLUDED WITHIN THE PROJECT DRAWINGS, CONTRACT SPECIFICATIONS, AND OTHER RELATED DOCUMENTS MUST ALSO BE REFLECTED IN THE CSPP AND SPCD.

<u>CONTRACTOR RESPONSIBILITIES</u>

THE CONTRACTOR MUST SUBMIT A SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) TO THE CITY FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE CSPP AND SPCD. THE CONTRACTOR SHALL DESCRIBE HOW IT WILL COMPLY WITH THE REQUIREMENTS OF THE CSPP AND SUPPLY ANY DETAILS THAT COULD NOT BE DETERMINED BEFORE CONTRACT AWARD. ANY CONSTRUCTION PRACTICE PROPOSED BY THE CONTRACTOR THAT DOES NOT CONFORM TO THE CSPP AND SPCD MAY IMPACT THE AIRPORT'S OPERATIONAL SAFETY AND WILL REQUIRE A REVISION TO THE CSPP AND SPCD AND RE-COORDINATION WITH THE CITY AND THE FAA IN ADVANCE.

<u>REQUIREMENTS</u>

THE SPCD MUST INCLUDE A CERTIFICATION STATEMENT BY THE CONTRACTOR THAT INDICATES IT UNDERSTANDS THE OPERATIONAL SAFETY REQUIREMENTS OF THE CSPP AND IT ASSERTS IT WILL NOT DEVIATE FROM THE APPROVED CSPP AND SPCD UNLESS WRITTEN APPROVAL IS GRANTED BY THE CITY.

THE SPCD MUST INCLUDE ALL SUPPLEMENTAL INFORMATION THAT COULD NOT BE INCLUDED IN THE CSPP PRIOR TO THE CONTRACT AWARD. THE CONTRACTOR STATEMENT SHOULD INCLUDE THE NAME OF THE CONTRACTOR, THE TITLE OF THE PROJECT CSPP, THE APPROVAL DATE OF THE CSPP, AND A REFERENCE TO ANY SUPPLEMENTAL INFORMATION (THAT IS, "I , NAME OF CONTRACTOR , HAVE READ THE TITLE OF PROJECT CSPP, APPROVED ON DATE , AND WILL ABIDE BY IT AS WRITTEN AND WITH THE FOLLOWING ADDITIONS AS NOTED."). THE SUPPLEMENTAL INFORMATION IN THE SPCD SHOULD BE WRITTEN TO MATCH THE FORMAT OF THE 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 RESTATE NOR PROPOSE DIFFERENCES TO PROVISIONS ALREADY ADDRESSED IN THE CSPP.

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	--
H-JDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

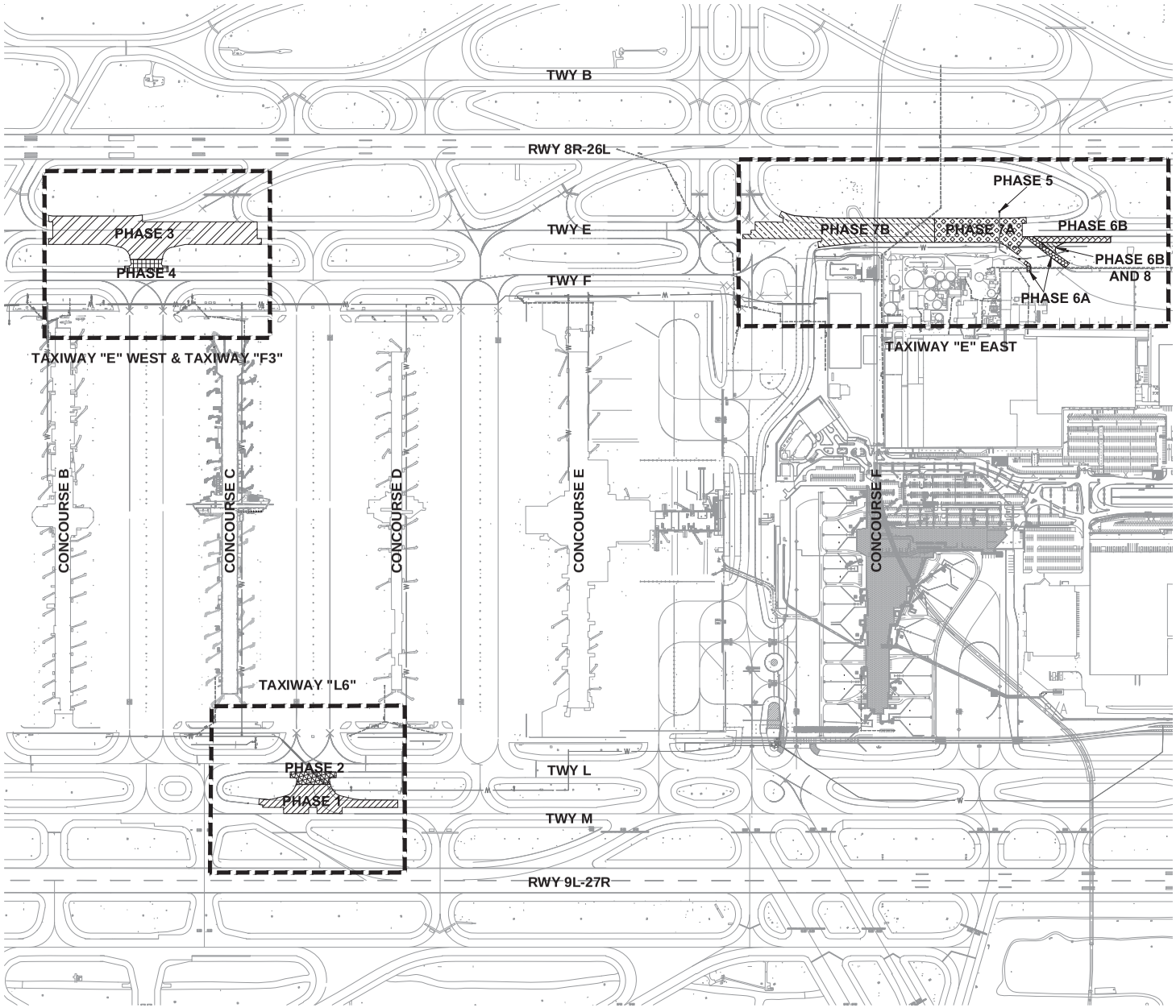
CONSTRUCTION SAFETY AND PHASING PLAN NOTES

SHEET No

G 03.04.1

NOT ISSUED FOR CONSTRUCTION

C:\PW_WORK\ATKNAGA01\ISRA7517\DMS06449\46586-G 03.04.1 SAFETY NOTES AND DETAILS.DWG
2/12/2016 7:28 PM



PHASING NOTES

1. THE CONTRACTOR WILL BE REQUIRED TO DEMONSTRATE ACCEPTABLE CONSTRUCTION METHODS FOR EACH ACTIVITY (SUBGRADE PREPARATION, UNDERDRAIN INSTALLATION, BITUMINOUS AND CONCRETE PLACEMENT) BEFORE MOVING ON TO PHASE 2. THE CONTRACTOR WILL BE ALLOWED TO MOVE TO OTHER AREAS ONCE EACH METHOD HAS BEEN APPROVED BY THE ENGINEER.
2. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT CONCRETE MIX DESIGNS (PER P-501) THAT ACHIEVE THE STRENGTH REQUIRED TO OPEN THE PAVEMENT TO AIRCRAFT TRAFFIC IN THE REQUIRED CLOSURE DURATION IDENTIFIED.
3. CERTAIN ACTIVITIES INCLUDING COAL TAR SEALANT APPLICATION, MARKING, JOINT SEALING, PERMANENT SEEDING, AND SODDING HAVE WEATHER RESTRICTIONS. CONTRACTOR SHALL ACCOUNT FOR THESE WEATHER RESTRICTIONS WHEN PREPARING THEIR WORK PLAN.
4. SEE ADDITIONAL PHASING NOTES ON SUBSEQUENT SHEETS.

PHASING SCHEDULE

PHASE	DURATION (DAYS)	TENTATIVE CONSTRUCTION DATES*
1	14	FALL 2016
2	10	FALL 2016
3	21	FALL 2016
4	10	FALL 2016
5	6	WINTER 2016/2017
6A	31 HRS	SPRING 2017
6B	3	SPRING 2017
7A	14	SPRING 2017
7B	18	SPRING 2017
8	2	SPRING 2017

* CONSTRUCTION DATES AND PHASE ORDER SHOWN ABOVE ARE SUBJECT TO CHANGE PER DOA DIRECTION.

5. A WINTER SHUTDOWN OF MAJOR CONSTRUCTION ACTIVITIES WILL TAKE PLACE PRIOR TO THANKSGIVING. PHASE 5 WILL TAKE PLACE IN WINTER. MAJOR CONSTRUCTION ACTIVITIES WILL RESTART IN SPRING.

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	####
H-JDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

OVERALL PHASING PLAN

SHEET No

G 04.00.1

NOT ISSUED FOR CONSTRUCTION

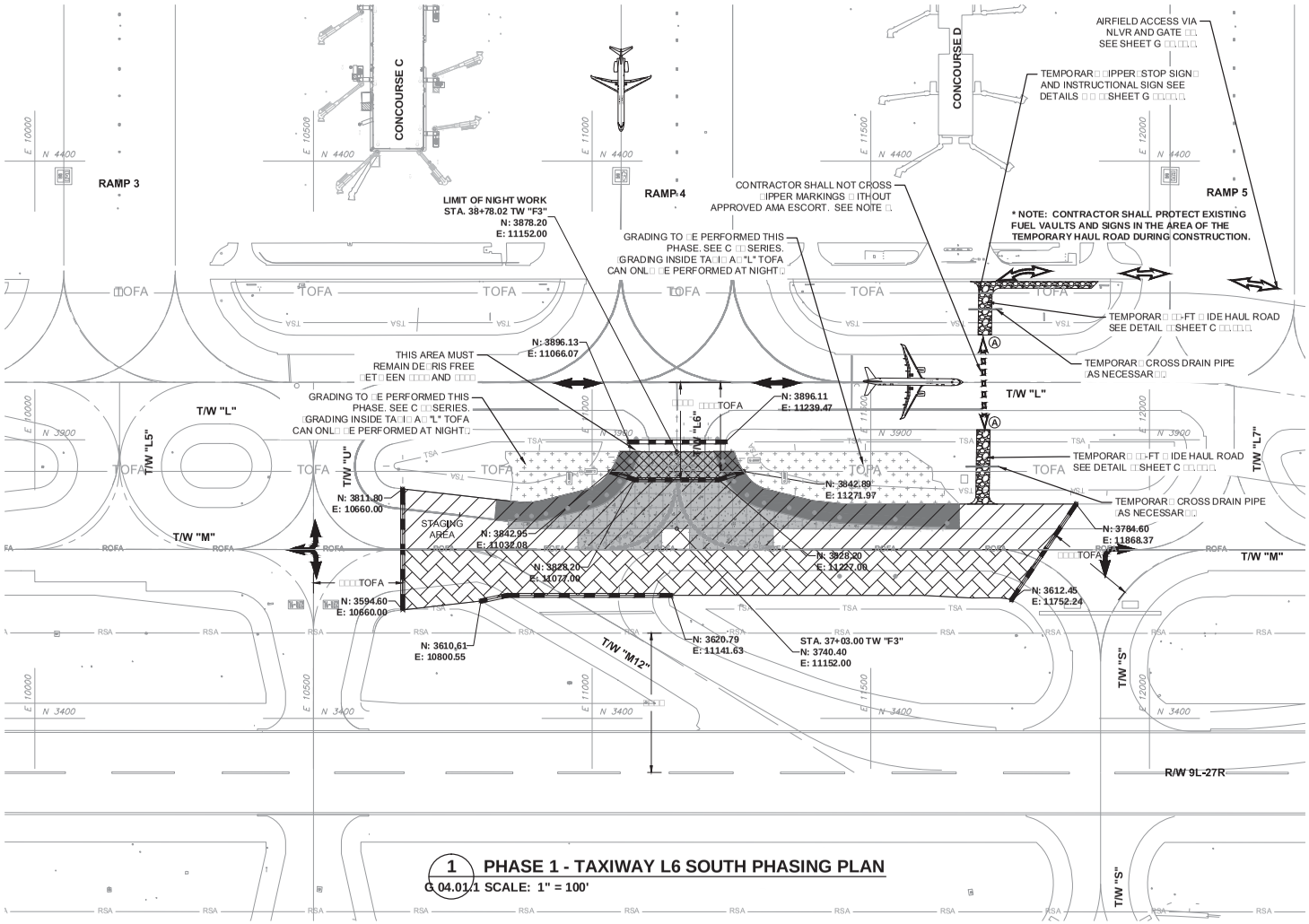
2/15/2016 9:59 AM
C:\PW_WORK\ATONAGA01\HANN66\R\DM0564449\V6586-2 04.00.1 OVERALL PHASING PLAN.DWG

NOTES

1. PHASE 1 SHALL BE COMPLETED AND OPEN TO AIR TRAFFIC WITHIN 14 DAYS (24 HR/DAY) INCLUDING STRIPING AND ELECTRICAL WORK AND EXCLUDING JOINT SEAL. UTILIZING NIGHT TIME CLOSURES, THE CONTRACTOR MAY COMPLETE INITIAL SAWCUTS FOR DEMOLITION UP TO 7 DAYS PRIOR TO BEGINNING OF PHASE AND SHALL COMPLETE JOINT SEAL ACTIVITIES PER P-605.
2. OTHER PHASES ARE IDENTIFIED ON SHEETS G 04.02 THROUGH G 04.10 BUT DO NOT HAVE TO PROGRESS IN ORDER. THE OWNER WILL DIRECT THE CONTRACTOR AS TO THE ORDER OF PHASE WORK.
3. PHASE 1 DEMOLITION AND PAVING WILL BEGIN AT STA 37+03.00 AND END AT STA 38+78.02. TAXIWAY L6 SOUTH PHASE INCLUDES APPROX. 4933 SY OF AIRFIELD PCC PAVEMENT RECONSTRUCTION.
4. LOW PROFILE BARRICADES SHALL BE PLACED OUTSIDE OF THE GROUP V TAXIWAY OFA (160'), UNLESS OTHERWISE NOTED. BARRICADES ARE REQUIRED FOR ALL TAXIWAY CLOSURES.
5. CONTRACTOR SHALL BE ADVISED THAT AIRCRAFT TRAFFIC CAN BE EXPECTED TO BE HEAVIER FROM 0830 TO 1130 AND 1400 TO 2200.
6. CONTRACTOR SHALL ESTABLISH STAGING AREAS OUTSIDE OF ALL TAXIWAY AND RUNWAY OFA'S. NO EQUIPMENT, PERSONNEL, OR STOCKPILED MATERIALS ARE ALLOWED INSIDE OF THE OFA WHILE RUNWAY OR TAXIWAY IS ACTIVE.
7. CONTRACTOR IS RESPONSIBLE FOR COVERING ALL SIGNS AND LIGHTING THAT LEAD TO AN ACTIVE WORK AREA AS DIRECTED BY THE FIELD INSPECTOR OR ENGINEER AND UNCOVERING PRIOR TO REOPENING THE AREA.
8. CONTRACTOR SHALL TAKE ALL PRECAUTIONS POSSIBLE TO AVOID DAMAGING THERMOPLASTIC MARKINGS. ANY DAMAGE TO THERMOPLASTIC MARKINGS MUST BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY.
9. AT NO TIME SHALL THE CONTRACTOR CROSS ZIPPER LINE MARKINGS ON THE NLVR TO ACCESS THE PROJECT SITE WITHOUT HAVING AN APPROVED AMA ESCORT.
10. CONTRACTOR'S AMA ESCORT SHALL MAINTAIN RADIO CONTACT WITH GROUND CONTROL AT ALL TIMES WHILE ON THE JOBSITE.
11. SEE SHEETS G 04.12.1 THROUGH G 04.20.1 FOR TEMPORARY MARKING AND LIGHT FIXTURE WORK REQUIRED IN EACH PHASE.
12. CONTRACTOR SHALL REMOVE TEMPORARY HAUL ROUTE AND DRAIN PIPES IN ENTIRETY AND RESTORE AREA BACK TO EXISTING CONDITIONS INCLUDING SOD AT END OF PHASE.

LEGEND

- PROPOSED ASPHALT PAVING
- PROPOSED PCC PAVING
- TEMPORARY HAUL ROUTE
- LIMITS OF CLOSED PAVEMENT
- LIMITS OF NIGHT WORK (2330 TO 0630 HOURS)
- NO STATIONARY EQUIPMENT PERMITTED IN THIS AREA
- PROPOSED GRADING LIMITS
- LOW PROFILE BARRICADE
- CONTRACTOR HAUL ROUTE
- AIRCRAFT MOVEMENT ROUTE
- PROTECT/COVER EDGE LIGHTS
- AMA ESCORT CROSSING GUARD LOCATION. TWO AMA CERTIFIED/APPROVED CROSSING GUARDS (CITY APPROVED, CONTRACTOR PAID) REQUIRED TO CONTROL CROSSING VEHICLES.



1 PHASE 1 - TAXIWAY L6 SOUTH PHASING PLAN

G 04.01.1 SCALE: 1" = 100'

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	TLR
DRAWN BY	TLR
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

PHASE 1 TAXIWAY L6 SOUTH PHASING PLAN

SHEET No

G 04.01.1

NOT ISSUED FOR CONSTRUCTION

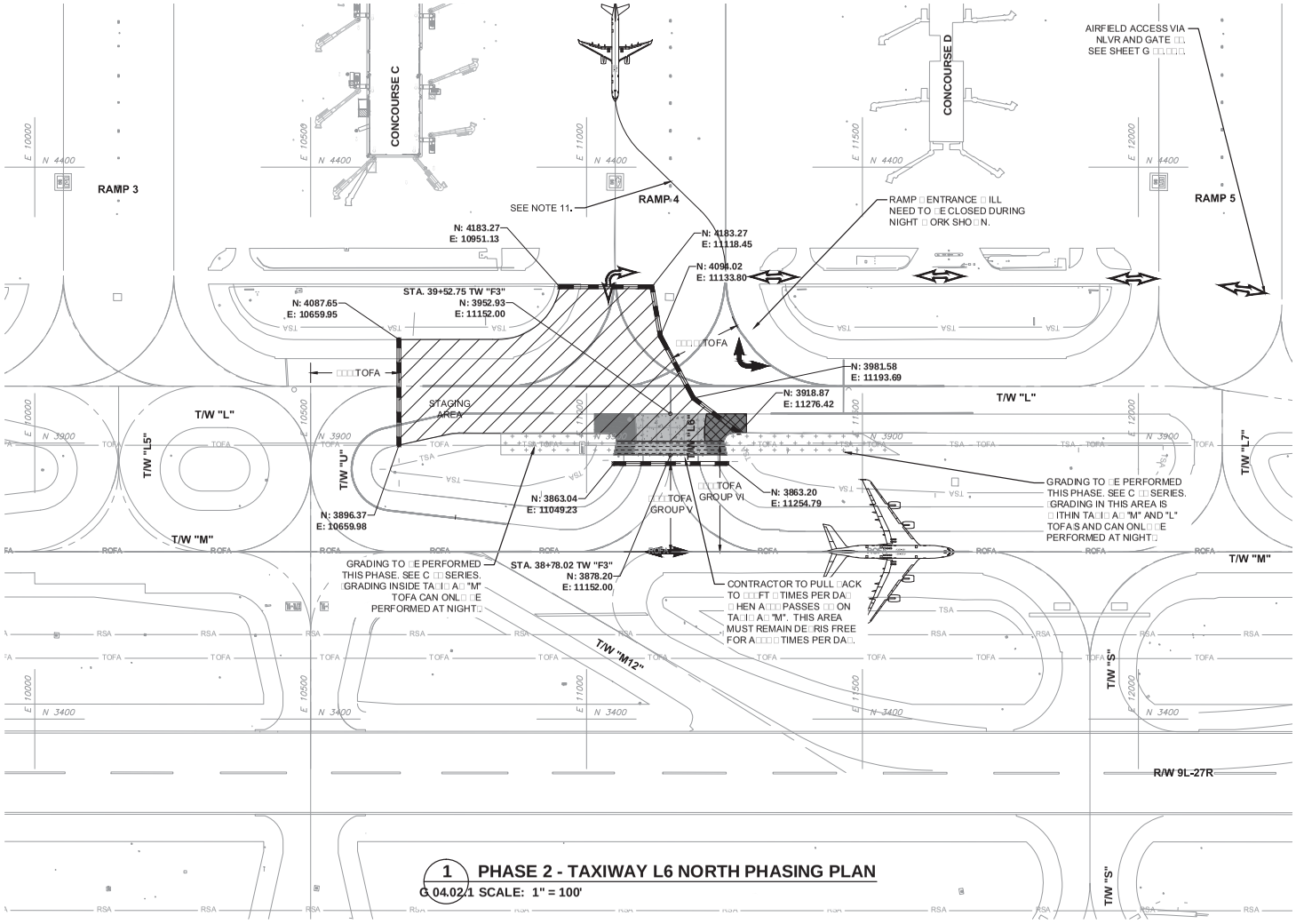
2/12/2016 10:15 AM
C:\PW_WORK\ATRANGA01\D0891TA\DM5054401\M556L-G 04.01.1 PHASING PLANS.DWG

NOTES

1. PHASE 2 SHALL BE COMPLETED AND OPEN TO AIR TRAFFIC WITHIN 10 DAYS (24 HR/DAY) INCLUDING STRIPING AND ELECTRICAL WORK AND EXCLUDING JOINT SEAL. UTILIZING NIGHT TIME CLOSURES, THE CONTRACTOR MAY COMPLETE INITIAL SAWCUTS FOR DEMOLITION UP TO 7 DAYS PRIOR TO BEGINNING OF PHASE AND SHALL COMPLETE JOINT SEAL ACTIVITIES PER P-605.
2. OTHER PHASES ARE IDENTIFIED ON SHEETS G 04.01 AND G 04.03 THROUGH G 04.10 BUT DO NOT HAVE TO PROGRESS IN ORDER. THE OWNER WILL DIRECT THE CONTRACTOR AS TO THE ORDER OF PHASE WORK.
3. PHASE 2 DEMOLITION AND PAVING WILL BEGIN AT STA 38+78.02 AND END AT STA 39+52.75. TAXIWAY L6 WEST PHASE INCLUDES APPROX. 704 SY OF AIRFIELD PCC PAVEMENT RECONSTRUCTION.
4. LOW PROFILE BARRICADES SHALL BE PLACED OUTSIDE OF THE GROUP V TAXIWAY OFA (160'), UNLESS OTHERWISE NOTED. BARRICADES ARE REQUIRED FOR ALL TAXIWAY CLOSURES.
5. CONTRACTOR SHALL BE ADVISED THAT AIRCRAFT TRAFFIC CAN BE EXPECTED TO BE HEAVIER FROM 0830 TO 1130 AND 1400 TO 2200.
6. CONTRACTOR SHALL ESTABLISH STAGING AREAS OUTSIDE OF ALL TAXIWAY AND RUNWAY OFA'S. NO EQUIPMENT, PERSONNEL, OR STOCKPILED MATERIALS ARE ALLOWED INSIDE OF THE OFA WHILE RUNWAY OR TAXIWAY IS ACTIVE.
7. CONTRACTOR IS RESPONSIBLE FOR COVERING ALL SIGNS AND LIGHTING THAT LEAD TO AN ACTIVE WORK AREA AS DIRECTED BY THE FIELD INSPECTOR OR ENGINEER AND UNCOVERING PRIOR TO REOPENING THE AREA.
8. CONTRACTOR SHALL TAKE ALL PRECAUTIONS POSSIBLE TO AVOID DAMAGING THERMOPLASTIC MARKINGS. ANY DAMAGE TO THERMOPLASTIC MARKINGS MUST BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY.
9. AT NO TIME SHALL THE CONTRACTOR CROSS ZIPPER LINE MARKINGS ON THE NLVR TO ACCESS THE PROJECT SITE WITHOUT HAVING AN APPROVED AMA ESCORT.
10. CONTRACTOR'S AMA ESCORT SHALL MAINTAIN RADIO CONTACT WITH GROUND CONTROL AT ALL TIMES WHILE ON THE JOBSITE.
11. SEE SHEETS G 04.12.1 THROUGH C 04.20.1 FOR TEMPORARY MARKING AND LIGHT FIXTURE WORK REQUIRED IN EACH PHASE.
12. CONTRACTOR SHALL REMOVE TEMPORARY HAUL ROUTE AND DRAIN PIPES IN ENTIRETY AND RESTORE AREA BACK TO EXISTING CONDITIONS INCLUDING SOD AT END OF PHASE.

LEGEND

- PROPOSED ASPHALT PAVING
- PROPOSED PCC PAVING
- LIMITS OF CLOSED PAVEMENT
- LIMITS OF NIGHT WORK (2230 TO 0630 HOURS)
- PULL BACK WORK AREA
- PROPOSED GRADING LIMITS
- LOW PROFILE BARRICADE
- CONTRACTOR HAUL ROUTE
- AIRCRAFT MOVEMENT ROUTE



1 PHASE 2 - TAXIWAY L6 NORTH PHASING PLAN

G 04.02.1 SCALE: 1" = 100'

NORTH

100 0 100 200

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	TLR
DRAWN BY	TLR
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

PHASE 2 TAXIWAY L6 NORTH PHASING PLAN

SHEET No

G 04.02.1

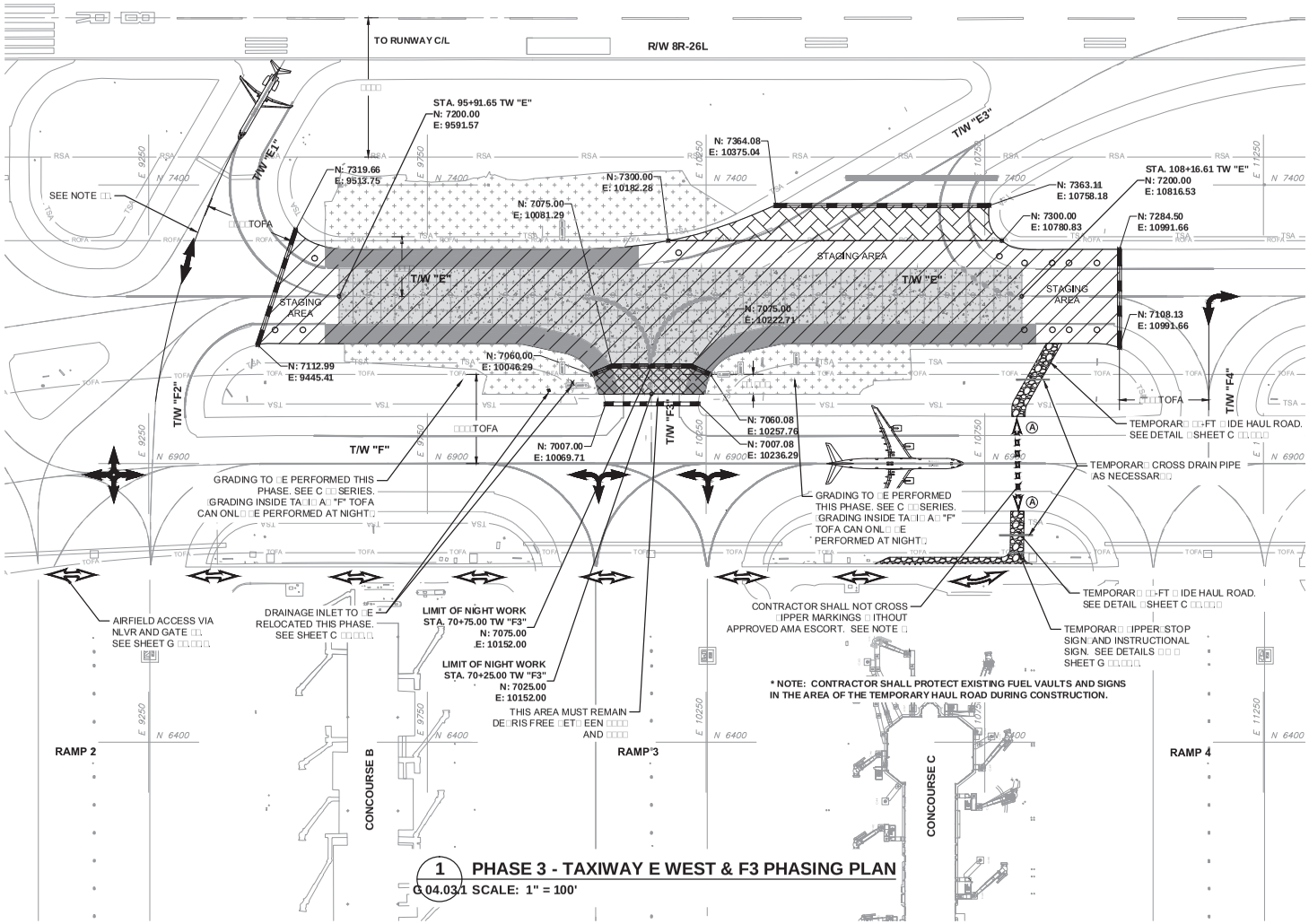
2/12/2016 10:18 AM
C:\PW_WORK\ATRANGA01\D0591874\DMS5644\D_H5586-G 04.01-1 PHASING PLANS.DWG

NOTES

1. PHASE 3 SHALL BE COMPLETED AND OPEN TO AIR TRAFFIC WITHIN 21 DAYS (24 HR/DAY) INCLUDING STRIPING AND ELECTRICAL WORK AND EXCLUDING JOINT SEAL. UTILIZING NIGHT TIME CLOSURES, THE CONTRACTOR MAY COMPLETE INITIAL SAWCUTS FOR DEMOLITION UP TO 7 DAYS PRIOR TO BEGINNING OF PHASE AND SHALL COMPLETE JOINT SEAL ACTIVITIES PER P-605.
2. OTHER PHASES ARE IDENTIFIED ON SHEETS G 04.01 THROUGH G 04.02 AND SHEETS G 04.04 THROUGH G 04.10 BUT DO NOT HAVE TO PROGRESS IN ORDER. THE OWNER WILL DIRECT THE CONTRACTOR AS TO THE ORDER OF PHASE WORK.
3. PHASE 3 DEMOLITION AND PAVING WILL BEGIN AT STA 95+91.65 AND END AT STA 108+16.61. TAXIWAY E WEST AND F3 PHASE INCLUDES APPROX. 16390 SY OF AIRFIELD PCC PAVEMENT RECONSTRUCTION.
4. LOW PROFILE BARRICADES SHALL BE PLACED OUTSIDE OF THE GROUP V TAXIWAY OFA (160'), UNLESS OTHERWISE NOTED. BARRICADES ARE REQUIRED FOR ALL TAXIWAY CLOSURES.
5. CONTRACTOR SHALL BE ADVISED THAT AIRCRAFT TRAFFIC CAN BE EXPECTED TO BE HEAVIER FROM 0830 TO 1130 AND 1400 TO 2200.
6. CONTRACTOR SHALL ESTABLISH STAGING AREAS OUTSIDE OF ALL TAXIWAY AND RUNWAY OFA'S. NO EQUIPMENT, PERSONNEL, OR STOCKPILED MATERIALS ARE ALLOWED INSIDE OF THE OFA WHILE RUNWAY OR TAXIWAY IS ACTIVE.
7. CONTRACTOR IS RESPONSIBLE FOR COVERING ALL SIGNS AND LIGHTING THAT LEAD TO AN ACTIVE WORK AREA AS DIRECTED BY THE FIELD INSPECTOR OR ENGINEER AND UNCOVERING PRIOR TO REOPENING THE AREA.
8. CONTRACTOR SHALL TAKE ALL PRECAUTIONS POSSIBLE TO AVOID DAMAGING THERMOPLASTIC MARKINGS. ANY DAMAGE TO THERMOPLASTIC MARKINGS MUST BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY.
9. AT NO TIME SHALL THE CONTRACTOR CROSS ZIPPER LINE MARKINGS ON THE NLVR TO ACCESS THE PROJECT SITE WITHOUT HAVING AN APPROVED AMA ESCORT.
10. CONTRACTOR'S AMA ESCORT SHALL MAINTAIN RADIO CONTACT WITH GROUND CONTROL AT ALL TIMES WHILE ON THE JOBSITE.
11. SEE SHEETS G 04.12.1 THROUGH G 04.20.1 FOR TEMPORARY MARKING AND LIGHT FIXTURE WORK REQUIRED IN EACH PHASE.
12. CONTRACTOR SHALL REMOVE TEMPORARY HAUL ROUTE AND DRAIN PIPES IN ENTIRETY AND RESTORE AREA BACK TO EXISTING CONDITIONS INCLUDING SOD AT END OF PHASE.

LEGEND

- PROPOSED ASPHALT PAVING
- PROPOSED PCC PAVING
- TEMPORARY HAUL ROUTE
- LIMITS OF CLOSED PAVEMENT
- LIMITS OF NIGHT WORK (2330 TO 0630 HOURS)
- NO STATIONARY EQUIPMENT PERMITTED IN THIS AREA
- PROPOSED GRADING LIMITS
- LOW PROFILE BARRICADE
- CONTRACTOR HAUL ROUTE
- AIRCRAFT MOVEMENT ROUTE
- PROTECT/COVER EDGE LIGHTS
- AMA ESCORT CROSSING GUARD LOCATION. TWO AMA CERTIFIED/APPROVED CROSSING GUARDS (CITY APPROVED, CONTRACTOR PAID) REQUIRED TO CONTROL CROSSING VEHICLES.



1 PHASE 3 - TAXIWAY E WEST & F3 PHASING PLAN
G 04.03.1 SCALE: 1" = 100'

2/12/2016 10:19 AM
C:\PW_WORK\ATRANGA01\D0891TA\DM5054440\M556L-G 04.01.1 PHASING PLANS.DWG

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSONATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

PHASE 3 TAXIWAY E WEST & F3 NORTH PHASING PLAN

SHEET No

G 04.03.1

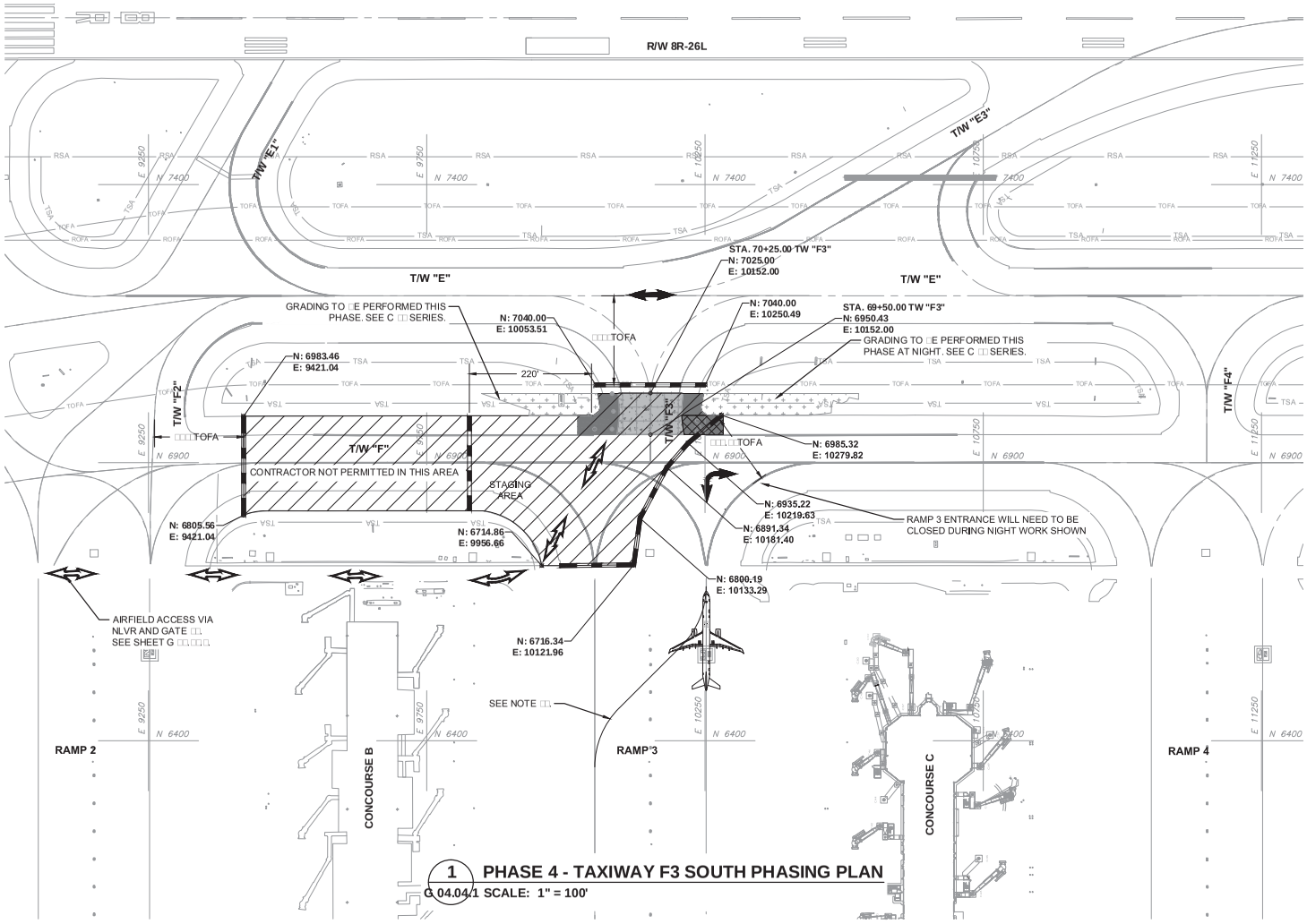
NOT ISSUED FOR CONSTRUCTION

NOTES

1. PHASE 4 SHALL BE COMPLETED AND OPEN TO AIR TRAFFIC WITHIN 10 DAYS (24 HR/DAY) INCLUDING STRIPING AND ELECTRICAL WORK AND EXCLUDING JOINT SEAL. UTILIZING NIGHT TIME CLOSURES, THE CONTRACTOR MAY COMPLETE INITIAL SAWCUTS FOR DEMOLITION UP TO 7 DAYS PRIOR TO BEGINNING OF PHASE AND SHALL COMPLETE JOINT SEAL ACTIVITIES PER P-605.
2. OTHER PHASES ARE IDENTIFIED ON SHEETS G 04.03 AND G 04.05 THROUGH G 04.10 BUT DO NOT HAVE TO PROGRESS IN ORDER. THE OWNER WILL DIRECT THE CONTRACTOR AS TO THE ORDER OF PHASE WORK.
3. PHASE 4 DEMOLITION AND PAVING WILL BEGIN AT STA 70+25.00 AND END AT STA 69+50.00. TAXIWAY F3 WEST PHASE INCLUDES APPROX. 477 SY OF AIRFIELD PCC PAVEMENT RECONSTRUCTION.
4. LOW PROFILE BARRICADES SHALL BE PLACED OUTSIDE OF THE GROUP V TAXIWAY OFA (160'), UNLESS OTHERWISE NOTED. BARRICADES ARE REQUIRED FOR ALL TAXIWAY CLOSURES.
5. CONTRACTOR SHALL BE ADVISED THAT AIRCRAFT TRAFFIC CAN BE EXPECTED TO BE HEAVIER FROM 0830 TO 1130 AND 1400 TO 2200.
6. CONTRACTOR SHALL ESTABLISH STAGING AREAS OUTSIDE OF ALL TAXIWAY AND RUNWAY OFA'S. NO EQUIPMENT, PERSONNEL, OR STOCKPILED MATERIALS ARE ALLOWED INSIDE OF THE OFA WHILE RUNWAY OR TAXIWAY IS ACTIVE.
7. CONTRACTOR IS RESPONSIBLE FOR COVERING ALL SIGNS AND LIGHTING THAT LEAD TO AN ACTIVE WORK AREA AS DIRECTED BY THE FIELD INSPECTOR OR ENGINEER AND UNCOVERING PRIOR TO REOPENING THE AREA.
8. CONTRACTOR SHALL TAKE ALL PRECAUTIONS POSSIBLE TO AVOID DAMAGING THERMOPLASTIC MARKINGS. ANY DAMAGE TO THERMOPLASTIC MARKINGS MUST BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY.
9. AT NO TIME SHALL THE CONTRACTOR CROSS ZIPPER LINE MARKINGS ON THE NLVR TO ACCESS THE PROJECT SITE WITHOUT HAVING AN APPROVED AMA ESCORT.
10. CONTRACTOR'S AMA ESCORT SHALL MAINTAIN RADIO CONTACT WITH GROUND CONTROL AT ALL TIMES WHILE ON THE JOBSITE.
11. SEE SHEETS G 04.12.1 THROUGH G 04.20.1 FOR TEMPORARY MARKING AND LIGHT FIXTURE WORK REQUIRED IN EACH PHASE.
12. CONTRACTOR SHALL REMOVE TEMPORARY HAUL ROUTE AND DRAIN PIPES IN ENTIRETY AND RESTORE AREA BACK TO EXISTING CONDITIONS INCLUDING SOD AT END OF PHASE.

LEGEND

- PROPOSED ASPHALT PAVING
- PROPOSED PCC PAVING
- LIMITS OF CLOSED PAVEMENT
- LIMITS OF NIGHT WORK (2330 TO 0630 HOURS)
- PROPOSED GRADING LIMITS
- LOW PROFILE BARRICADE
- CONTRACTOR HAUL ROUTE
- AIRCRAFT MOVEMENT ROUTE



1 PHASE 4 - TAXIWAY F3 SOUTH PHASING PLAN

G 04.04.1 SCALE: 1" = 100'

NORTH

100 0 100 200

GRAPHIC SCALE (IN FEET)

2/12/2016 10:21 AM
C:\PW_WORK\ATRANGA01\D0581TA\DM5054440\M586-G 04.01.1 PHASING PLANS.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

PHASE 4 TAXIWAY F3 SOUTH PHASING PLAN

SHEET No

G 04.04.1

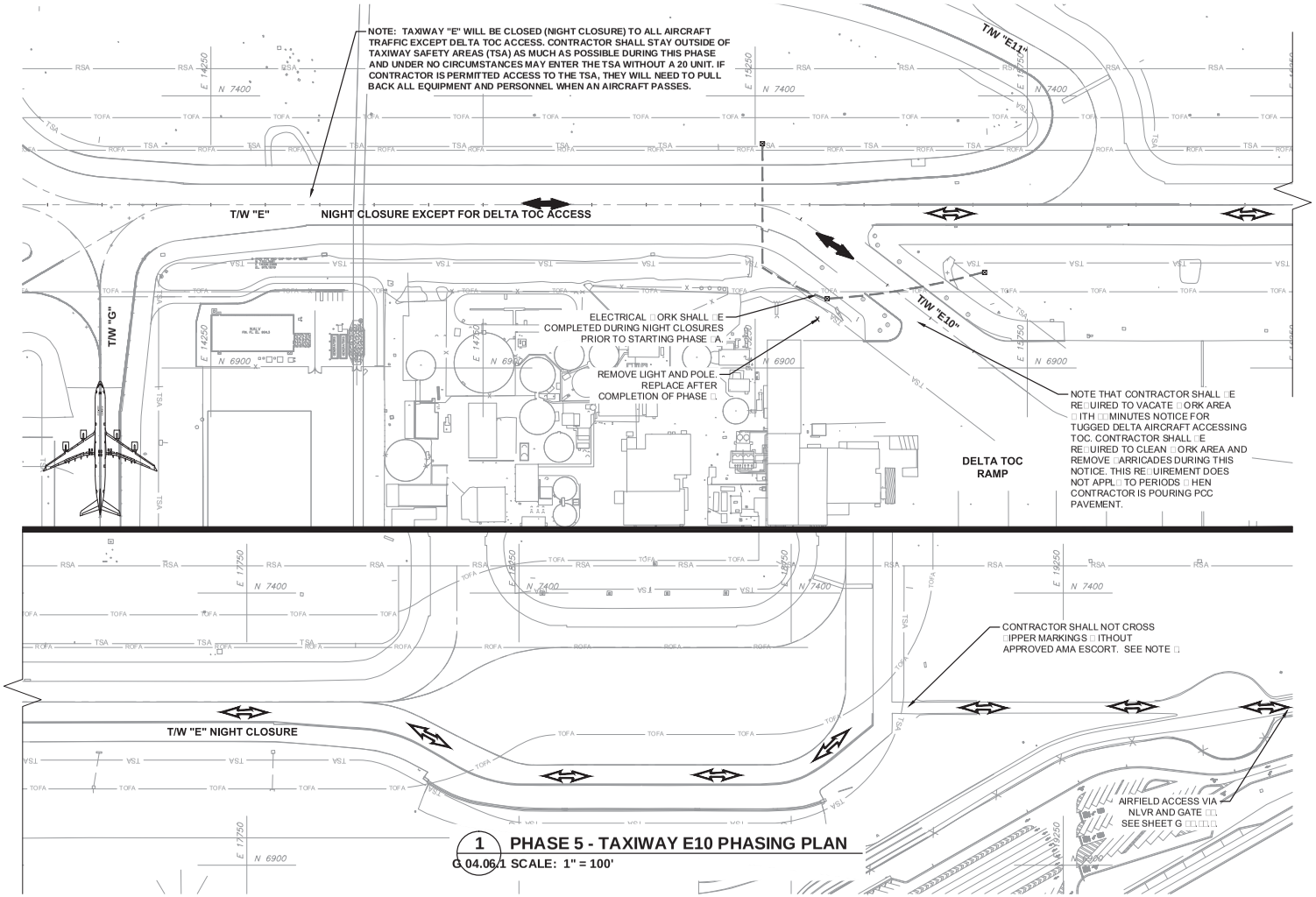
NOTES

1. PHASE 5 SHALL BE COMPLETED WITHIN 6 DAYS UTILIZING NIGHT TIME CLOSURES.
2. OTHER PHASES ARE IDENTIFIED ON SHEETS G 04.01 THROUGH G 04.04 AND G 04.06 THROUGH G 04.10 BUT DO NOT HAVE TO PROGRESS IN ORDER. THE OWNER WILL DIRECT THE CONTRACTOR AS TO THE ORDER OF PHASE WORK.
3. LOW PROFILE BARRICADES SHALL BE PLACED OUTSIDE OF THE GROUP V TAXIWAY OFA (160'), UNLESS OTHERWISE NOTED. BARRICADES ARE REQUIRED FOR ALL TAXIWAY CLOSURES.
4. CONTRACTOR SHALL ESTABLISH STAGING AREAS OUTSIDE OF ALL TAXIWAY AND RUNWAY OFA'S. NO EQUIPMENT, PERSONNEL, OR STOCKPILED MATERIALS ARE ALLOWED INSIDE OF THE OFA WHILE RUNWAY OR TAXIWAY IS ACTIVE.
5. AT NO TIME SHALL THE CONTRACTOR CROSS ZIPPER LINE MARKINGS ON THE NLVR TO ACCESS THE PROJECT SITE WITHOUT HAVING AN APPROVED 20 UNIT.
6. CONTRACTOR SHALL REMOVE TEMPORARY HAUL ROUTE IN ENTIRETY AND RESTORE AREA BACK TO EXISTING CONDITIONS AT END OF PHASE.

LEGEND

CONTRACTOR HAUL ROUTE

AIRCRAFT MOVEMENT ROUTE



PHASE 5 WORK SCOPE

- DIRECTIONAL DRILL UNDER TAXIWAY E AND TAXIWAY E10 BETWEEN MANHOLES SHOWN ON DRAWING.
- PULL CABLE THROUGH DIRECTIONAL DRILLED HOLE.

1 PHASE 5 - TAXIWAY E10 PHASING PLAN

G 04.06.1 SCALE: 1" = 100'

2/12/2016 9:11 AM
C:\PW_WORK\ATRNAD01\D0586174\{N0504440}\40586-G 04.07-1 E EAST PHASING PLANS.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	---
DRAWN BY	---
CHECKED BY	---
APPROVED BY	---

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

PHASE 5 TAXIWAY E EAST PHASING PLAN

SHEET No

G 04.05.1

NOTES

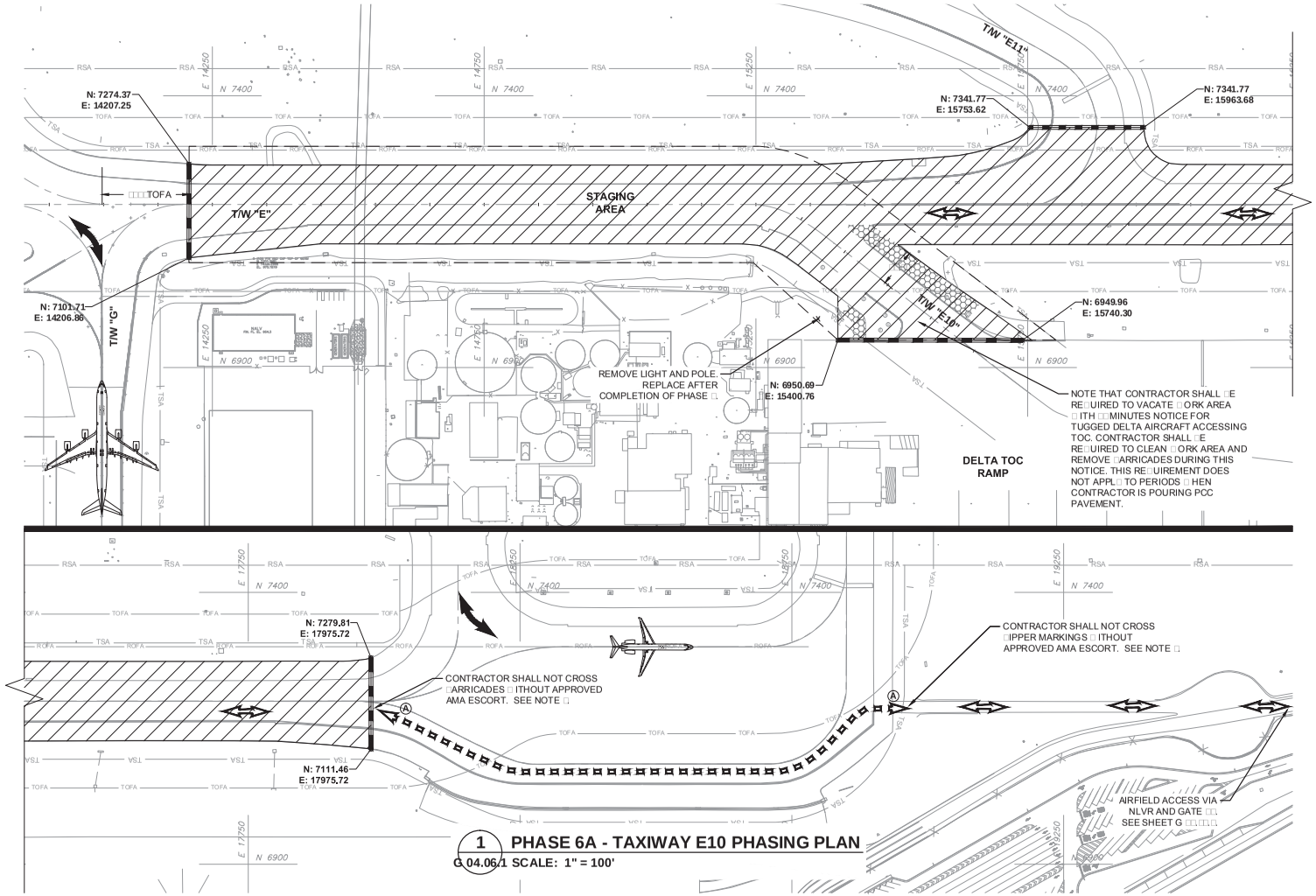
1. PHASE 6A SHALL BE COMPLETED AND OPEN TO AIR TRAFFIC WITHIN THE 31 HOUR CLOSURE PERIOD (2330 TO 0630 THE NEXT DAY) INCLUDING STRIPING AND ELECTRICAL WORK AND EXCLUDING JOINT SEAL. WITH EXCEPTION OF PCC TO BE REMOVED IN PHASE 8, JOINT SEAL SHALL BE PERFORMED IN PHASE 6B. UTILIZING NIGHT TIME CLOSURES, THE CONTRACTOR MAY COMPLETE INITIAL SAWCUTS FOR DEMOLITION UP TO 7 DAYS PRIOR TO BEGINNING OF PHASE AND SHALL COMPLETE JOINT SEAL ACTIVITIES PER P-605. CLOSURE MAY ONLY BE PERMITTED MONDAY NIGHT TO WEDNESDAY MORNING OR AS APPROVED BY AIRPORT.
2. OTHER PHASES ARE IDENTIFIED ON SHEETS G 04.01 THROUGH G 04.05 AND G 04.07 THROUGH G 04.10 BUT DO NOT HAVE TO PROGRESS IN ORDER. THE OWNER WILL DIRECT THE CONTRACTOR AS TO THE ORDER OF PHASE WORK.
3. PHASE 6A DEMOLITION AND PAVING WILL BEGIN AT STA 56+82.80 AND END AT STA 57+19.40. PHASE 6A INCLUDES APPROX. 1117 SY OF AIRFIELD PCC PAVEMENT RECONSTRUCTION.
4. LOW PROFILE BARRICADES SHALL BE PLACED OUTSIDE OF THE GROUP V TAXIWAY OFA (160'), UNLESS OTHERWISE NOTED. BARRICADES ARE REQUIRED FOR ALL TAXIWAY CLOSURES.
5. CONTRACTOR SHALL BE ADVISED THAT AIRCRAFT TRAFFIC CAN BE EXPECTED TO BE HEAVIER FROM 0830 TO 1130 AND 1400 TO 2200.
6. CONTRACTOR SHALL ESTABLISH STAGING AREAS OUTSIDE OF ALL TAXIWAY AND RUNWAY OFA'S. NO EQUIPMENT, PERSONNEL, OR STOCKPILED MATERIALS ARE ALLOWED INSIDE OF THE OFA WHILE RUNWAY OR TAXIWAY IS ACTIVE.
7. CONTRACTOR IS RESPONSIBLE FOR COVERING ALL SIGNS AND LIGHTING THAT LEAD TO AN ACTIVE WORK AREA AS DIRECTED BY THE FIELD INSPECTOR OR ENGINEER AND UNCOVERING PRIOR TO REOPENING THE AREA.
8. CONTRACTOR SHALL TAKE ALL PRECAUTIONS POSSIBLE TO AVOID DAMAGING THERMOPLASTIC MARKINGS. ANY DAMAGE TO THERMOPLASTIC MARKINGS MUST BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY.
9. AT NO TIME SHALL THE CONTRACTOR CROSS ZIPPER LINE MARKINGS ON THE NLVR TO ACCESS THE PROJECT SITE WITHOUT HAVING AN APPROVED AMA ESCORT.
10. CONTRACTOR'S AMA ESCORT SHALL MAINTAIN RADIO CONTACT WITH GROUND CONTROL AT ALL TIMES WHILE ON THE JOBSITE.
11. SEE SHEETS G 04.12.1 THROUGH G 04.20.1 FOR TEMPORARY MARKING AND LIGHT FIXTURE WORK REQUIRED IN EACH PHASE.
12. CONTRACTOR SHALL REMOVE TEMPORARY HAUL ROUTE AND DRAIN PIPES IN ENTIRETY AND RESTORE AREA BACK TO EXISTING CONDITIONS INCLUDING SOD AT END OF PHASE.
13. THE START DATE FOR PHASE 6A SHALL BE DETERMINED BY THE OWNER NOT THE CONTRACTOR.

LEGEND

- PROPOSED TEMPORARY TAXIWAY PAVING
- LIMITS OF CLOSED PAVEMENT
- LOW PROFILE BARRICADE
- CONTRACTOR HAUL ROUTE
- AIRCRAFT MOVEMENT ROUTE
- AMA ESCORT CROSSING GUARD LOCATION. TWO AMA CERTIFIED/APPROVED CROSSING GUARDS (CITY APPROVED, CONTRACTOR PAID) REQUIRED TO CONTROL CROSSING VEHICLES.

PHASE 6A WORK SCOPE

- DEMOLISH AND REMOVE BITUMINOUS SHOULDER PAVEMENT AND BASE MATERIAL.
- PREPARE SUBGRADE AND PLACE PCC PAVEMENT IN AREA SHOWN IN PLANS.



1 PHASE 6A - TAXIWAY E10 PHASING PLAN
G 04.06.1 SCALE: 1" = 100'

2/12/2016 9:15 AM
C:\PW_WORK\ATRANGA01\D0586174\[M0504400\40586-G 04.07-1 E EAST PHASING PLANS.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	4HW
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

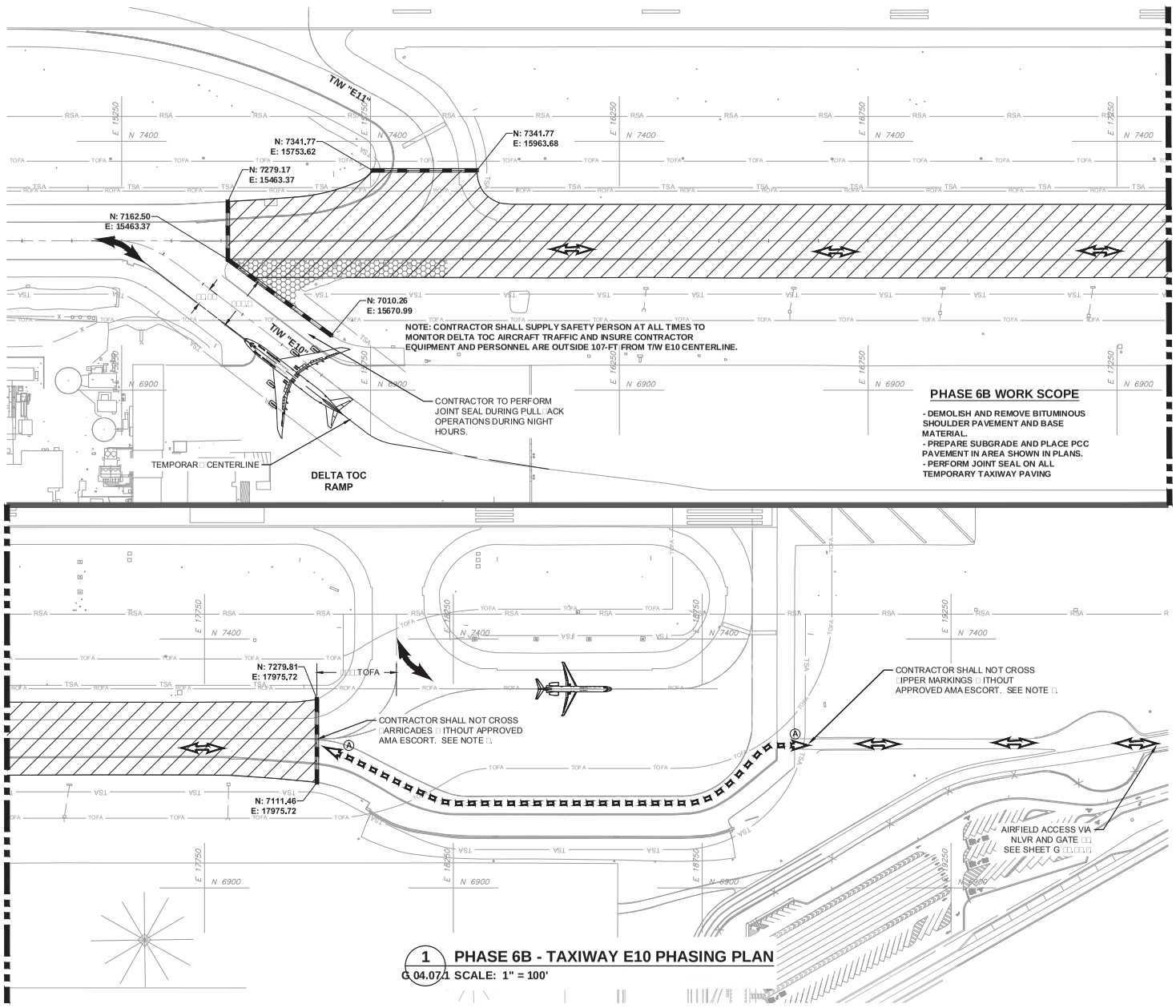
FEBRUARY 16, 2016

SHEET NAME

PHASE 6A TAXIWAY E10 PHASING PLAN

SHEET No

G 04.06.1



1 PHASE 6B - TAXIWAY E10 PHASING PLAN

G 04.07.1 SCALE: 1" = 100'

LEGEND

- PROPOSED TEMPORARY TAXIWAY PAVING
- LIMITS OF CLOSED PAVEMENT
- LOW PROFILE BARRICADE
- CONTRACTOR HAUL ROUTE
- AIRCRAFT MOVEMENT ROUTE
- AMA ESCORT CROSSING GUARD LOCATION. TWO AMA CERTIFIED/APPROVED CROSSING GUARDS (CITY APPROVED, CONTRACTOR PAID) REQUIRED TO CONTROL CROSSING VEHICLES.

NOTES

1. PHASE 6B SHALL BE COMPLETED AND OPEN TO AIR TRAFFIC WITHIN 3 DAYS (24 HR/DAY) INCLUDING STRIPING AND ELECTRICAL WORK AND EXCLUDING JOINT SEAL. UTILIZING NIGHT TIME CLOSURES, THE CONTRACTOR MAY COMPLETE INITIAL SAWCUTS FOR DEMOLITION UP TO 7 DAYS PRIOR TO BEGINNING OF PHASE AND SHALL COMPLETE JOINT SEAL ACTIVITIES PER P-605.
2. OTHER PHASES ARE IDENTIFIED ON SHEETS G 04.01 THROUGH G 04.06 AND G 04.08 THROUGH G 04.10 BUT DO NOT HAVE TO PROGRESS IN ORDER. THE OWNER WILL DIRECT THE CONTRACTOR AS TO THE ORDER OF PHASE WORK.
3. PHASE 6B DEMOLITION AND PAVING WILL BEGIN AT STA 57+19.40 AND END AT STA 57+66.20 PHASE 6B INCLUDES APPROX. 1410 SY OF AIRFIELD PCC PAVEMENT RECONSTRUCTION.
4. LOW PROFILE BARRICADES SHALL BE PLACED OUTSIDE OF THE GROUP V TAXIWAY OFA (160'), UNLESS OTHERWISE NOTED. BARRICADES ARE REQUIRED FOR ALL TAXIWAY CLOSURES.
5. CONTRACTOR SHALL BE ADVISED THAT AIRCRAFT TRAFFIC CAN BE EXPECTED TO BE HEAVIER FROM 0830 TO 1130 AND 1400 TO 2200.
6. CONTRACTOR SHALL ESTABLISH STAGING AREAS OUTSIDE OF ALL TAXIWAY AND RUNWAY OFA'S. NO EQUIPMENT, PERSONNEL, OR STOCKPILED MATERIALS ARE ALLOWED INSIDE OF THE OFA WHILE RUNWAY OR TAXIWAY IS ACTIVE.
7. CONTRACTOR IS RESPONSIBLE FOR COVERING ALL SIGNS AND LIGHTING THAT LEAD TO AN ACTIVE WORK AREA AS DIRECTED BY THE FIELD INSPECTOR OR ENGINEER AND UNCOVERING PRIOR TO REOPENING THE AREA.
8. CONTRACTOR SHALL TAKE ALL PRECAUTIONS POSSIBLE TO AVOID DAMAGING THERMOPLASTIC MARKINGS. ANY DAMAGE TO THERMOPLASTIC MARKINGS MUST BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY.
9. AT NO TIME SHALL THE CONTRACTOR CROSS ZIPPER LINE MARKINGS ON THE NLVR TO ACCESS THE PROJECT SITE WITHOUT HAVING AN APPROVED AMA ESCORT.
10. CONTRACTOR'S AMA ESCORT SHALL MAINTAIN RADIO CONTACT WITH GROUND CONTROL AT ALL TIMES WHILE ON THE JOBSITE.
11. SEE SHEETS G 04.12.1 THROUGH G 04.20.1 FOR TEMPORARY MARKING AND LIGHT FIXTURE WORK REQUIRED IN EACH PHASE.
12. CONTRACTOR SHALL REMOVE TEMPORARY HAUL ROUTE AND DRAIN PIPES IN ENTIRETY AND RESTORE AREA BACK TO EXISTING CONDITIONS INCLUDING SOD AT END OF PHASE.

NORTH

100 0 100 200

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.30.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

PHASE 6B TAXIWAY E10 PHASING PLAN

SHEET No

G 04.07.1

NOT ISSUED FOR CONSTRUCTION

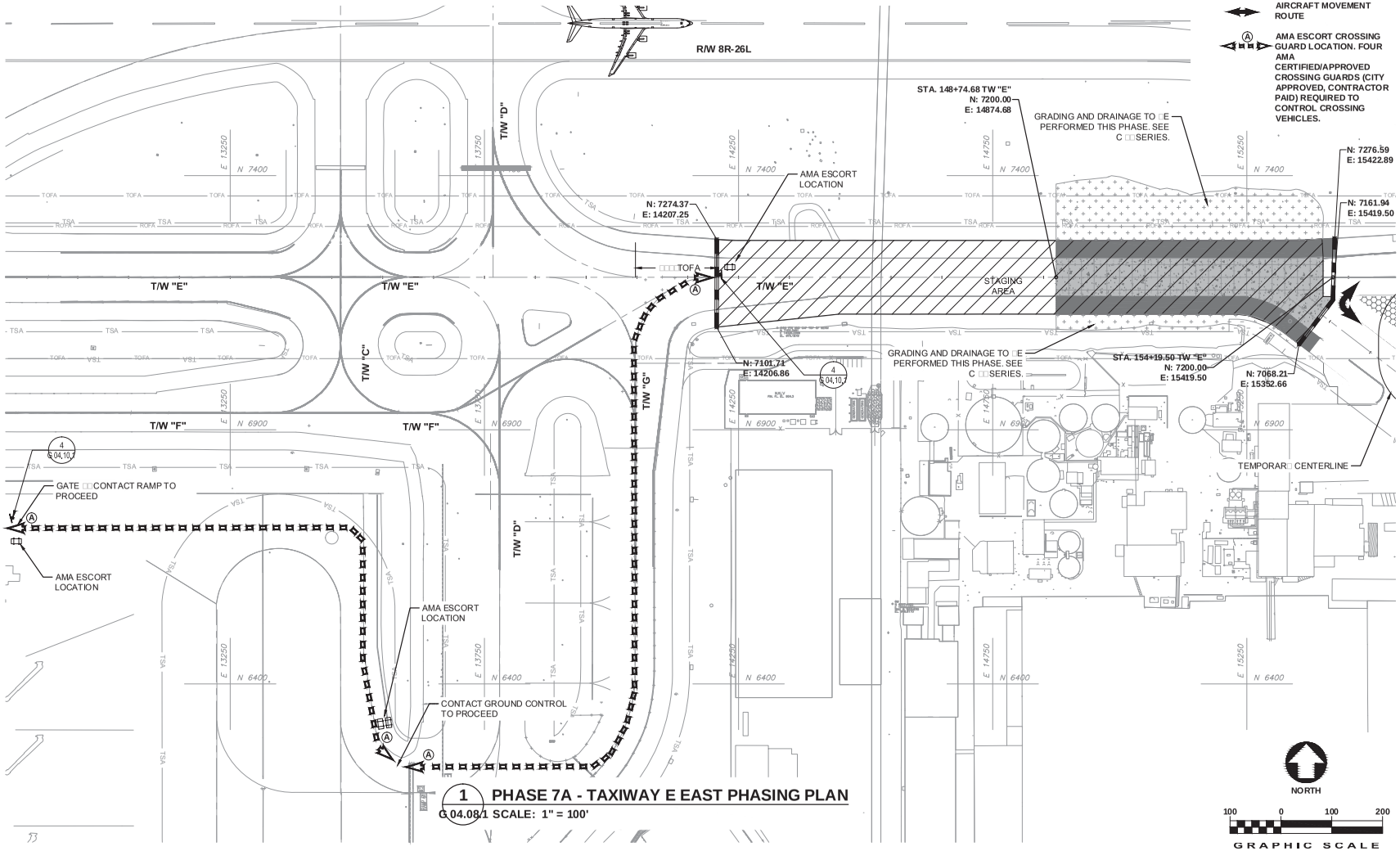
2/12/2016 3:32 PM
C:\PW_WORK\ATRNAD01\D0586174\{M0056440}\46586-G 04.07-1 E EAST PHASING PLANS.DWG

NOTES

1. PHASE 7A SHALL BE COMPLETED AND OPEN TO AIR TRAFFIC WITHIN 14 DAYS (24 HR/DAY) INCLUDING STRIPING AND ELECTRICAL WORK AND EXCLUDING JOINT SEAL. UTILIZING NIGHT TIME CLOSURES, THE CONTRACTOR MAY COMPLETE INITIAL SAWCUTS FOR DEMOLITION UP TO 7 DAYS PRIOR TO BEGINNING OF PHASE AND SHALL COMPLETE JOINT SEAL ACTIVITIES PER P-605.
2. OTHER PHASES ARE IDENTIFIED ON SHEETS G 04.01 THROUGH G 04.07 AND G 04.09 THROUGH G 04.10 BUT DO NOT HAVE TO PROGRESS IN ORDER. THE OWNER WILL DIRECT THE CONTRACTOR AS TO THE ORDER OF PHASE WORK.
3. TAXIWAY E10 PHASE 3 DEMOLITION AND PAVING WILL BEGIN AT STA 148+74.68 AND END AT STA 154+19.50. TAXIWAY E10 PHASE 3 INCLUDES APPROX. 4935 SY OF AIRFIELD PCC PAVEMENT RECONSTRUCTION.
4. LOW PROFILE BARRICADES SHALL BE PLACED OUTSIDE OF THE GROUP V TAXIWAY OFA (160'), UNLESS OTHERWISE NOTED. BARRICADES ARE REQUIRED FOR ALL TAXIWAY CLOSURES.
5. CONTRACTOR SHALL BE ADVISED THAT AIRCRAFT TRAFFIC CAN BE EXPECTED TO BE HEAVIER FROM 0830 TO 1130 AND 1400 TO 2200.
6. CONTRACTOR SHALL ESTABLISH STAGING AREAS OUTSIDE OF ALL TAXIWAY AND RUNWAY OFA'S. NO EQUIPMENT, PERSONNEL, OR STOCKPILED MATERIALS ARE ALLOWED INSIDE OF THE OFA WHILE RUNWAY OR TAXIWAY IS ACTIVE.
7. CONTRACTOR IS RESPONSIBLE FOR COVERING ALL SIGNS AND LIGHTING THAT LEAD TO AN ACTIVE WORK AREA AS DIRECTED BY THE FIELD INSPECTOR OR ENGINEER AND UNCOVERING PRIOR TO REOPENING THE AREA.
8. CONTRACTOR SHALL TAKE ALL PRECAUTIONS POSSIBLE TO AVOID DAMAGING THERMOPLASTIC MARKINGS. ANY DAMAGE TO THERMOPLASTIC MARKINGS MUST BE REPARED BY THE CONTRACTOR AT NO COST TO THE CITY.
9. AT NO TIME SHALL THE CONTRACTOR CROSS ZIPPER LINE MARKINGS ON THE NLVR TO ACCESS THE PROJECT SITE WITHOUT HAVING AN APPROVED AMA ESCORT.
10. CONTRACTOR'S AMA ESCORT SHALL MAINTAIN RADIO CONTACT WITH GROUND CONTROL AT ALL TIMES WHILE ON THE JOBSITE.
11. SEE SHEETS G 04.12.1 THROUGH G 04.20.1 FOR TEMPORARY MARKING AND LIGHT FIXTURE WORK REQUIRED IN EACH PHASE.
12. CONTRACTOR SHALL REMOVE TEMPORARY HAUL ROUTE AND DRAIN PIPES IN ENTIRETY AND RESTORE AREA BACK TO EXISTING CONDITIONS INCLUDING SOD AT END OF PHASE.

LEGEND

- PROPOSED ASPHALT PAVING
- PROPOSED PCC PAVING
- LIMITS OF CLOSED PAVEMENT
- LOW PROFILE BARRICADE
- CONTRACTOR HAUL ROUTE
- AIRCRAFT MOVEMENT ROUTE
- AMA ESCORT CROSSING GUARD LOCATION. FOUR AMA CERTIFIED/APPROVED CROSSING GUARDS (CITY APPROVED, CONTRACTOR PAID) REQUIRED TO CONTROL CROSSING VEHICLES.



1 PHASE 7A - TAXIWAY E EAST PHASING PLAN
G 04.08.1 SCALE: 1" = 100'

2/12/2016 9:21 AM
C:\PW_WORK\ATRNAD01\D0586174\{M0504400\4058G-G 04.07-1 E EAST PHASING PLANS.DWG

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

PHASE 7A TAXIWAY E10 PHASING PLAN

SHEET No

G 04.08.1

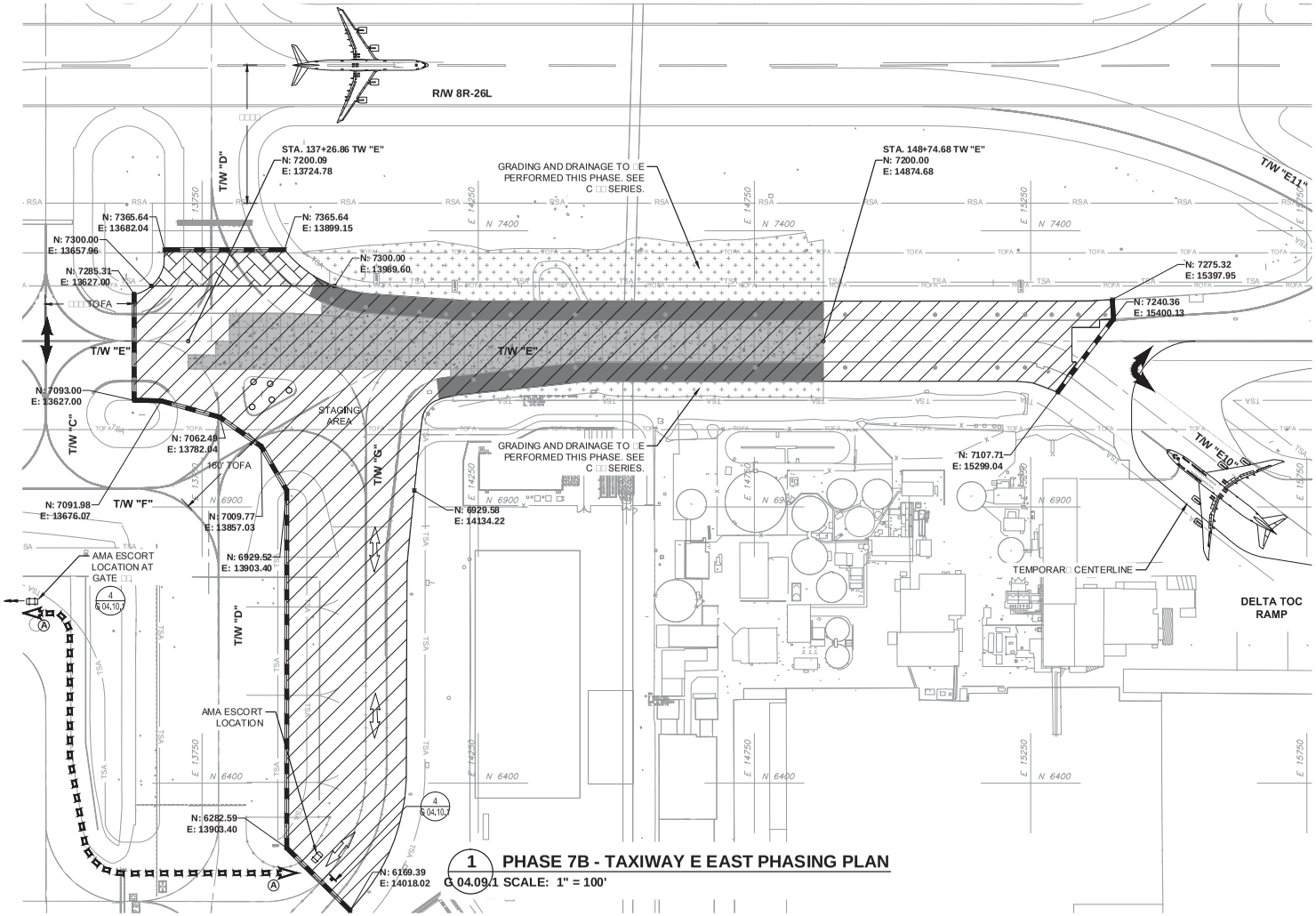
NOT ISSUED FOR CONSTRUCTION

NOTES

1. PHASE 7B SHALL BE COMPLETED AND OPEN TO AIR TRAFFIC WITHIN 18 DAYS (24 HR/DAY) INCLUDING STRIPING AND ELECTRICAL WORK AND EXCLUDING JOINT SEAL. UTILIZING NIGHT TIME CLOSURES, THE CONTRACTOR MAY COMPLETE INITIAL SAWCUTS FOR DEMOLITION UP TO 7 DAYS PRIOR TO BEGINNING OF PHASE AND SHALL COMPLETE JOINT SEAL ACTIVITIES PER P-605.
2. OTHER PHASES ARE IDENTIFIED ON SHEETS G 04.01 THROUGH G 04.08 AND G 04.10 BUT DO NOT HAVE TO PROGRESS IN ORDER. THE OWNER WILL DIRECT THE CONTRACTOR AS TO THE ORDER OF PHASE WORK.
3. PHASE 7B DEMOLITION AND PAVING WILL BEGIN AT STA 137+26.86 AND END AT STA 148+74.68. PHASE 7B INCLUDES APPROX. 10715 SY OF AIRFIELD PCC PAVEMENT RECONSTRUCTION.
4. LOW PROFILE BARRICADES SHALL BE PLACED OUTSIDE OF THE GROUP V TAXIWAY OFA (160'), UNLESS OTHERWISE NOTED. BARRICADES ARE REQUIRED FOR ALL TAXIWAY CLOSURES.
5. CONTRACTOR SHALL BE ADVISED THAT AIRCRAFT TRAFFIC CAN BE EXPECTED TO BE HEAVIER FROM 0830 TO 1130 AND 1400 TO 2200.
6. CONTRACTOR SHALL ESTABLISH STAGING AREAS OUTSIDE OF ALL TAXIWAY AND RUNWAY OFA'S. NO EQUIPMENT, PERSONNEL, OR STOCKPILED MATERIALS ARE ALLOWED INSIDE OF THE OFA WHILE RUNWAY OR TAXIWAY IS ACTIVE.
7. CONTRACTOR IS RESPONSIBLE FOR COVERING ALL SIGNS AND LIGHTING THAT LEAD TO AN ACTIVE WORK AREA AS DIRECTED BY THE FIELD INSPECTOR OR ENGINEER AND UNCOVERING PRIOR TO REOPENING THE AREA.
8. CONTRACTOR SHALL TAKE ALL PRECAUTIONS POSSIBLE TO AVOID DAMAGING THERMOPLASTIC MARKINGS. ANY DAMAGE TO THERMOPLASTIC MARKINGS MUST BE REPARED BY THE CONTRACTOR AT NO COST TO THE CITY.
9. AT NO TIME SHALL THE CONTRACTOR CROSS ZIPPER LINE MARKINGS ON THE NLVR TO ACCESS THE PROJECT SITE WITHOUT HAVING AN APPROVED AMA ESCORT.
10. CONTRACTOR SHALL MAINTAIN RADIO CONTACT WITH GROUND CONTROL AT ALL TIMES WHILE ON THE JOBSITE.
11. SEE SHEETS G 04.12.1 THROUGH G 04.20.1 FOR TEMPORARY MARKING AND LIGHT FIXTURE WORK REQUIRED IN EACH PHASE.
12. CONTRACTOR SHALL REMOVE TEMPORARY HAUL ROUTE AND DRAIN PIPES IN ENTIRETY AND RESTORE AREA BACK TO EXISTING CONDITIONS INCLUDING SOD AT END OF PHASE.

LEGEND

- PROPOSED ASPHALT PAVING
- PROPOSED PCC PAVING
- LIMITS OF CLOSED PAVEMENT
- PROPOSED GRADING LIMITS
- LOW PROFILE BARRICADE
- CONTRACTOR HAUL ROUTE
- AIRCRAFT MOVEMENT ROUTE
- PROTECT/COVER EDGE LIGHTS
- AMA ESCORT CROSSING GUARD LOCATION. TWO AMA CERTIFIED/APPROVED CROSSING GUARDS (CITY APPROVED, CONTRACTOR PAID) REQUIRED TO CONTROL CROSSING VEHICLES.



1 PHASE 7B - TAXIWAY E EAST PHASING PLAN
G 04.09.1 SCALE: 1" = 100'

NORTH

100 0 100 200
GRAPHIC SCALE
(IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

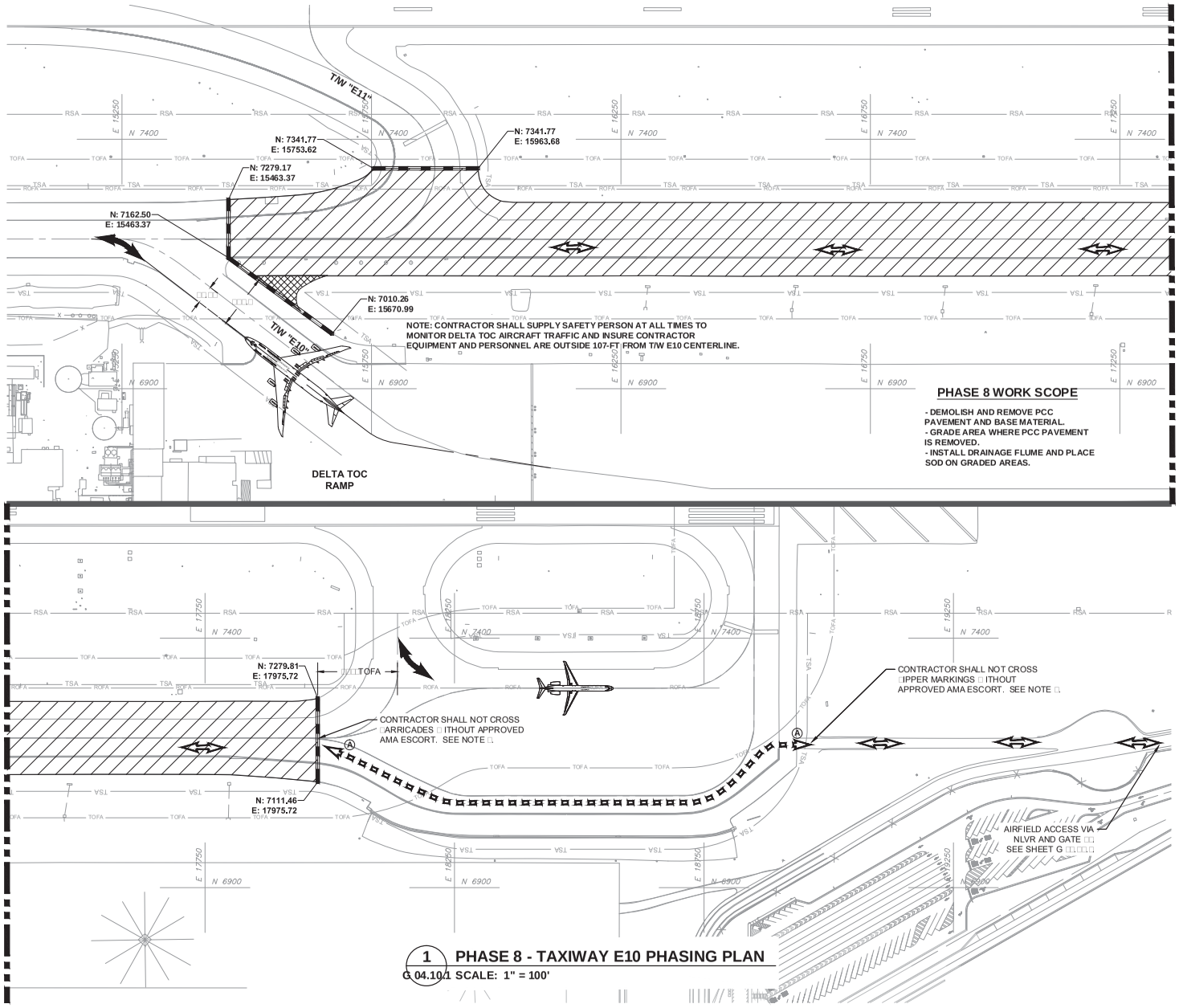
SHEET NAME

PHASE 7B TAXIWAY E10 PHASING PLAN

SHEET No

G 04.09.1

2/12/2016 9:23 AM
C:\PW_WORK\ATRNAD01\JOB61714\JN0504401\46586-G 04.07-1 E EAST PHASING PLANS.DWG



1 PHASE 8 - TAXIWAY E10 PHASING PLAN

G 04.10.1 SCALE: 1" = 100'

LEGEND

- PROPOSED TEMPORARY TAXIWAY PAVING
- LIMITS OF CLOSED PAVEMENT
- LOW PROFILE BARRICADE
- CONTRACTOR HAUL ROUTE
- AIRCRAFT MOVEMENT ROUTE
- AMA ESCORT CROSSING GUARD LOCATION. TWO AMA CERTIFIED/APPROVED CROSSING GUARDS (CITY APPROVED, CONTRACTOR PAID) REQUIRED TO CONTROL CROSSING VEHICLES.

NOTES

1. PHASE 8 SHALL BE COMPLETED WITHIN 2 DAYS (24 HRS/DAY).
2. OTHER PHASES ARE IDENTIFIED ON SHEETS G 04.01 THROUGH G 04.09 BUT DO NOT HAVE TO PROGRESS IN ORDER. THE OWNER WILL DIRECT THE CONTRACTOR AS TO THE ORDER OF PHASE WORK.
3. LOW PROFILE BARRICADES SHALL BE PLACED OUTSIDE OF THE GROUP V TAXIWAY OFA (160'), UNLESS OTHERWISE NOTED. BARRICADES ARE REQUIRED FOR ALL TAXIWAY CLOSURES.
4. CONTRACTOR SHALL BE ADVISED THAT AIRCRAFT TRAFFIC AN BE EXPECTED TO BE HEAVIER FROM 0830 TO 1130 AND 1400-2200.
5. CONTRACTOR SHALL ESTABLISH STAGING AREAS OUTSIDE OF ALL TAXIWAY AND RUNWAY OFA'S. NO EQUIPMENT, PERSONNEL, OR STOCKPILED MATERIALS ARE ALLOWED INSIDE OF THE OFA WHILE RUNWAY OR TAXIWAY IS ACTIVE.
6. CONTRACTOR IS RESPONSIBLE FOR COVERING ALL SIGNS AND LIGHTING THAT LEAD TO AN ACTIVE WORK AREA AS DIRECTED BY THE FIELD INSPECTOR OR ENGINEER AND UNCOVERING PRIOR TO REOPENING THE AREA.
7. CONTRACTOR SHALL TAKE ALL PRECAUTIONS POSSIBLE TO AVOID DAMAGING THERMOPLASTIC MARKINGS. ANY DAMAGE TO THERMOPLASTIC MARKINGS MUST BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY.
8. AT NO TIME SHALL THE CONTRACTOR CROSS ZIPPER LINE MARKINGS ON THE NLVR TO ACCESS THE PROJECT SITE WITHOUT HAVING AN APPROVED AMA ESCORT.
9. CONTRACTOR'S AMA ESCORT SHALL MAINTAIN RADIO CONTACT WITH GROUND CONTROL AT ALL TIMES WHILE ON THE JOBSITE.
10. SEE SHEETS G 04.12.1 THROUGH G 04.20.1 FOR TEMPORARY MARKING AND LIGHT FIXTURE WORK REQUIRED IN EACH PHASE.
11. CONTRACTOR SHALL REMOVE TEMPORARY HAUL ROUTE IN ENTIRETY AND RESTORE AREA BACK TO EXISTING CONDITIONS AT END OF PHASE

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	---
DRAWN BY	---
CHECKED BY	---
APPROVED BY	---

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	mmw
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

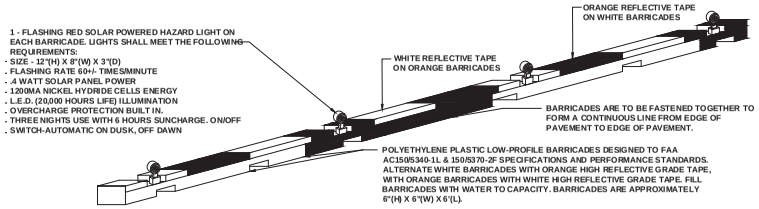
PHASE 8 TAXIWAY E10 PHASING PLAN

SHEET No

G 04.10.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 9:26 AM
C:\PW_WORK\ATRNAD01\D0586174\{N0504440\4058G-G 04.07-1 E EAST PHASING PLANS.DWG



1 POLYETHYLENE PLASTIC LOW PROFILE BARRICADE
G 04.11.1 SCALE: N.T.S.

LOW PROFILE BARRICADE NOTES

1. THE CONTRACTOR SHALL INSTALL LOW-PROFILE BARRICADES TO ADEQUATELY DELINEATE THE TAXIWAY CLOSURE AREA(S). THE CONTRACTOR SHALL BE REQUIRED TO ENSURE THAT THE BARRICADE LIGHTS ARE WORKING AT ALL TIMES.
2. THE CONTRACTOR SHALL PLACE BARRICADES AT EACH HOLDBAR AS APPLICABLE AND AT THE ENDS OF THE WORK AREA ACROSS THE TAXIWAY TO PREVENT AIRCRAFT ENTRANCE. SPECIFIC LOCATION FOR PLACEMENT OF BARRICADES WILL BE APPROVED/DIRECTED BY AN AIRSIDE OPERATIONS REPRESENTATIVE EACH NIGHT PRIOR TO START OF WORK.
3. CONTRACTOR SHALL HAVE BRICK BAGS AVAILABLE TO SECURE BARRICADES AS NEEDED OR AS REQUIRED BY THE CM AND/OR AIRSIDE OPERATIONS.
4. CONTRACTOR SHALL PROVIDE 24-HOUR CONTACT INFORMATION FOR EMERGENCY MAINTENANCE OF AIRPORT HAZARD LIGHTING AND BARRICADES. CONTACT INFORMATION MUST BE FILED WITH THE DOA PRIOR TO PLACING BARRICADES OR LIGHTS.
5. SPACING OF BARRICADES MUST BE SUCH THAT A BREACH IS PHYSICALLY PREVENTED BARRING A DELIBERATE ACT. BARRICADES SHALL BE CONTINUOUSLY LINKED ACROSS THE WIDTH OF ANY CLOSED TAXIWAY.
6. LIGHTS MUST BE MOUNTED ON BARRICADES AND SPACED AT NO MORE THAN 10 FEET APART. LIGHTS MUST BE OPERATED BETWEEN SUNSET AND SUNRISE AND DURING PERIODS OF LOW VISIBILITY.

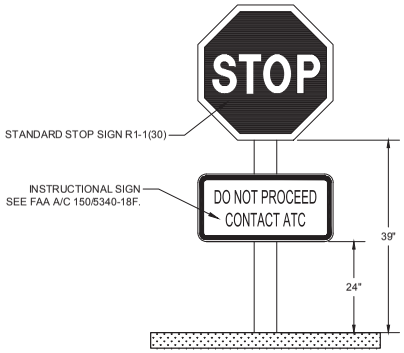
NOTES

PRIOR TO WORK:

1. CONTRACTOR SHALL COORDINATE WITH OWNER TO ISSUE A NOTAM PRIOR TO ANY TAXIWAY CLOSURE.
2. IMMEDIATELY AFTER THE NOTAM IS ISSUED, CONTRACTOR SHALL PLACE BARRICADES AND DISABLE CENTERLINE AND EDGE LIGHTS.

AFTER WORK IS COMPLETE:

3. CONTRACTOR SHALL INSPECT ALL PAVEMENTS WITHIN AND NEAR WORK AREAS FOR FOD. ALL FOD SHALL BE REMOVED.
4. CONTRACTOR SHALL REMOVE BARRICADES AND PERFORM FOD CHECK.
5. CONTRACTOR SHALL RE-ENERGIZE LIGHTING.
6. CONTRACTOR SHALL COORDINATE WITH OWNER TO REMOVE NOTAM AND REOPEN TAXIWAY.



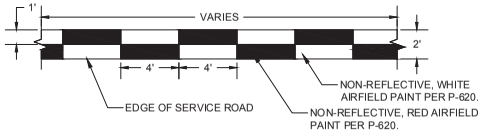
TEMPORARY STOP AND INSTRUCTIONAL SIGN NOTES

1. THE CONTRACTOR SHALL REFERENCE FAA ADVISORY CIRCULAR 150/5340-18F FOR DETAILS ON THE SIGNS.
2. REFER TO SHEETS G 04.01.1 THROUGH G 04.08.1 FOR TEMPORARY SIGN LOCATIONS.

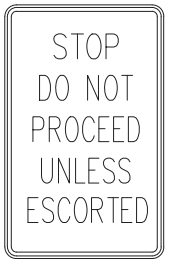
2 TEMPORARY STOP & INSTRUCTIONAL SIGN
G 04.11.1 SCALE: N.T.S.

TEMPORARY ZIPPER MARKING NOTES

1. THE CONTRACTOR SHALL FOLLOW DESIGN PARAMETERS OUTLINED IN FAA ADVISORY CIRCULAR 150/5340-1L WITH THE EXCEPTION OF THE PAINT COLOR FOR ALL TEMPORARY ZIPPER MARKINGS.
2. TEMPORARY ZIPPER MARKINGS SHALL BE PAINTED WHITE AND RED, PER AIRPORT STANDARD AS SHOWN IN DETAIL 3.
3. REFER TO SHEETS G 04.01.1 THROUGH G 04.08.1 FOR TEMPORARY ZIPPER MARKER LOCATIONS.
4. REFER TO SPECIFICATION P-620 FOR ADDITIONAL INFORMATION ON PAINT.



3 TEMPORARY ZIPPER MARKING
G 04.11.1 SCALE: N.T.S.



THIS IS A SPECIAL REGULATORY SIGN AND SHALL COMPLY WITH CHAPTER 2B OF THE MUTCD.

4 AMA CROSSING SIGN
G 04.11.1 SCALE: N.T.S.

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	--
HJIP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

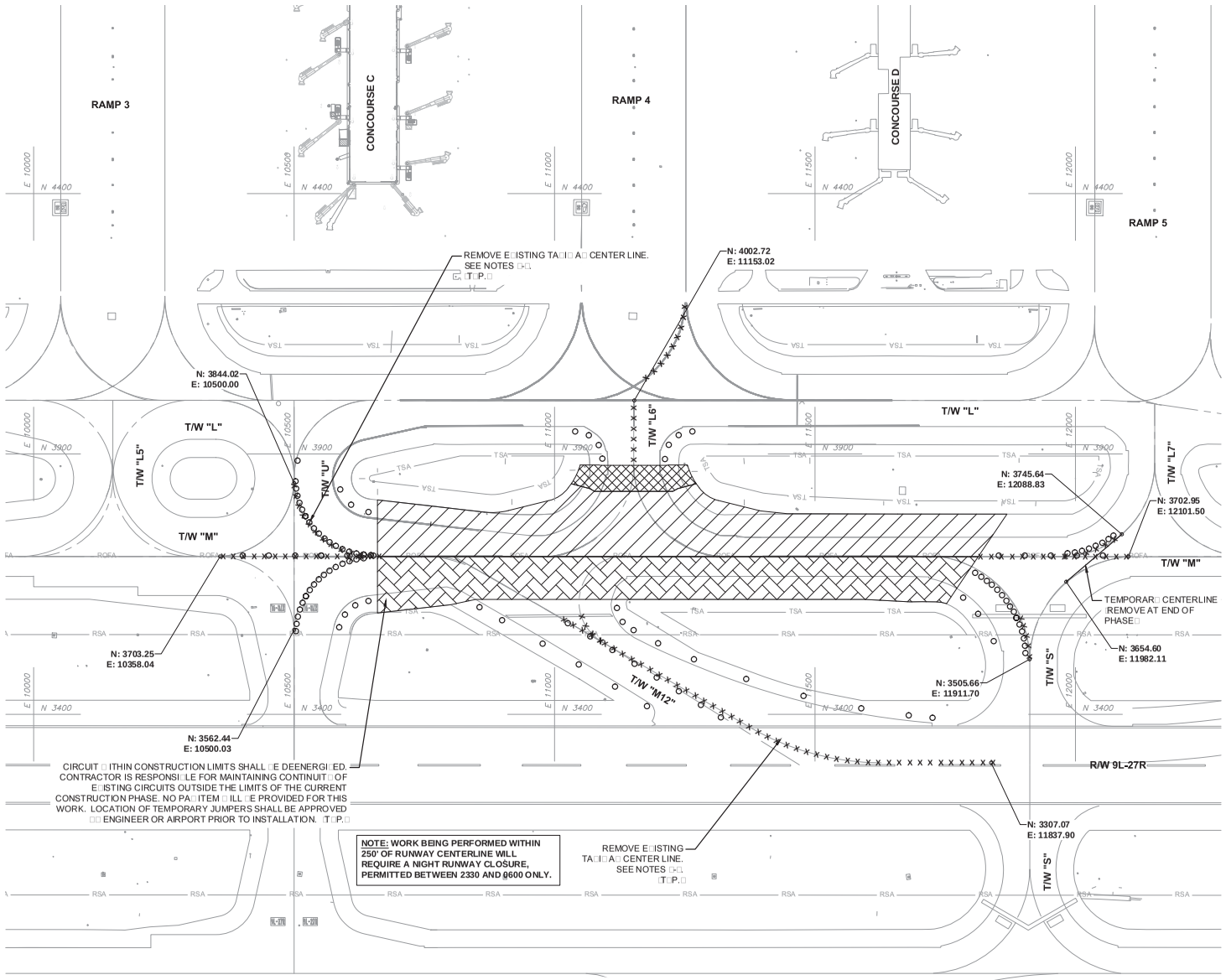
TAXIWAY RECONSTRUCTION PHASING DETAILS

SHEET No

G 04.11.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 6:18 PM
C:\PW_WORK\ATRNAD01\SRA7517\DMS0449\46586~G 04.11.1 PHASING DETAILS.DWG



1 PHASE 1 TEMPORARY MARKING AND LIGHTING MARKING PLAN

G 04.12.1 SCALE: 1" = 100'

LEGEND

- PROJECT PHASE WORK LIMITS
- LIMITS OF NIGHT WORK
- NO STATIONARY EQUIPMENT PERMITTED IN THIS AREA
- X X X PAVEMENT MARKINGS TO BE REMOVED FOR THIS PHASE ONLY
- ○ ○ ○ DISCONNECT EXISTING LIGHT FIXTURE
- TEMPORARY PAVEMENT MARKING TO BE ADDED FOR THIS PHASE ONLY

NOTES

1. SEE SHEET C 12.05.1 FOR PAVEMENT MARKING NOTES AND DETAILS.
2. SEE CONSTRUCTION PHASING AND SAFETY PLANS.
3. ANY MARKING TO BE REMOVED SHALL BE REMOVED BY WATER BLASTING. NO CHEMICAL PAINT REMOVERS ARE ALLOWED. CONTRACTOR SHALL DEMONSTRATE TO RPR THAT THE PROPER PRESSURE WILL BE USED TO PREVENT PAVEMENT DAMAGE. ALL JOINT SEALANT DAMAGED BY REMOVAL OPERATIONS SHALL BE REPAIRED PER P-605 AT NO COST TO THE OWNER.
4. PAVEMENT MARKING REMOVAL SHALL BE DONE IN ACCORDANCE WITH SPECIFICATION P-621.
5. CONTRACTOR SHALL SURVEY EXISTING TAXIWAY CENTERLINE PRIOR TO REMOVAL, AND REPLACE IN SAME LOCATION WHERE REMOVED.
6. CONTRACTOR SHALL REPLACE ALL MARKINGS REMOVED AT COMPLETION OF CONSTRUCTION FOR EACH PHASE.
7. CONTRACTOR SHALL REMOVE ALL TEMPORARY MARKINGS AT PHASE COMPLETION.
8. CONTRACTOR SHALL REMOVE AND DISCONNECT TAXIWAY CENTERLINE AND EDGE LIGHT FIXTURES FROM CIRCUIT AND REINSTALL WHERE SHOWN. ENGINEER AND AIRPORT OPERATIONS TO VERIFY WHICH LIGHTS IN EACH PHASE. FIXTURES TO BE RECONNECTED AT PHASE COMPLETION.
9. CONTRACTOR SHALL COVER ALL PORTIONS OF AIRFIELD SIGNAGE LEADING TO CLOSED TAXIWAYS OR CONSTRUCTION AREAS.
10. CONTRACTOR SHALL NOT DAMAGE OR REMOVE THERMOPLASTIC 'ENHANCED' CENTERLINE MARKINGS LEADING UP TO RUNWAY HOLDING POSITIONS AT ANY LOCATION. ANY DAMAGE TO THERMOPLASTIC MARKINGS SHALL BE REPAIRED AT NO COST TO THE CITY.

NORTH

100 0 100 200

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
COA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

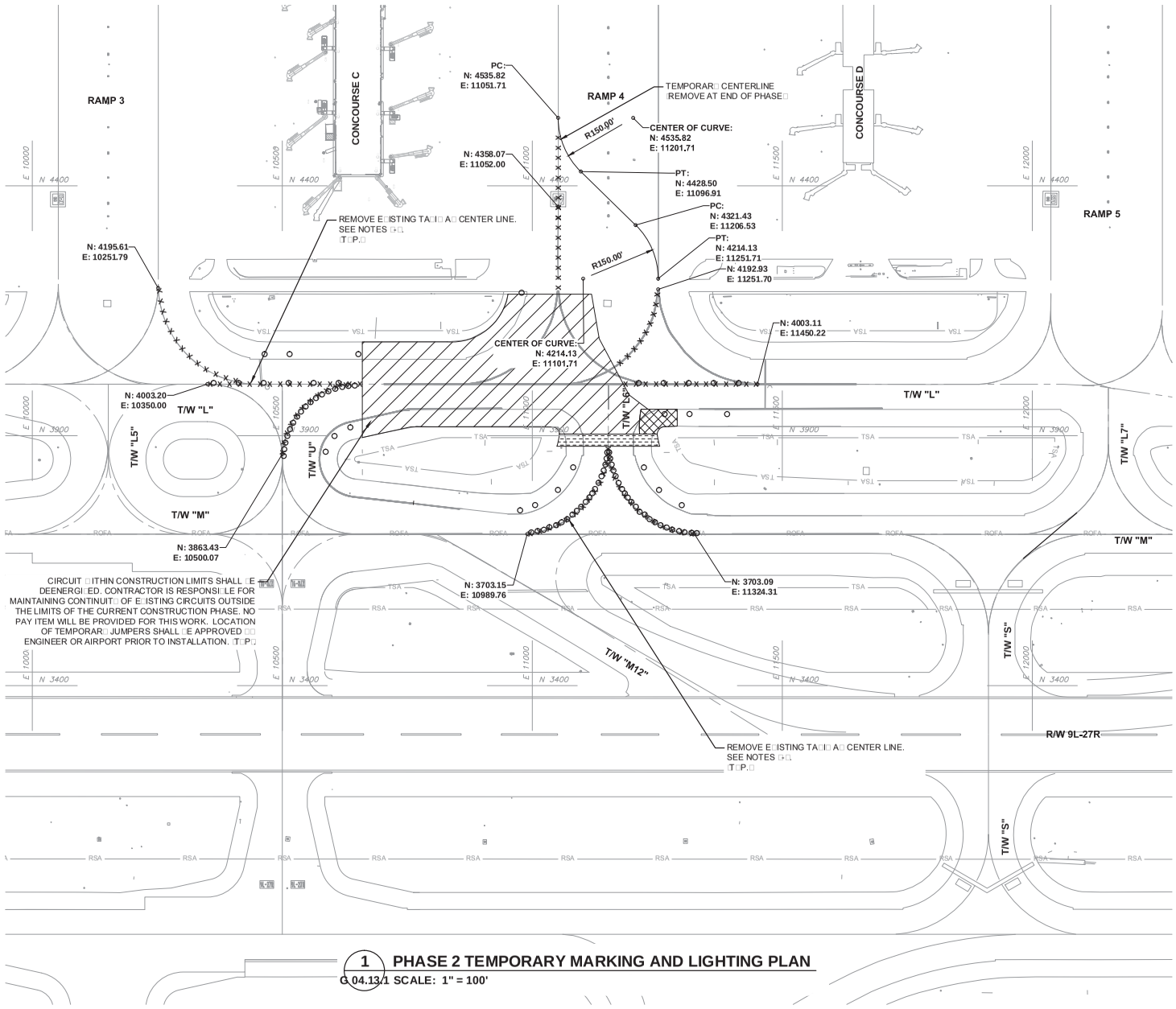
SHEET NAME

PHASE 1 TEMPORARY MARKING AND LIGHTING PLAN

SHEET No

G 04.12.1

2/12/2016 2:55 PM
C:\PW_WORK\ATRNAD01\D0586174\{N0584440}\40586-G 04.12.1 TEMPORARY MARKING PLANS.DWG



1 PHASE 2 TEMPORARY MARKING AND LIGHTING PLAN

G 04.13.1 SCALE: 1" = 100'

LEGEND

- PROJECT PHASE WORK LIMITS
- LIMITS OF NIGHT WORK
- LIMITS OF PULL BACK WORK
- X X X PAVEMENT MARKINGS TO BE REMOVED FOR THIS PHASE ONLY
- ○ ○ ○ DISCONNECT EXISTING LIGHT FIXTURE
- TEMPORARY PAVEMENT MARKING TO BE ADDED FOR THIS PHASE ONLY

NOTES

1. SEE SHEET C 12.05.1 FOR PAVEMENT MARKING NOTES AND DETAILS.
2. SEE CONSTRUCTION PHASING AND SAFETY PLANS.
3. ANY MARKING TO BE REMOVED SHALL BE REMOVED BY WATER BLASTING. NO CHEMICAL PAINT REMOVERS ARE ALLOWED. CONTRACTOR SHALL DEMONSTRATE TO RPR THAT THE PROPER PRESSURE WILL BE USED TO PREVENT PAVEMENT DAMAGE. ALL JOINT SEALANT DAMAGED BY REMOVAL OPERATIONS SHALL BE REPAIRED PER P-605 AT NO COST TO THE OWNER.
4. PAVEMENT MARKING REMOVAL SHALL BE DONE IN ACCORDANCE WITH SPECIFICATION P-621.
5. CONTRACTOR SHALL SURVEY EXISTING TAXIWAY CENTERLINE PRIOR TO REMOVAL, AND REPLACE IN SAME LOCATION WHERE REMOVED.
6. CONTRACTOR SHALL REPLACE ALL MARKINGS REMOVED AT COMPLETION OF CONSTRUCTION FOR EACH PHASE.
7. CONTRACTOR SHALL REMOVE ALL TEMPORARY MARKINGS AT PHASE COMPLETION.
8. CONTRACTOR SHALL REMOVE AND DISCONNECT TAXIWAY CENTERLINE AND EDGE LIGHT FIXTURES FROM CIRCUIT AND REINSTALL WHERE SHOWN. ENGINEER AND AIRPORT OPERATIONS TO VERIFY WHICH LIGHTS IN EACH PHASE. FIXTURES TO BE RECONNECTED AT PHASE COMPLETION.
9. CONTRACTOR SHALL COVER ALL PORTIONS OF AIRFIELD SIGNAGE LEADING TO CLOSED TAXIWAYS OR CONSTRUCTION AREAS.
10. CONTRACTOR SHALL NOT DAMAGE OR REMOVE THERMOPLASTIC 'ENHANCED' CENTERLINE MARKINGS LEADING UP TO RUNWAY HOLDING POSITIONS AT ANY LOCATION. ANY DAMAGE TO THERMOPLASTIC MARKINGS SHALL BE REPAIRED AT NO COST TO THE CITY.

NORTH

100 0 100 200

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

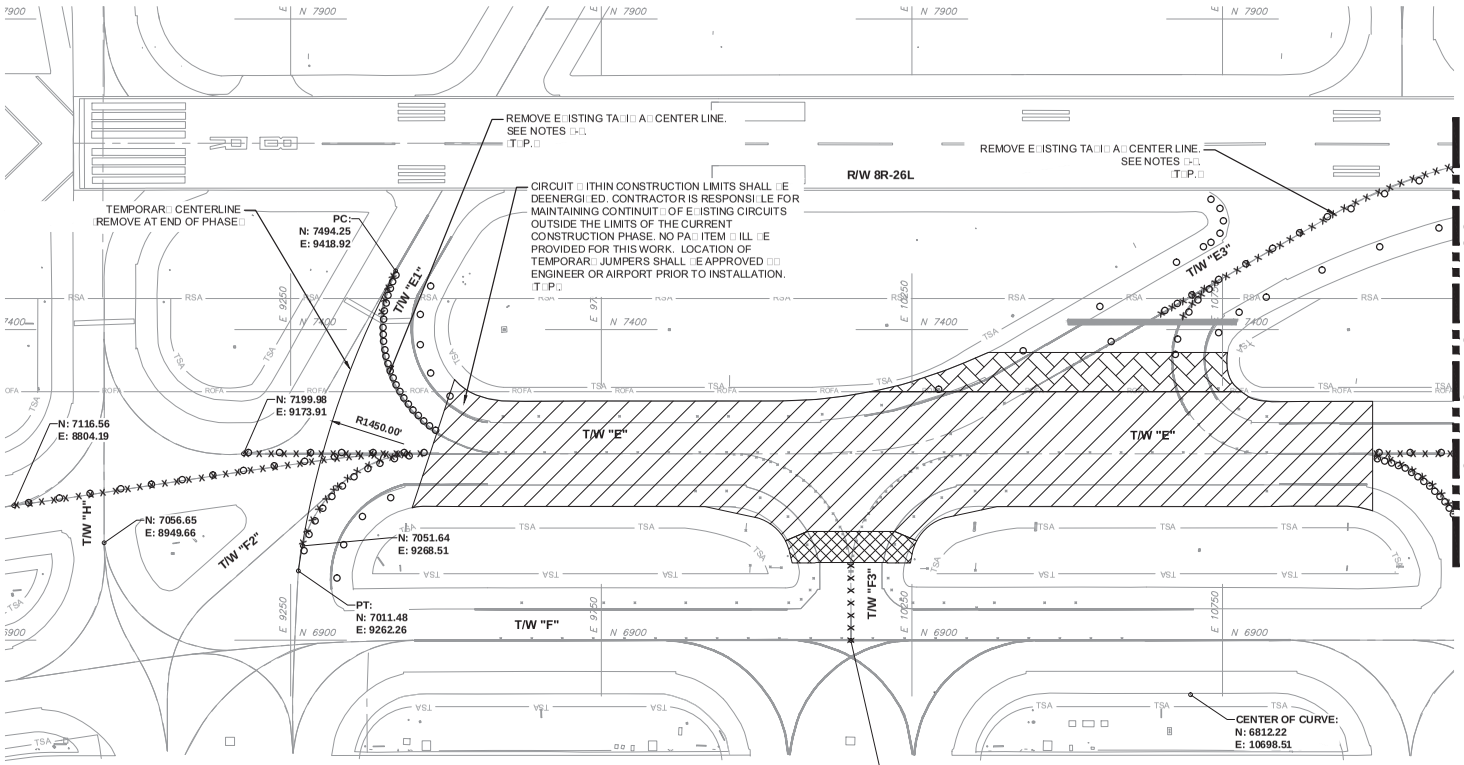
SHEET NAME

PHASE 2 TEMPORARY MARKING AND LIGHTING PLAN

SHEET No

G 04.13.1

2/12/2016 2:56 PM
C:\PW_WORK\ATRNAD01\D0586174\{N0506440}\40586-G 04.12.1 TEMPORARY MARKING PLANS.DWG



1 PHASE 3 TEMPORARY MARKING AND LIGHTING PLAN

G 04.14.1 SCALE: 1" = 100'

INSET 'A'

LEGEND

- PROJECT PHASE WORK LIMITS
- TEMPORARY HAUL ROUTE
- LIMITS OF NIGHT WORK
- NO STATIONARY EQUIPMENT PERMITTED IN THIS AREA
- X X X PAVEMENT MARKINGS TO BE REMOVED FOR THIS PHASE ONLY
- ○ ○ ○ DISCONNECT EXISTING LIGHT FIXTURE,
- TEMPORARY PAVEMENT MARKING TO BE ADDED FOR THIS PHASE ONLY

NOTES

1. SEE SHEET C 12.05.1 FOR PAVEMENT MARKING NOTES AND DETAILS.
2. SEE CONSTRUCTION PHASING AND SAFETY PLANS.
3. ANY MARKING TO BE REMOVED SHALL BE REMOVED BY WATER BLASTING. NO CHEMICAL PAINT REMOVERS ARE ALLOWED. CONTRACTOR SHALL DEMONSTRATE TO RPR THAT THE PROPER PRESSURE WILL BE USED TO PREVENT PAVEMENT DAMAGE. ALL JOINT SEALANT DAMAGED BY REMOVAL OPERATIONS SHALL BE REPAIRED PER P-605 AT NO COST TO THE OWNER.
4. PAVEMENT MARKING REMOVAL SHALL BE DONE IN ACCORDANCE WITH SPECIFICATION P-621.
5. CONTRACTOR SHALL SURVEY EXISTING TAXIWAY CENTERLINE PRIOR TO REMOVAL, AND REPLACE IN SAME LOCATION WHERE REMOVED.
6. CONTRACTOR SHALL REPLACE ALL MARKINGS REMOVED AT COMPLETION OF CONSTRUCTION FOR EACH PHASE.
7. CONTRACTOR SHALL REMOVE ALL TEMPORARY MARKINGS AT PHASE COMPLETION.
8. CONTRACTOR SHALL REMOVE AND DISCONNECT TAXIWAY CENTERLINE AND EDGE LIGHT FIXTURES FROM CIRCUIT AND REINSTALL WHERE SHOWN. ENGINEER AND AIRPORT OPERATIONS TO VERIFY WHICH LIGHTS IN EACH PHASE. FIXTURES TO BE RECONNECTED AT PHASE COMPLETION.
9. CONTRACTOR SHALL COVER ALL PORTIONS OF AIRFIELD SIGNAGE LEADING TO CLOSED TAXIWAYS OR CONSTRUCTION AREAS.
10. CONTRACTOR SHALL NOT DAMAGE OR REMOVE THERMOPLASTIC 'ENHANCED' CENTERLINE MARKINGS LEADING UP TO RUNWAY HOLDING POSITIONS AT ANY LOCATION. ANY DAMAGE TO THERMOPLASTIC MARKINGS SHALL BE REPAIRED AT NO COST TO THE CITY.

NORTH

100 0 100 200

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
COA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

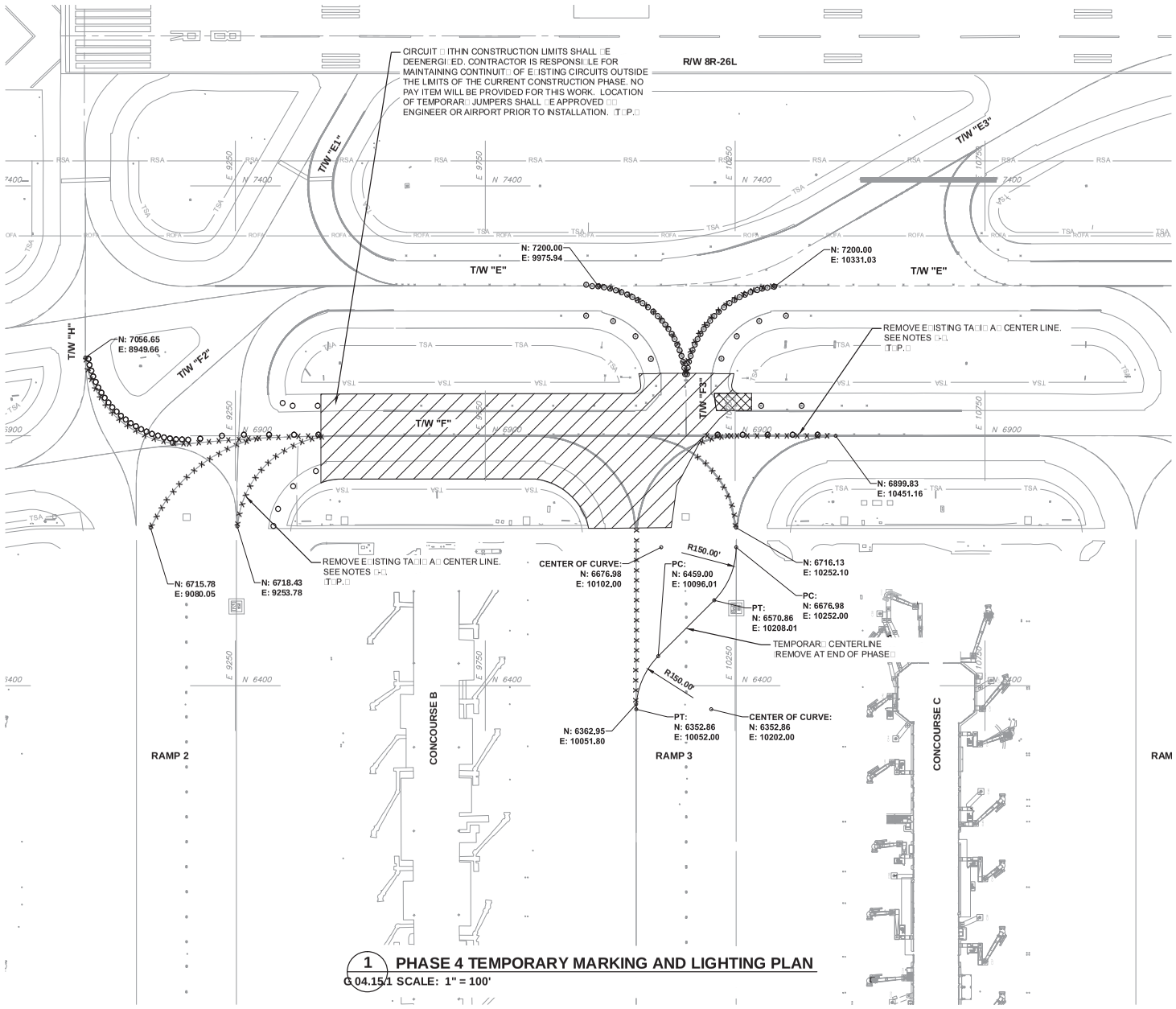
PHASE 3 TEMPORARY MARKING AND LIGHTING PLAN

SHEET No

G 04.14.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 3:00 PM
C:\PW_WORK\ATRNAD01\D0586174\{M0056440}\42586-G 04.12.1 TEMPORARY MARKING PLANS.DWG



1 PHASE 4 TEMPORARY MARKING AND LIGHTING PLAN

G 04.15.1 SCALE: 1" = 100'

LEGEND

- PROJECT PHASE WORK LIMITS
- LIMITS OF NIGHT WORK
- X X X PAVEMENT MARKINGS TO BE REMOVED FOR THIS PHASE ONLY
- ○ ○ ○ DISCONNECT EXISTING LIGHT FIXTURE
- TEMPORARY PAVEMENT MARKING TO BE ADDED FOR THIS PHASE ONLY

NOTES

1. SEE SHEET C 12.05.1 FOR PAVEMENT MARKING NOTES AND DETAILS.
2. SEE CONSTRUCTION PHASING AND SAFETY PLANS.
3. ANY MARKING TO BE REMOVED SHALL BE REMOVED BY WATER BLASTING. NO CHEMICAL PAINT REMOVERS ARE ALLOWED. CONTRACTOR SHALL DEMONSTRATE TO RPR THAT THE PROPER PRESSURE WILL BE USED TO PREVENT PAVEMENT DAMAGE. ALL JOINT SEALANT DAMAGED BY REMOVAL OPERATIONS SHALL BE REPAIRED PER P-605 AT NO COST TO THE OWNER.
4. PAVEMENT MARKING REMOVAL SHALL BE DONE IN ACCORDANCE WITH SPECIFICATION P-621.
5. CONTRACTOR SHALL SURVEY EXISTING TAXIWAY CENTERLINE PRIOR TO REMOVAL, AND REPLACE IN SAME LOCATION WHERE REMOVED.
6. CONTRACTOR SHALL REPLACE ALL MARKINGS REMOVED AT COMPLETION OF CONSTRUCTION FOR EACH PHASE.
7. CONTRACTOR SHALL REMOVE ALL TEMPORARY MARKINGS AT PHASE COMPLETION.
8. CONTRACTOR SHALL REMOVE AND DISCONNECT TAXIWAY CENTERLINE AND EDGE LIGHT FIXTURES FROM CIRCUIT AND REINSTALL WHERE SHOWN. ENGINEER AND AIRPORT OPERATIONS TO VERIFY WHICH LIGHTS IN EACH PHASE. FIXTURES TO BE RECONNECTED AT PHASE COMPLETION.
9. CONTRACTOR SHALL COVER ALL PORTIONS OF AIRFIELD SIGNAGE LEADING TO CLOSED TAXIWAYS OR CONSTRUCTION AREAS.
10. CONTRACTOR SHALL NOT DAMAGE OR REMOVE THERMOPLASTIC 'ENHANCED' CENTERLINE MARKINGS LEADING UP TO RUNWAY HOLDING POSITIONS AT ANY LOCATION. ANY DAMAGE TO THERMOPLASTIC MARKINGS SHALL BE REPAIRED AT NO COST TO THE CITY.

NORTH

100 0 100 200

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
COA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

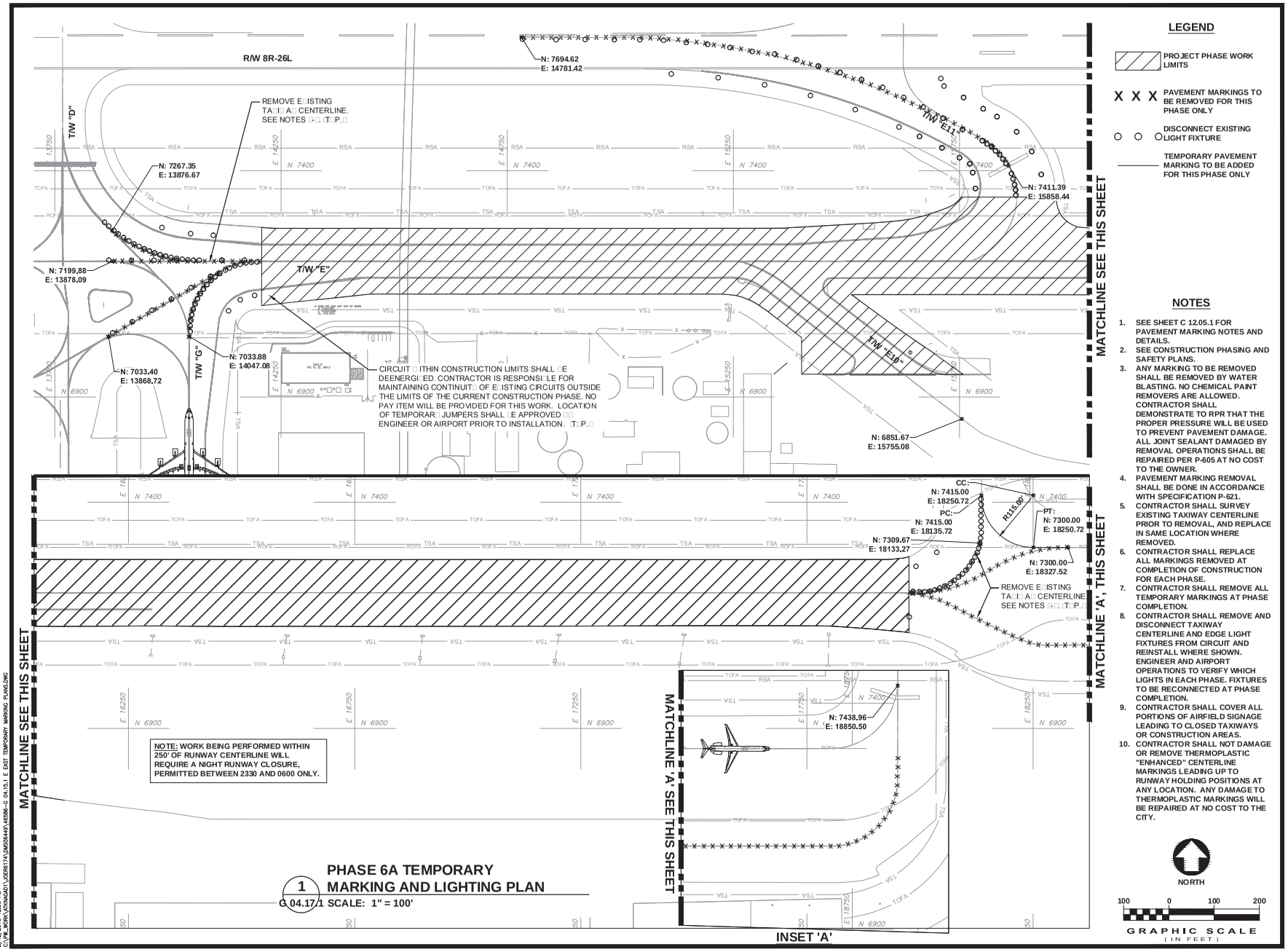
SHEET NAME

PHASE 4 TEMPORARY MARKING AND LIGHTING PLAN

SHEET No

G 04.15.1

2/12/2016 3:02 PM
C:\PW_WORK\ATRNGAD01\D0586174\JM5056440\42586-G 04.12.1 TEMPORARY MARKING PLANS.DWG



PHASE 6A TEMPORARY MARKING AND LIGHTING PLAN

1 G 04.17.1 SCALE: 1" = 100'

LEGEND

- PROJECT PHASE WORK LIMITS
- X X X PAVEMENT MARKINGS TO BE REMOVED FOR THIS PHASE ONLY
- ○ ○ ○ DISCONNECT EXISTING LIGHT FIXTURE
- TEMPORARY PAVEMENT MARKING TO BE ADDED FOR THIS PHASE ONLY

NOTES

1. SEE SHEET C 12.05.1 FOR PAVEMENT MARKING NOTES AND DETAILS.
2. SEE CONSTRUCTION PHASING AND SAFETY PLANS.
3. ANY MARKING TO BE REMOVED SHALL BE REMOVED BY WATER BLASTING. NO CHEMICAL PAINT REMOVERS ARE ALLOWED. CONTRACTOR SHALL DEMONSTRATE TO RPR THAT THE PROPER PRESSURE WILL BE USED TO PREVENT PAVEMENT DAMAGE. ALL JOINT SEALANT DAMAGED BY REMOVAL OPERATIONS SHALL BE REPAIRED PER P-605 AT NO COST TO THE OWNER.
4. PAVEMENT MARKING REMOVAL SHALL BE DONE IN ACCORDANCE WITH SPECIFICATION P-621.
5. CONTRACTOR SHALL SURVEY EXISTING TAXIWAY CENTERLINE PRIOR TO REMOVAL, AND REPLACE IN SAME LOCATION WHERE REMOVED.
6. CONTRACTOR SHALL REPLACE ALL MARKINGS REMOVED AT COMPLETION OF CONSTRUCTION FOR EACH PHASE.
7. CONTRACTOR SHALL REMOVE ALL TEMPORARY MARKINGS AT PHASE COMPLETION.
8. CONTRACTOR SHALL REMOVE AND DISCONNECT TAXIWAY CENTERLINE AND EDGE LIGHT FIXTURES FROM CIRCUIT AND REINSTALL WHERE SHOWN. ENGINEER AND AIRPORT OPERATIONS TO VERIFY WHICH LIGHTS IN EACH PHASE. FIXTURES TO BE RECONNECTED AT PHASE COMPLETION.
9. CONTRACTOR SHALL COVER ALL PORTIONS OF AIRFIELD SIGNAGE LEADING TO CLOSED TAXIWAYS OR CONSTRUCTION AREAS.
10. CONTRACTOR SHALL NOT DAMAGE OR REMOVE THERMOPLASTIC "ENHANCED" CENTERLINE MARKINGS LEADING UP TO RUNWAY HOLDING POSITIONS AT ANY LOCATION. ANY DAMAGE TO THERMOPLASTIC MARKINGS WILL BE REPAIRED AT NO COST TO THE CITY.

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

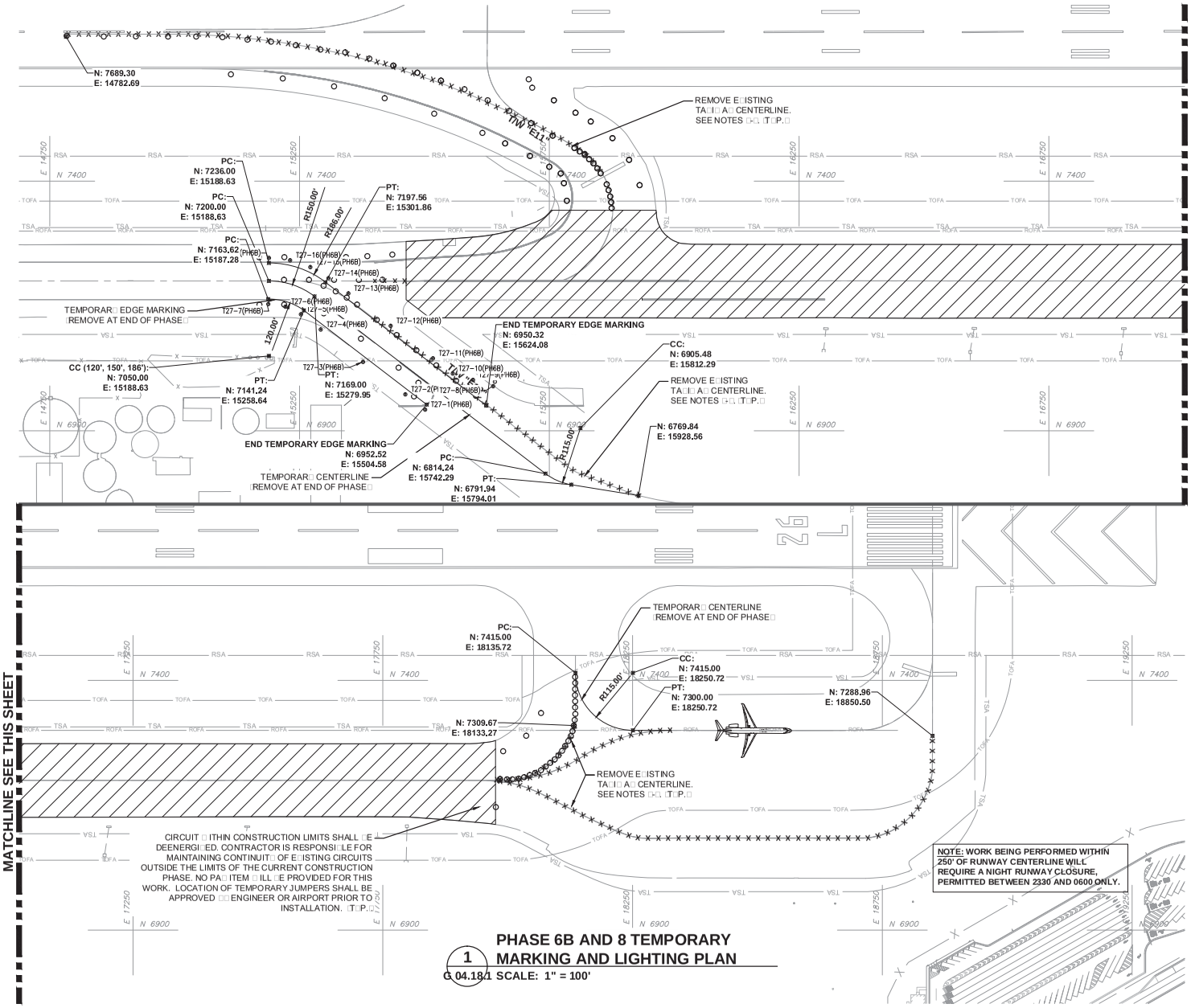
PHASE 6A TEMPORARY MARKING AND LIGHTING PLAN

SHEET No

G 04.17.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 12:06 PM
C:\PW_WORK\ATRNAD01\D0861714\[M6056440\4606-G 04.15.1 E EAST TEMPORARY MARKING PLANS.DWG



1 PHASE 6B AND 8 TEMPORARY MARKING AND LIGHTING PLAN

G 04.18.1 SCALE: 1" = 100'

LEGEND

- PROJECT PHASE WORK LIMITS
- X X X PAVEMENT MARKINGS TO BE REMOVED FOR THIS PHASE ONLY
- ○ ○ ○ DISCONNECT EXISTING LIGHT FIXTURE
- TEMPORARY PAVEMENT MARKING TO BE ADDED FOR THIS PHASE ONLY

NOTES

1. SEE SHEET C 12.05.1 FOR PAVEMENT MARKING NOTES AND DETAILS.
2. SEE CONSTRUCTION PHASING AND SAFETY PLANS.
3. ANY MARKING TO BE REMOVED SHALL BE REMOVED BY WATER BLASTING. NO CHEMICAL PAINT REMOVERS ARE ALLOWED. CONTRACTOR SHALL DEMONSTRATE TO RPR THAT THE PROPER PRESSURE WILL BE USED TO PREVENT PAVEMENT DAMAGE. ALL JOINT SEALANT DAMAGED BY REMOVAL OPERATIONS SHALL BE REPAIRED PER P-605 AT NO COST TO THE OWNER.
4. PAVEMENT MARKING REMOVAL SHALL BE DONE IN ACCORDANCE WITH SPECIFICATION P-621.
5. CONTRACTOR SHALL SURVEY EXISTING TAXIWAY CENTERLINE PRIOR TO REMOVAL, AND REPLACE IN SAME LOCATION WHERE REMOVED.
6. CONTRACTOR SHALL REPLACE ALL MARKINGS REMOVED AT COMPLETION OF CONSTRUCTION FOR EACH PHASE.
7. CONTRACTOR SHALL REMOVE ALL TEMPORARY MARKINGS AT PHASE COMPLETION.
8. CONTRACTOR SHALL REMOVE AND DISCONNECT TAXIWAY CENTERLINE AND EDGE LIGHT FIXTURES FROM CIRCUIT AND REINSTALL WHERE SHOWN. ENGINEER AND AIRPORT OPERATIONS TO VERIFY WHICH LIGHTS IN EACH PHASE. FIXTURES TO BE RECONNECTED AT PHASE COMPLETION.
9. CONTRACTOR SHALL COVER ALL PORTIONS OF AIRFIELD SIGNAGE LEADING TO CLOSED TAXIWAYS OR CONSTRUCTION AREAS.
10. CONTRACTOR SHALL NOT DAMAGE OR REMOVE THERMOPLASTIC "ENHANCED" CENTERLINE MARKINGS LEADING UP TO RUNWAY HOLDING POSITIONS AT ANY LOCATION. ANY DAMAGE TO THERMOPLASTIC MARKINGS WILL BE REPAIRED AT NO COST TO THE CITY.

NORTH

100 0 100 200

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

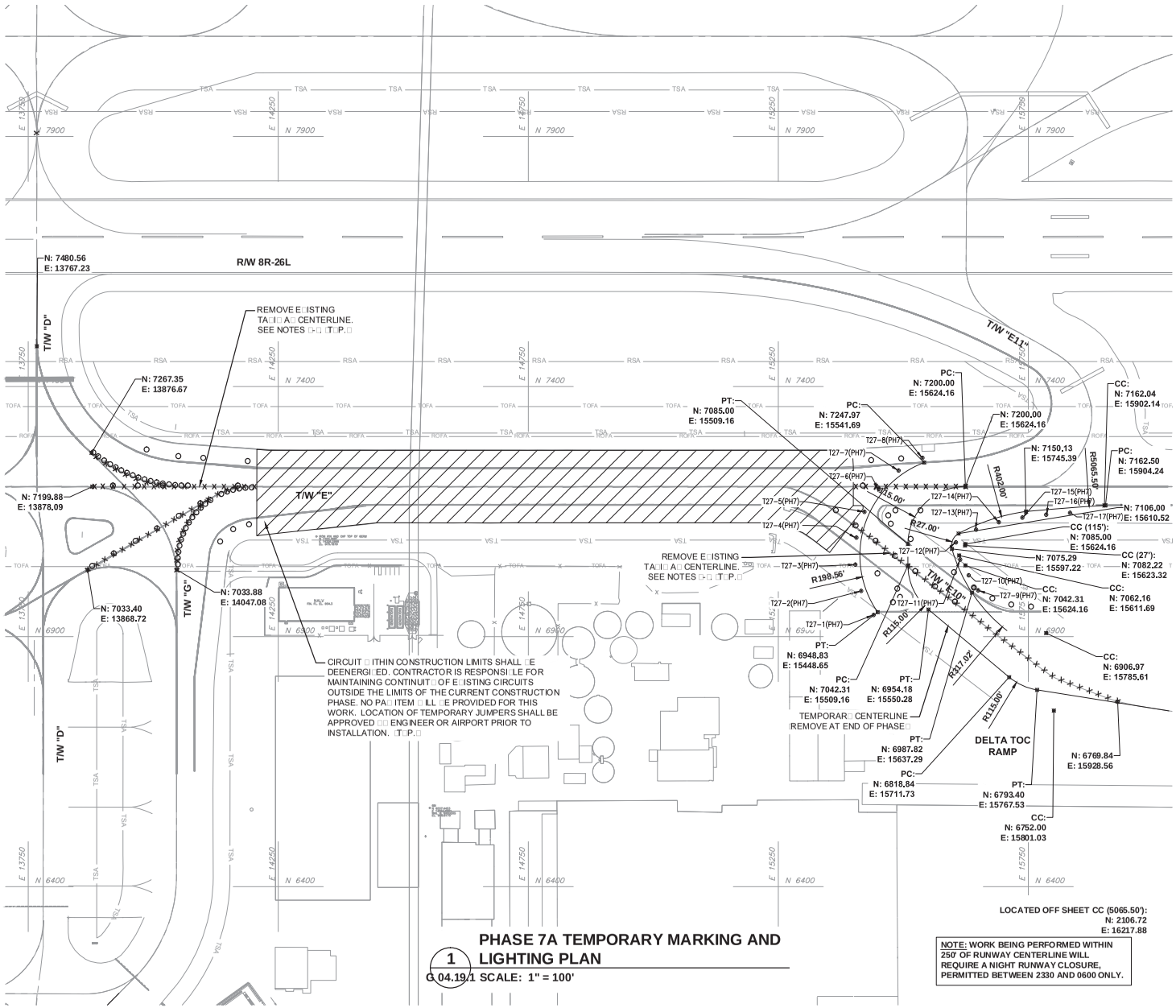
PHASE 6B AND 8 TEMPORARY MARKING AND LIGHTING PLAN

SHEET No

G 04.18.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 5:59 PM
C:\PW_WORK\ATRNGAD01\JOB61TA\{M50544}\40586-G 04.15.1 E EAST TEMPORARY MARKING PLANS.DWG



PHASE 7A TEMPORARY MARKING AND LIGHTING PLAN

1 G 04.19.1 SCALE: 1" = 100'

NOTE: WORK BEING PERFORMED WITHIN 250' OF RUNWAY CENTERLINE WILL REQUIRE A NIGHT RUNWAY CLOSURE, PERMITTED BETWEEN 2330 AND 0600 ONLY.

LEGEND

- PROJECT PHASE WORK LIMITS
- LIMITS OF NIGHT WORK
- X X X PAVEMENT MARKINGS TO BE REMOVED FOR THIS PHASE ONLY
- ○ ○ ○ DISCONNECT EXISTING LIGHT FIXTURE
- TEMPORARY PAVEMENT MARKING TO BE ADDED FOR THIS PHASE ONLY

NOTES

1. SEE SHEET C 12.05.1 FOR PAVEMENT MARKING NOTES AND DETAILS.
2. SEE CONSTRUCTION PHASING AND SAFETY PLANS.
3. ANY MARKING TO BE REMOVED SHALL BE REMOVED BY WATER BLASTING. NO CHEMICAL PAINT REMOVERS ARE ALLOWED. CONTRACTOR SHALL DEMONSTRATE TO RPR THAT THE PROPER PRESSURE WILL BE USED TO PREVENT PAVEMENT DAMAGE. ALL JOINT SEALANT DAMAGED BY REMOVAL OPERATIONS SHALL BE REPAIRED PER P-605 AT NO COST TO THE OWNER.
4. PAVEMENT MARKING REMOVAL SHALL BE DONE IN ACCORDANCE WITH SPECIFICATION P-621.
5. CONTRACTOR SHALL SURVEY EXISTING TAXIWAY CENTERLINE PRIOR TO REMOVAL, AND REPLACE IN SAME LOCATION WHERE REMOVED.
6. CONTRACTOR SHALL REPLACE ALL MARKINGS REMOVED AT COMPLETION OF CONSTRUCTION FOR EACH PHASE.
7. CONTRACTOR SHALL REMOVE ALL TEMPORARY MARKINGS AT PHASE COMPLETION.
8. CONTRACTOR SHALL REMOVE AND DISCONNECT TAXIWAY CENTERLINE AND EDGE LIGHT FIXTURES FROM CIRCUIT AND REINSTALL WHERE SHOWN. ENGINEER AND AIRPORT OPERATIONS TO VERIFY WHICH LIGHTS IN EACH PHASE. FIXTURES TO BE STORED UNTIL REINSTALLATION. BLANK COVERS TO BE RECONNECTED AT PHASE COMPLETION.
9. CONTRACTOR SHALL COVER ALL PORTIONS OF AIRFIELD SIGNAGE LEADING TO CLOSED TAXIWAYS OR CONSTRUCTION AREAS.
10. CONTRACTOR SHALL NOT DAMAGE OR REMOVE THERMOPLASTIC "ENHANCED" CENTERLINE MARKINGS LEADING UP TO RUNWAY HOLDING POSITIONS AT ANY LOCATION. ANY DAMAGE TO THERMOPLASTIC MARKINGS WILL BE REPAIRED AT NO COST TO THE CITY.

NORTH

100 0 100 200

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

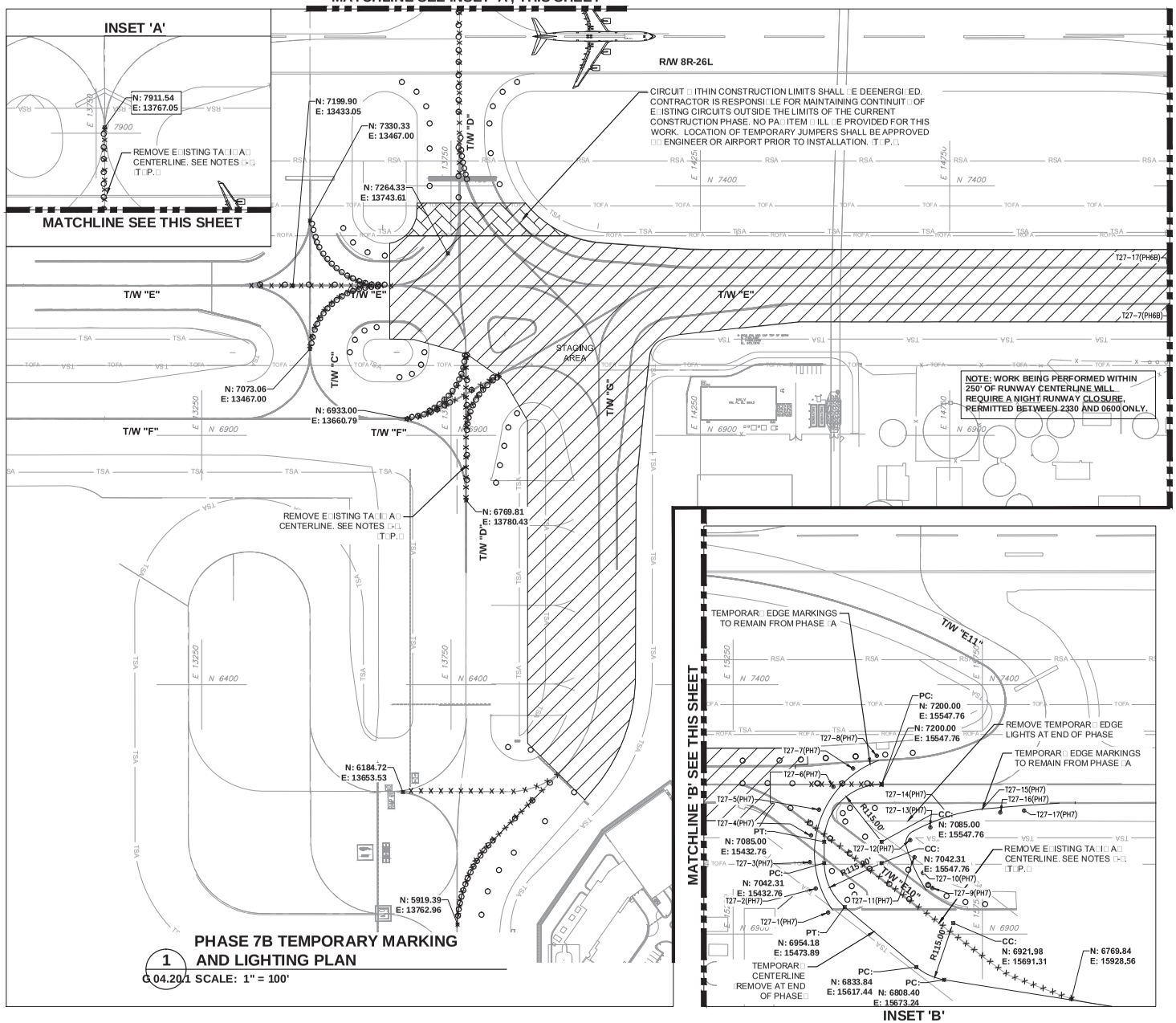
PHASE 7A TEMPORARY MARKING AND LIGHTING PLAN

SHEET No

G 04.19.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 12:10 PM
C:\PW_WORK\ATRNAD01\D0586174\{N0506440}\46586-G 04.15.1 E EAST TEMPORARY MARKING PLANS.DWG



CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	HHW
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

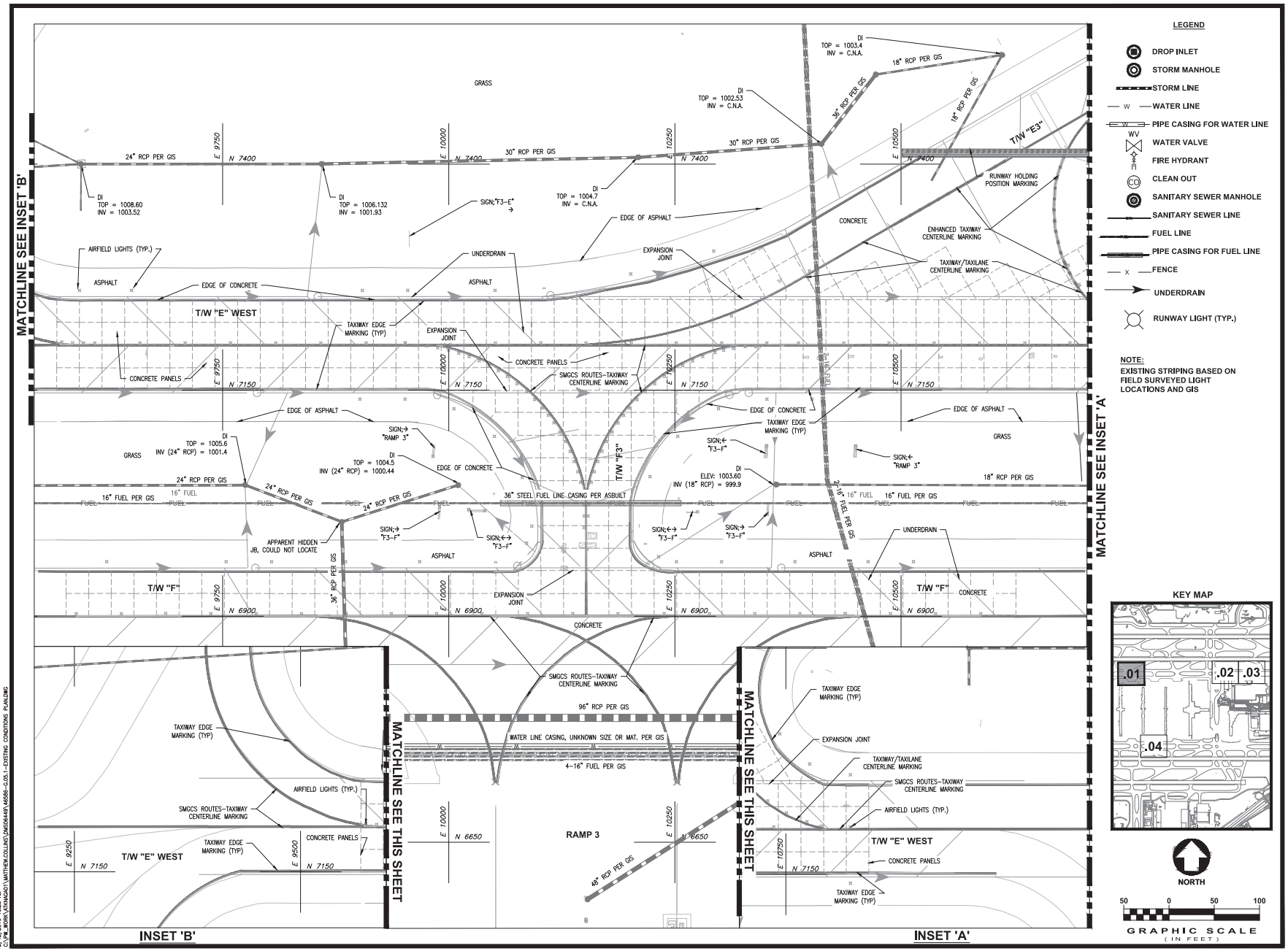
PHASE 7B TEMPORARY MARKING AND LIGHTING PLAN

SHEET No

G 04.20.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 12:16 PM
C:\PW_WORK\ATRNADA01\D0516174\{M0056440}\46586-G 04.15.1 E EAST TEMPORARY MARKING PLANS.DWG



LEGEND

- DROP INLET
- STORM MANHOLE
- STORM LINE
- W — WATER LINE
- PIPE CASING FOR WATER LINE
- WV — WATER VALVE
- FIRE HYDRANT
- CLEAN OUT
- SANITARY SEWER MANHOLE
- SANITARY SEWER LINE
- FUEL LINE
- PIPE CASING FOR FUEL LINE
- X — FENCE
- UNDERDRAIN
- RUNWAY LIGHT (TYP.)

NOTE:
EXISTING STRIPING BASED ON FIELD SURVEYED LIGHT LOCATIONS AND GIS

KEY MAP

NORTH

50 0 50 100
GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JCS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
ACDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

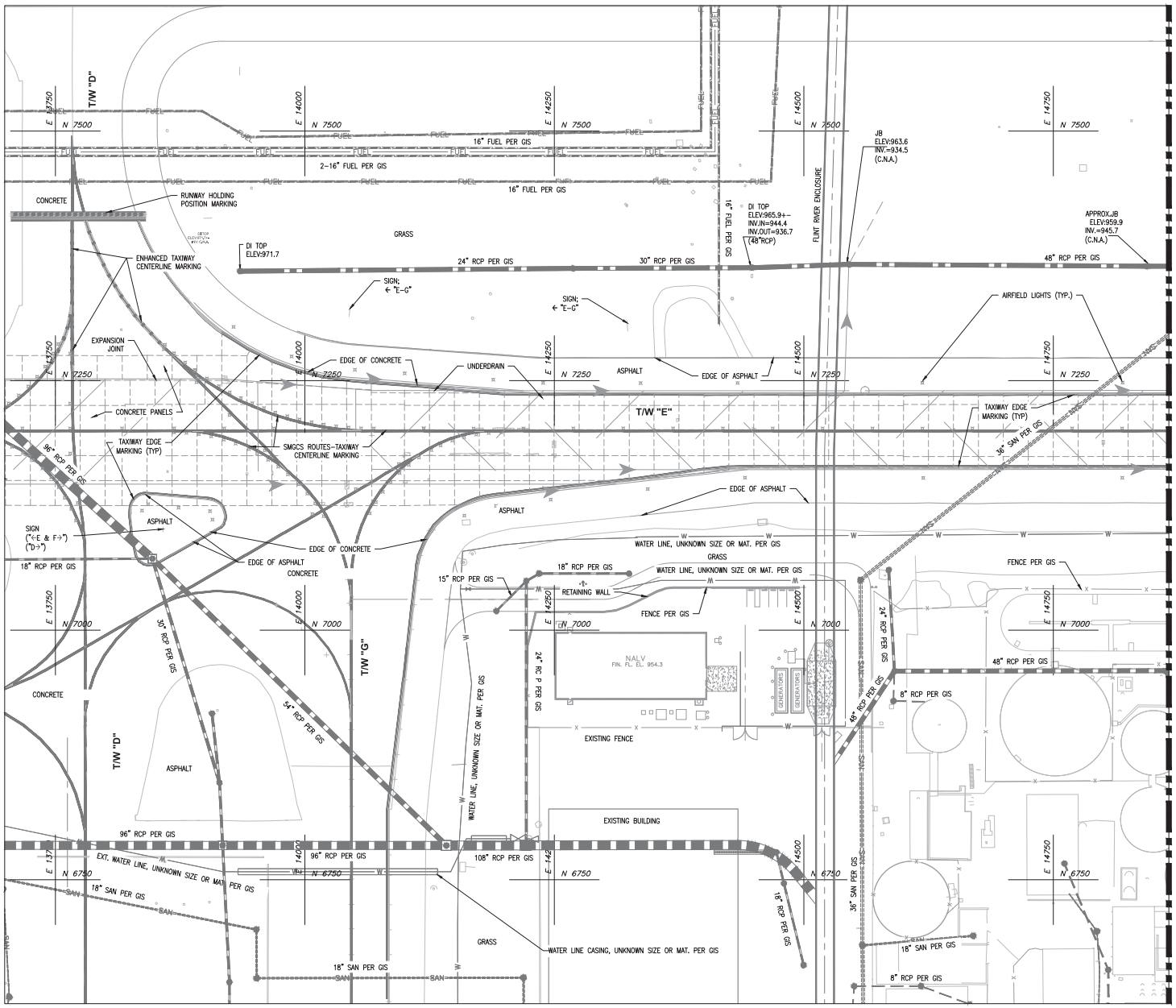
EXISTING CONDITIONS PLAN

SHEET No

G 05.01.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 10:26 AM
C:\PW_WORK\ATLNAD01\MATTHEW.COLLINS\D0G06449\46586-G.05.1-EXISTING CONDITIONS PLAN.DWG

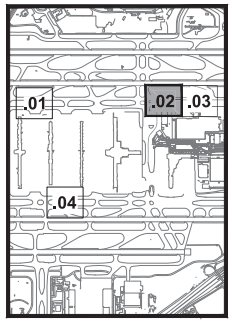


LEGEND

- DROP INLET
- STORM MANHOLE
- STORM LINE
- W — WATER LINE
- PIPE CASING FOR WATER LINE
- WV — WATER VALVE
- FIRE HYDRANT
- CLEAN OUT
- SANITARY SEWER MANHOLE
- SANITARY SEWER LINE
- FUEL LINE
- PIPE CASING FOR FUEL LINE
- X — FENCE
- UNDERDRAIN
- RUNWAY LIGHT (TYP.)

NOTE:
EXISTING STRIPING BASED ON FIELD SURVEYED LIGHT LOCATIONS AND GIS

KEY MAP



NORTH

50 0 50 100
GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JCS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

EXISTING CONDITIONS PLAN

SHEET No

G 05.02.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 10:26 AM
C:\PW_WORK\ATLNAD01\MATTHEW.COLLINS\D0650449\46586-G.05.1-EXISTING CONDITIONS PLANLDWG

MATCHLINE SEE SHEET G 05. 02.1

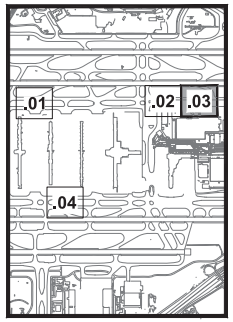
GRASS
T/W "E11"
T/W "E" WEST
T/W "E" WEST
T/W "E10"
DELTA TOC
EXISTING STORAGE AREA
EXISTING STRC.
EXISTING STRC.
EXISTING STRC.
EXISTING STRC.
36" SAN PER GIS
48" RCP PER GIS
48" RCP PER GIS
DI TOP ELEV:955.9 INV.IN=950.5 INV.OUT=950.4 (48"RCP)
DI TOP ELEV:957.7 INV.IN=951.1 INV.OUT=951.0 (48"RCP)
STORM STRUCTURES PER GIS
DI TOP ELEV:960.4 INV.IN=954.7 INV.OUT=954.2
SIGN; "E11& E10"
DI TOP ELEV:964.8 INV.OUT=959.7
SIGN; "E10"→ & ← "E11"
ELECTRIC MANHOLE & CONCRETE PAD
SIGN; "E11;8R-26L"
UNDERDRAIN
EDGE OF ASPHALT
EXPANSION JOINT
EDGE OF CONCRETE
CONCRETE PANELS
EXPANSION JOINT
SMGCS ROUTES-TAXIWAY CENTERLINE MARKING
TAXIWAY EDGE MARKING (TYP)
UNDERDRAIN
HEAD WALL TOP= 962.2 INV= 960.3
HEAD WALL TOP= 968.3 INV= 965.6 (12" CPP)
EDGE OF CONCRETE
EDGE OF ASPHALT
36" STEEL CASING PER ASBUILT
24" WATER LINE, PER ASBUILT
CONCRETE FLUME
SIGN; "E10"
HEAD WALL TOP= 949.3 INV = 945.3
INV= 946.6 (15" CMP)
RUNWAY LIGHTS (TYP.)
FENCE PER GIS
FIBER OPTIC BOX
UTILITY VAULT
MONITORING WELL
HEAD WALL TOP= 949.0 INV= 948.5 (12" CPP)
SIGN; "DO NOT ENTER"
SIGN; "STOP"
DI TOP ELEV:949.9 INV.IN=941.9 INV.OUT=940.9 (36"RCP)
DI TOP ELEV:952.7 INV.=940.7 (36"RCP)
DI TOP ELEV:950.3 INV.=938.8 (36"RCP)
DI TOP=953.7 INV.A=947.4 INV.B=944.2 INV.C=943.8
36" RCP
36" RCP PER GIS
4" RCP PER GIS
18" RCP PER GIS
8" RCP PER GIS
6" RCP PER GIS
6" RCP PER GIS
8" RCP PER GIS
36" RCP PER GIS
36" RCP PER GIS
36" RCP PER GIS
36" RCP PER GIS
EXPANSION JOINT
GREASE SSMH TOP=954.1 INV =948.4
SSMH TOP=953.83 INV (4" CLAY)=946.63 INV (24" RCP)=941.34
DI TOP ELEV:950.0 INV.IN=C.N.A. (FULL OF WATER)
6" SAN PER GIS
DI TOP ELEV:950.5 INV.IN=942.2 (30"CMP) INV.OUT=937.9 (30"CMP)
DI TOP ELEV:950.6 INV.IN=943.0 (30"CMP) INV.OUT=942.6 (30"CMP)
DI TOP ELEV:950.6 INV.IN=943.9 (30"CMP) INV.OUT=943.2 (30"CMP)
DI TOP ELEV:950.6 INV.IN=C.N.A. (DEBRIS SCREEN)
DI TOP ELEV:950.6 INV.IN=C.N.A. (DEBRIS SCREEN)
DI TOP ELEV:950.5 INV.IN=C.N.A. (DEBRIS SCREEN)
E 15000 E 15250 E 15500 E 15750 E 16000
N 7500 N 7250 N 7000 N 6750

LEGEND

- DROP INLET
- STORM MANHOLE
- STORM LINE
- W — WATER LINE
- PIPE CASING FOR WATER LINE
- WV — WATER VALVE
- FIRE HYDRANT
- CLEAN OUT
- SANITARY SEWER MANHOLE
- SAN — SANITARY SEWER LINE
- FUEL LINE
- PIPE CASING FOR FUEL LINE
- X — FENCE
- UNDERDRAIN
- RUNWAY LIGHT (TYP.)

NOTE:
EXISTING STRIPING BASED ON FIELD SURVEYED LIGHT LOCATIONS AND GIS

KEY MAP



NORTH

50 0 50 100
GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JCS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

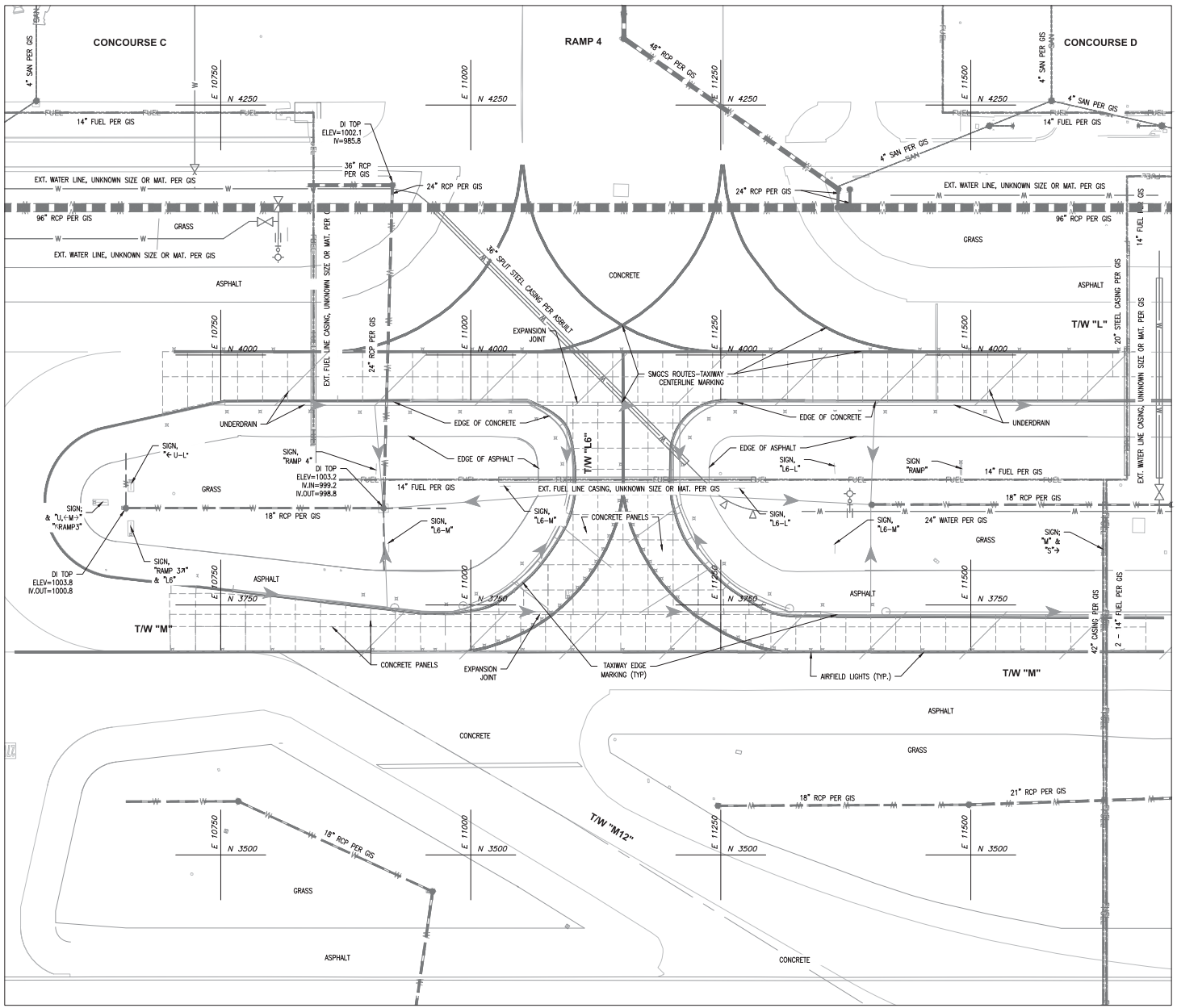
EXISTING CONDITIONS PLAN

SHEET No

G 05.03.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 10:27 AM
C:\PW_WORK\ATANDA01\MATTHEW.COLLINS\DMS06449\46586-G.05.1-EXISTING CONDITIONS PLAN.DWG

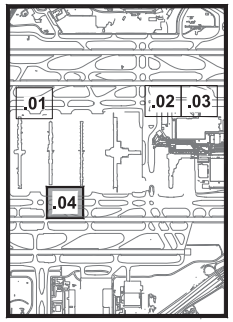


LEGEND

- DROP INLET
- STORM MANHOLE
- STORM LINE
- W — WATER LINE
- PIPE CASING FOR WATER LINE
- WV — WATER VALVE
- FIRE HYDRANT
- CLEAN OUT
- SANITARY SEWER MANHOLE
- SAN — SANITARY SEWER LINE
- FUEL LINE
- PIPE CASING FOR FUEL LINE
- X — FENCE
- UNDERDRAIN
- RUNWAY LIGHT (TYP.)

NOTE:
EXISTING STRIPING BASED ON FIELD SURVEYED LIGHT LOCATIONS AND GIS

KEY MAP



NORTH

50 0 50 100
GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JCS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
ACDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

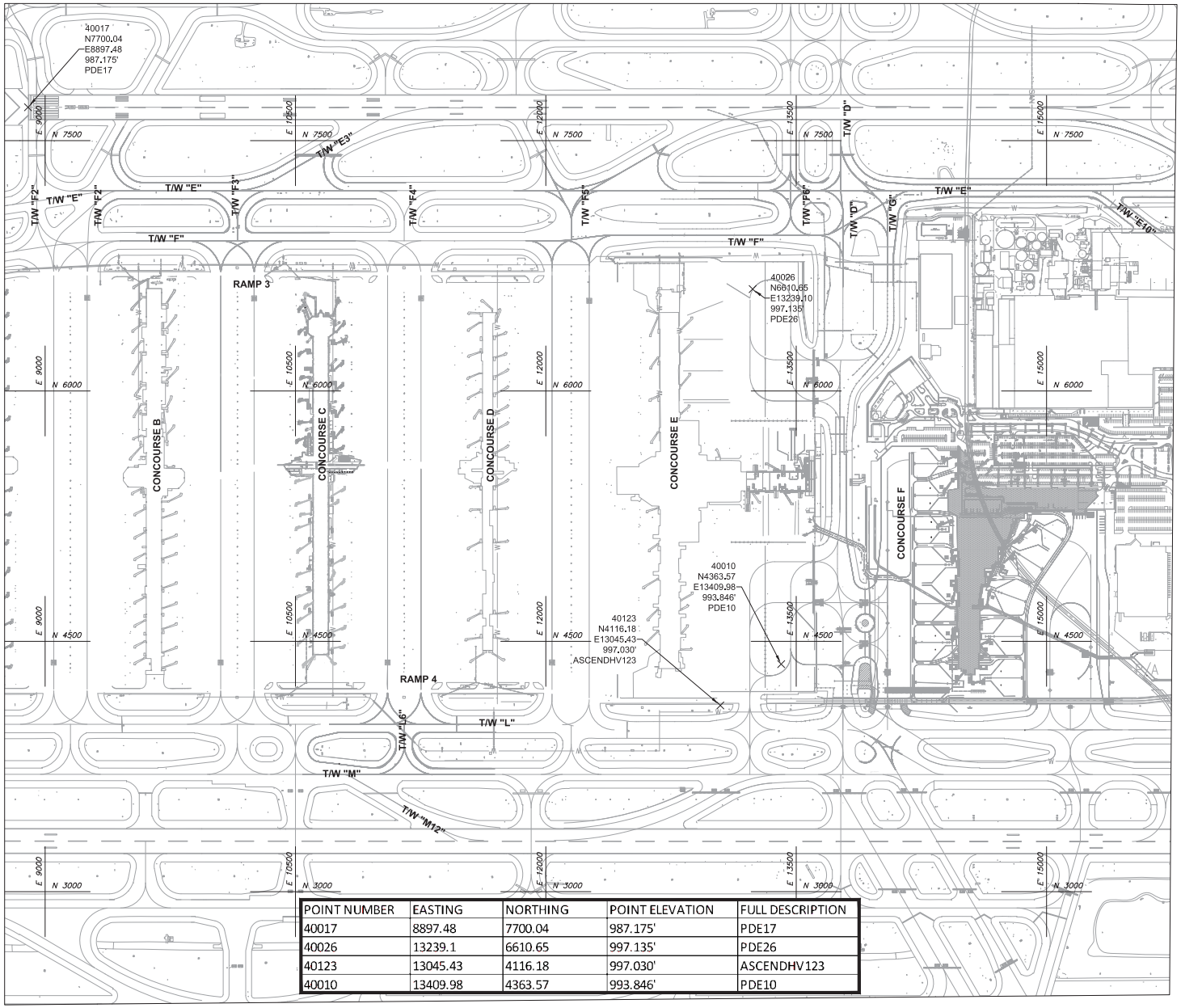
EXISTING CONDITIONS PLAN

SHEET No

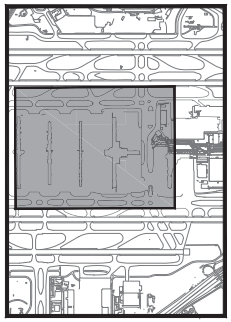
G 05.04.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 10:28 AM
C:\PW_WORK\ATLAD01\MATTHEW.COLLINS\DMS06449\46586-G.05.1-EXISTING CONDITIONS PLAN.DWG



POINT NUMBER	EASTING	NORTHING	POINT ELEVATION	FULL DESCRIPTION
40017	8897.48	7700.04	987.175'	PDE17
40026	13239.1	6610.65	997.135'	PDE26
40123	13045.43	4116.18	997.030'	ASCENDHV123
40010	13409.98	4363.57	993.846'	PDE10



NORTH

300 0 300 600

GRAPHIC SCALE
(IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JCS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
H-JDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

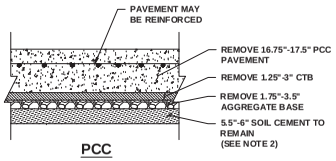
SHEET NAME

HORIZONTAL CONTROL PLAN

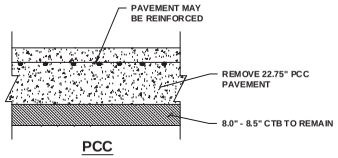
SHEET No

G 07.01.1

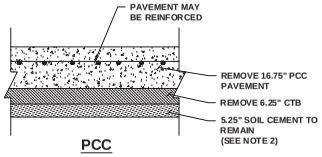
2/11/2016 2:36 PM
C:\PW_WORK\ATNADG01\MATTHEW.COLLINS\D0ED6449\46586-007.1.1-HORIZONTAL CONTROL PLANLING



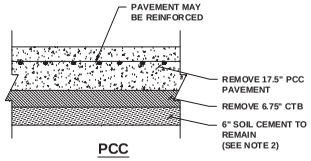
1 TW "E" WEST PAVEMENT DEMOLITION SECTION STATION 95+91.77 to 108+16.61
C 01.01.1 SCALE: N.T.S.



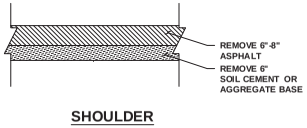
2 TW "E" EAST PAVEMENT DEMOLITION SECTION STATION 137+24.86 to 156+25.20
C 01.01.1 SCALE: N.T.S.



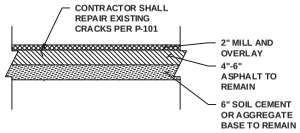
3 TW "F3" PAVEMENT DEMOLITION SECTION
C 01.01.1 SCALE: N.T.S.



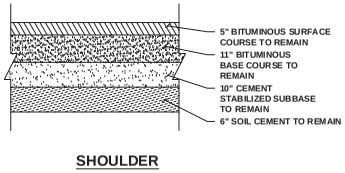
4 TW "L6" PAVEMENT DEMOLITION SECTION
C 01.01.1 SCALE: N.T.S.



5 TYPICAL FULL DEPTH SHOULDER DEMOLITION SECTION
C 01.01.1 SCALE: N.T.S.



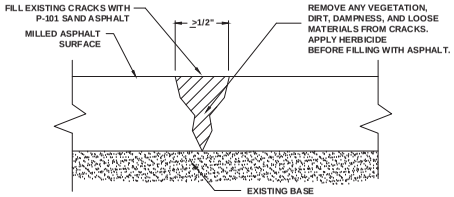
6 TYPICAL SHOULDER MILLING SECTION
C 01.01.1 SCALE: N.T.S.



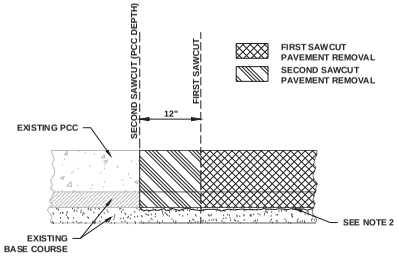
7 TW "E10" WEST SHOULDER SECTION
C 01.01.1 SCALE: N.T.S.

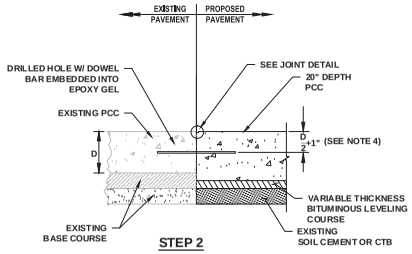
DEMOLITION SECTION NOTES

1. EXISTING SECTIONS WERE DEVELOPED FROM AS-BUILT DRAWINGS AND PAVEMENT CORES. ACTUAL PAVEMENT SECTIONS AND LAYER DEPTHS MAY DIFFER IN THE FIELD.
2. REMOVE FULL DEPTH PCC SECTION TO ACHIEVE REQUIRED GRADES. PCC SHALL BE REMOVED BY SAWCUTTING AND PANEL REMOVAL (NO HAMMERS OR GUILLOTINE TYPE EQUIPMENT). CTB SHALL BE REMOVED BY MILLING.
3. SEE SHEET G 05 SERIES FOR OVERALL EXISTING PAVEMENT PLAN.
4. SEE SHEET C 01.02.1 FOR PROPOSED TYPICAL SECTIONS.



11 CRACK REPAIR DETAIL
C 01.01.1 SCALE: N.T.S.

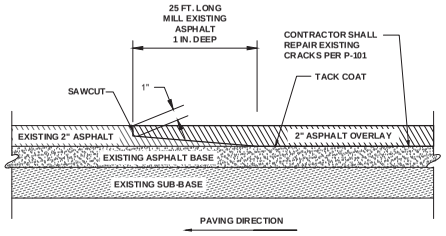




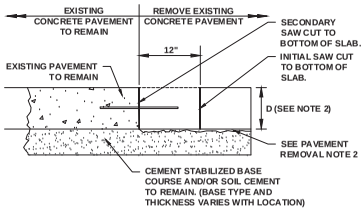
8 PAVEMENT REMOVAL AND TIE-IN
C 01.01.1 SCALE: N.T.S.

PAVEMENT REMOVAL & BASE PREPARATION NOTES

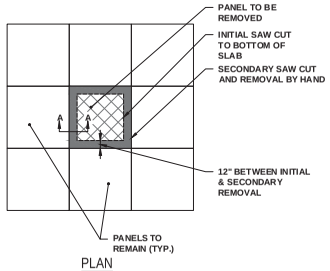
1. CONTRACTOR SHALL SAWCUT SLAB TO BE REMOVED AS INDICATED AND REMOVE INNER PORTION. OUTER 1'-0" PCC SHALL BE REMOVED BY HAND.
2. CONTRACTOR SHALL SURVEY EXISTING BASE MATERIAL AFTER PAVEMENT REMOVAL TO VERIFY PROPOSED LEVELING COURSE THICKNESS. IN ADDITION, PORTIONS OF BASE COURSE MAY BE UNEVEN. THEREFORE, BASED ON DATA, CONTRACTOR MAY BE DIRECTED TO MILL THE EXPOSED SURFACE OF THE BASE LAYER APPROXIMATELY 1-INCH TO ACHIEVE A SMOOTH BASE SURFACE. BECAUSE CONTRACTOR DEMOLITION QUALITY IS A FACTOR IN BASE CONDITION, THIS WORK IS CONSIDERED INCIDENTAL TO CONSTRUCTION.
3. BASE LAYER VOIDS SHALL BE REPAIRED WITH LOW SLUMP, LOW STRENGTH PCC MATERIAL. A BOND BREAKER SHALL BE APPLIED BETWEEN PCC AND BASE LAYERS. THIS WORK SHALL BE INCIDENTAL TO COST OF CONSTRUCTION.
4. WHEN THINNER PAVMENT ABUTS THICKER PAVEMENT, DOWEL DEPTH SHALL BE $\frac{D}{2}$+1" WHERE D EQUALS PCC THICKNESS OF THINNER PAVEMENT.



9 MILLING TIE-IN DETAIL
C 01.01.1 SCALE: N.T.S.



SECTION A-A
SCALE: NTS



PLAN
SCALE: NTS

1. ALL CONCRETE PAVEMENT REMOVAL SHALL BE FULL DEPTH SAW CUT INTO PIECES SMALL ENOUGH TO BE LIFTED OUT TO AVOID DAMAGE TO THE SOIL CEMENT AND/OR SOIL SUBGRADE TO REMAIN. ANY DAMAGE TO THE SOIL CEMENT AND/OR SOIL SUBGRADE TO REMAIN SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR COST.
2. CONTRACTOR SHALL REPLACE SLAB WITH PCC AS REQUIRED. PCC PAVEMENT SHALL BE PAID FOR AS DEPTH SPECIFIED ON JOINTING PLANS (UNREINFORCED OR REINFORCED AS APPLICABLE) REGARDLESS OF RESULTING DEPTH. IF ADDITIONAL THICKNESS IS MORE THAN 2 INCHES AND WHEN DIRECTED BY THE ENGINEER, THE CONTRACTOR WILL BE REQUIRED TO BRING THE BASE UP TO PROPER GRADE AS DIRECTED BY THE ENGINEER WITH BITUMINOUS BASE, OR ADDITIONAL PCC THICKNESS WILL BE PAID FOR.
3. SOME EXISTING PANELS TO BE REMOVED MAY CONTAIN EXISTING TAXIWAY LIGHTS. TO REMOVE THE LIGHTS CONTRACTOR SHALL:
   A. CORE AROUND EACH LIGHT TO THE BASE LAYER.
   B. LEAVE THE CORED SECTION INCLUDING THE LIGHT AND PCC IN PLACE.
   C. REMOVE PCC PANEL UP TO CORED SECTION.
   D. CAREFULLY REMOVE CORED SECTION AND BASE CAN BY HAND WHILE PROTECTING EXISTING CONDUIT.
   E. IF NO LIGHT IS TO BE INSTALLED IN THE SAME LOCATION, CONNECT EXISTING CONDUIT AND FILL VOID FROM THE BASE CAN IN BASE LAYER WITH LOW SLUMP, LOW STRENGTH PCC.

10 INDIVIDUAL PANEL REMOVAL AND REPLACEMENT (TAXIWAY MIKE)
C 01.01.1 SCALE: N.T.S.

2/12/2016 6:51 PM
C:\PW_WORK\ATRNAD01\GRA7517\DMS0452\46586-C 01.01.1 TYPICAL SECTIONS.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM
HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM
ABSolute joint venture

DESIGN TEAM

DESIGN BY	SLK
DRAWN BY	NA
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT
AIRSIDE

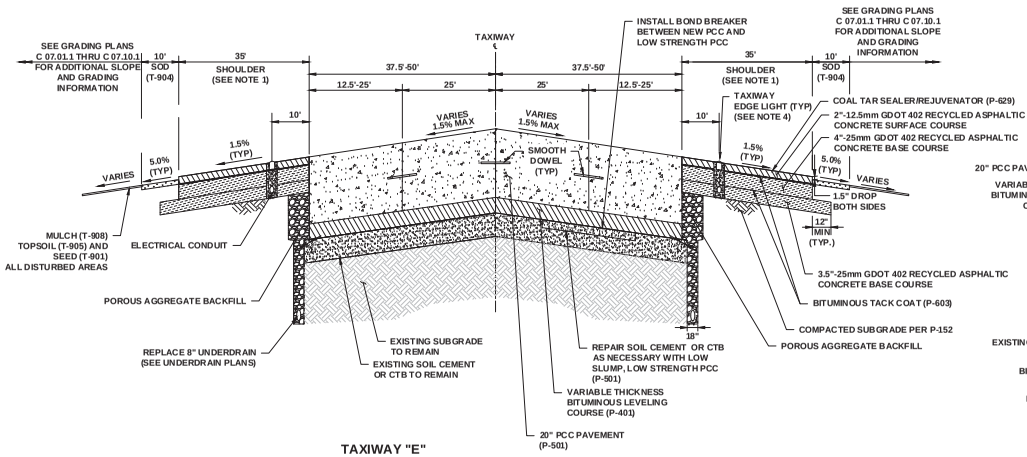
PROJECT NAME
TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR
BID

DATE
FEBRUARY 16, 2016

SHEET NAME
PAVEMENT TYPICAL SECTIONS

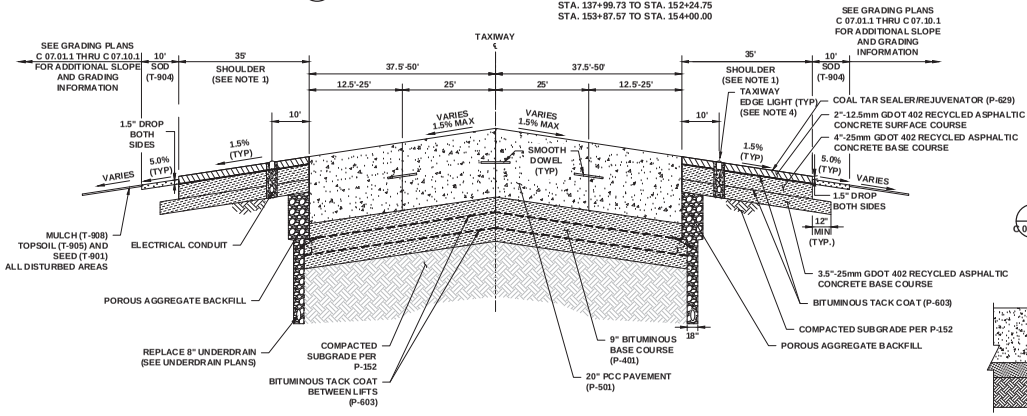
SHEET No
C 01.01.1



TAXIWAY "E"
1 TYPICAL SECTION - EXISTING PAVEMENT REPLACEMENT

C 01.02.1 SCALE: N.T.S.

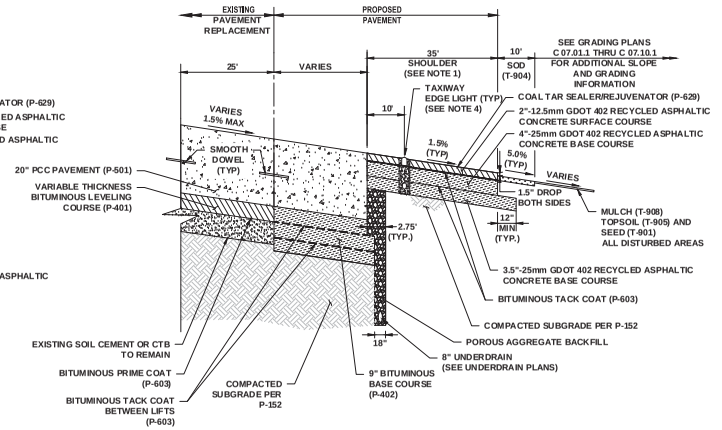
STA. 95+91.59 TO STA. 108+16.75
STA. 137+99.73 TO STA. 152+24.75
STA. 153+87.57 TO STA. 154+00.00



TAXIWAYS "F3" AND PORTION OF "E"
2 TYPICAL SECTION - EXISTING PAVEMENT REPLACEMENT

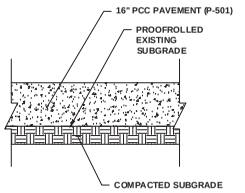
C 01.02.1 SCALE: N.T.S.

TAXIWAY "E" STA. 152+54.95 TO STA. 153+87.57



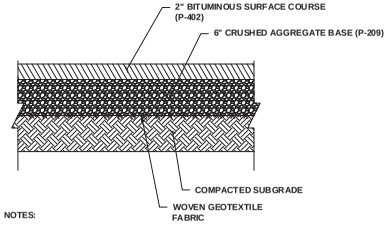
TAXIWAY "L6" (C 04.04.1)
3 TYPICAL SECTION - NEW PAVEMENT

C 01.02.1 SCALE: N.T.S.



4 TEMPORARY TAXIWAY SECTION

C 01.02.1 SCALE: N.T.S.

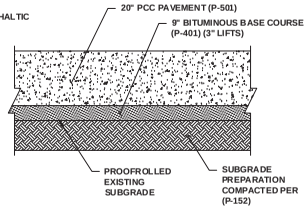


NOTES:

1. REMOVE HAUL ROUTE AND END OF PHASE, GRADE AND SOD
2. HAUL ROUTE CONSTRUCTION AND REMOVAL/RESTORATION TO BE INCIDENTAL TO CONSTRUCTION.

5 TEMPORARY HAUL ROUTE

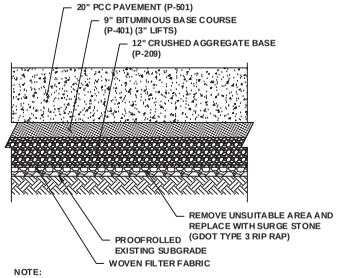
C 01.02.1 SCALE: N.T.S.



NOTE:
SECTION APPLIES IN AREAS OF NEW PAVEMENT. SEE SPECIFICATION P-152 FOR PROCEDURES.

6 STANDARD SUBGRADE STABILIZATION

C 01.02.1 SCALE: N.T.S.



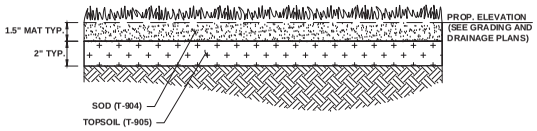
NOTE:
SECTION APPLIES IN AREAS OF NEW PAVEMENT. SEE SPECIFICATION P-152 FOR PROCEDURES.

SUBGRADE STABILIZATION CONDITION 2 (UNSUITABLE SUBGRADE)

C 01.02.1 SCALE: N.T.S.

TYPICAL SECTION - NOTES

1. SEE C 03 SERIES FOR LOCATIONS OF PROPOSED SHOULDER WORK.
2. IF CONTRACTOR IS DIRECTED TO MILL BITUMINOUS BASE LAYER DUE TO CONTRACTOR INDUCED INCORRECT/NON-CONFORMING GRADES, CONTRACTOR SHALL APPLY SINGLE COAT OF ASPHALT EMULSION PRIOR TO PAVING PCC AT NO COST TO OWNER.
3. TAXIWAY WIDTHS VARY. SEE GEOMETRY AND JOINTING PLANS.
4. SEE DETAIL 4, SHEET EA 04.02.1 FOR LIGHT BASE DRAIN DETAIL.



TYPICAL SODDING SECTION AND EARTHWORK AND SOD DETAIL

C 01.02.1 SCALE: N.T.S.

2/12/2016 6:51 PM
C:\PW_WORK\ATRNAD01\GRA7517\DMS0452\46586-C 01.01-1 TYPICAL SECTIONS.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	SLK
DRAWN BY	NA
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	WWW
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

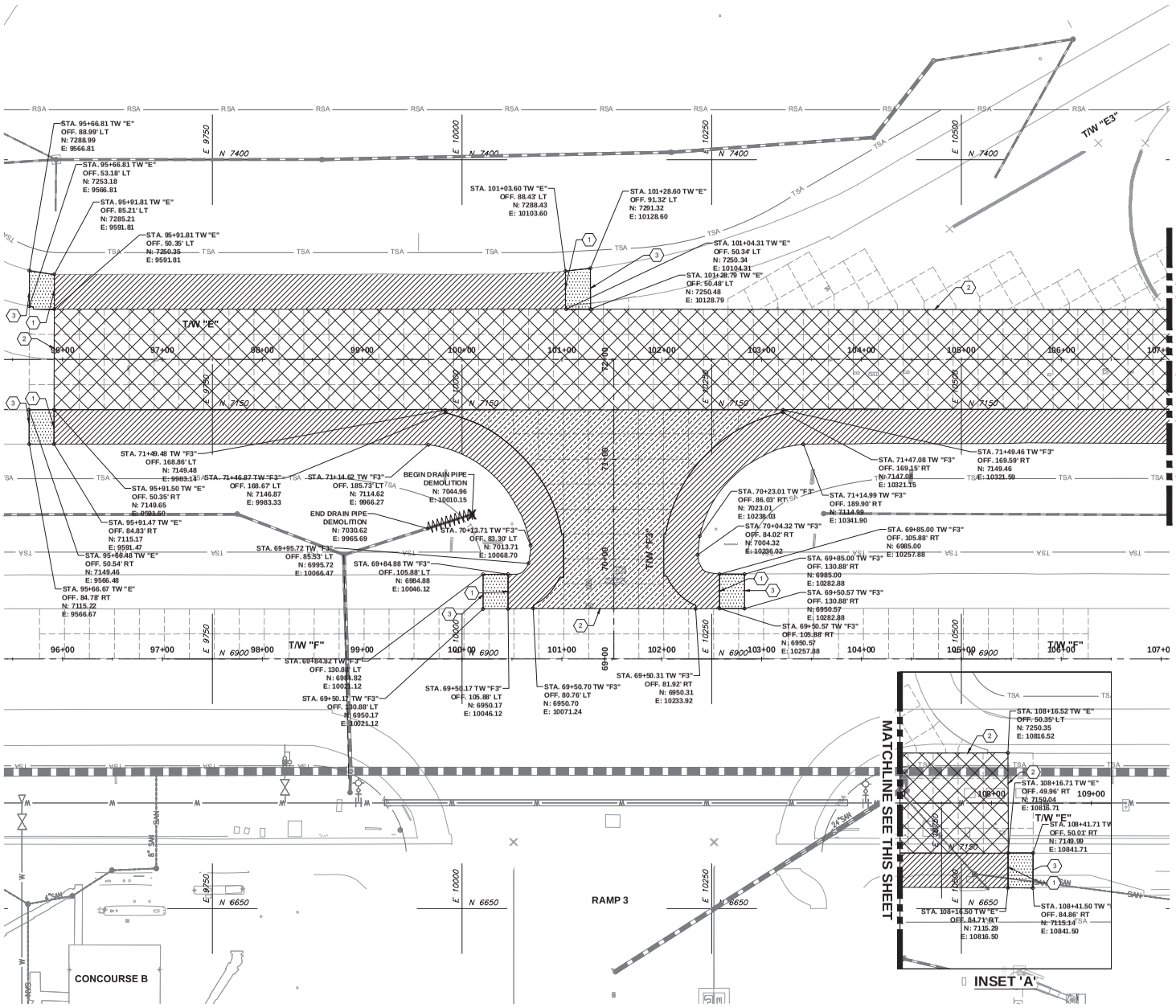
FEBRUARY 16, 2016

SHEET NAME

PAVEMENT TYPICAL SECTIONS

SHEET No

C 01.02.1



LEGEND

- REMOVE EXISTING PCC PAVEMENT AND CTB/AGG LAYER
- REMOVE EXISTING PCC PAVEMENT AND BASE IN ENTIRETY
- REMOVE EXISTING ASPHALT SHOULDER W/ BASE
- 2" ASPHALT MILLING
- SURVEYED JOINTS
- X DEMOLISH EXISTING DRAINAGE STRUCTURE
- DEMOLISH EXISTING DRAINAGE PIPE

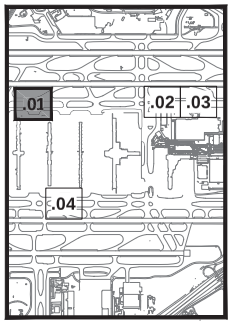
KEYED NOTES

1. FULL DEPTH SAWCUT
2. REMOVE TO EXISTING JOINT SAWCUT FACE OF REMAINING SLAB
3. 1" SAWCUT. SEE DETAIL 9, SHEET C 01.01.1

NOTES

1. CONTRACTOR SHALL STAKE ALL LIMITS OF DEMOLITION AND RECEIVE ENGINEER'S APPROVAL PRIOR TO BEGINNING ANY DEMOLITION.
2. CONTRACTOR SHALL REFER TO DETAILS ON SHEET C 01.01.1 FOR ADDITIONAL INFORMATION ON PAVEMENT DEMOLITION.
3. REFER TO SHEET C 11.01.1 FOR UNDERDRAIN DEMOLITION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EXISTING PAVEMENT. DAMAGED SLABS SHALL BE REPAIRED BY CITY'S PREQUALIFIED PCC REPAIRS CONTRACTOR AT TAXIWAY PAVEMENT REPLACEMENT CONTRACTOR'S COST.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	JAH
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

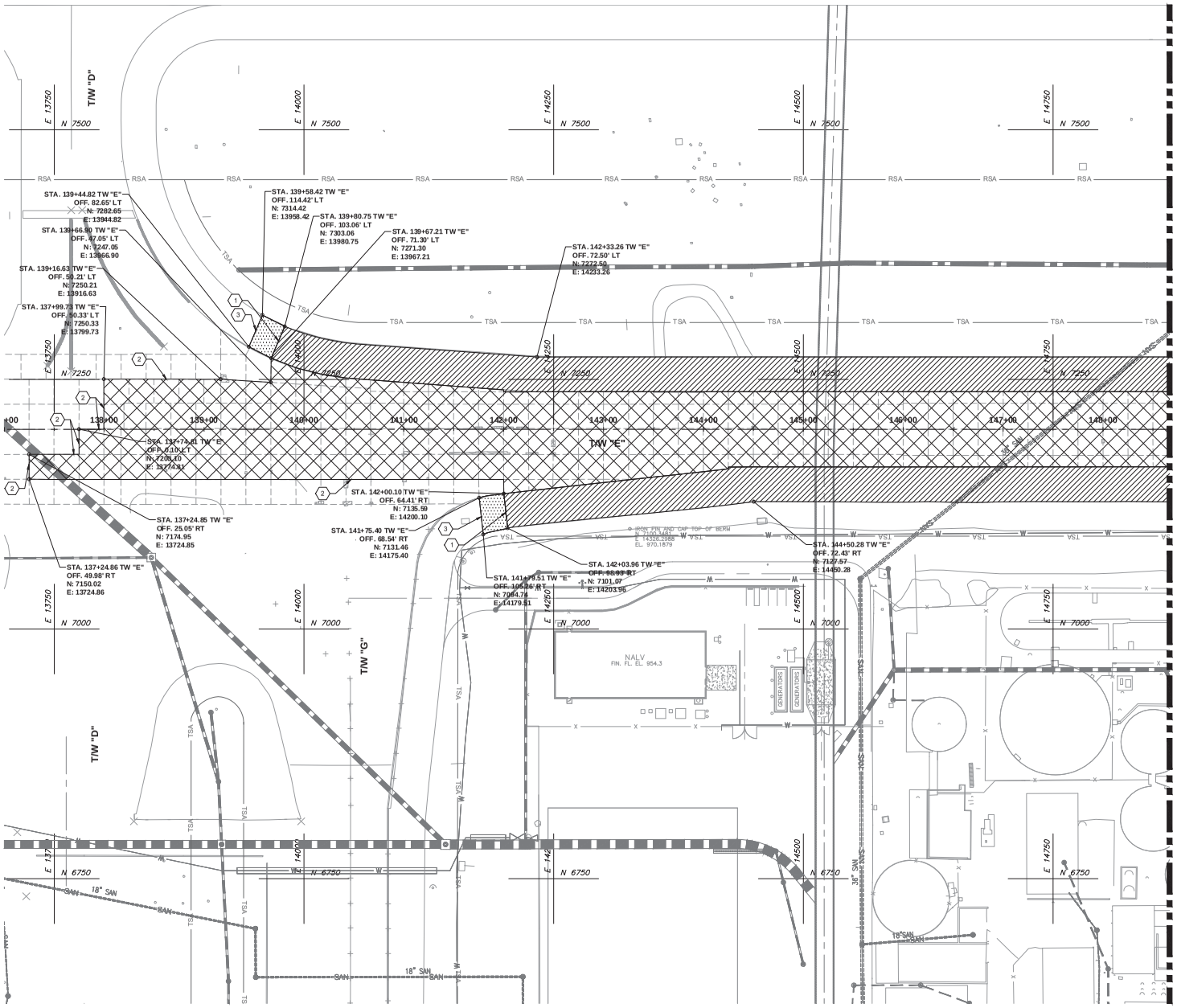
DEMOLITION PLAN

SHEET No

C 03.01.1

NOT ISSUED FOR CONSTRUCTION

2/15/2016 10:12 AM
C:\PW_WORK\ATRANGA01\D0891874\DM595453\45586-C 03.01-1 DEMOLITION PLANS.DWG



LEGEND

- REMOVE EXISTING PCC PAVEMENT AND CTB/AGG LAYER
- REMOVE EXISTING PCC PAVEMENT AND BASE IN ENTIRETY
- REMOVE EXISTING ASPHALT SHOULDER W/ BASE
- 2" ASPHALT MILLING
- SURVEYED JOINTS
- X DEMOLISH EXISTING DRAINAGE STRUCTURE

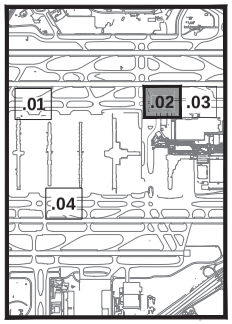
KEYED NOTES

1. FULL DEPTH SAWCUT
2. REMOVE TO EXISTING JOINT SAWCUT FACE OF REMAINING SLAB
3. 1" SAWCUT. SEE DETAIL 9, SHEET C 01.01.1

NOTES

1. CONTRACTOR SHALL STAKE ALL LIMITS OF DEMOLITION AND RECEIVE ENGINEER'S APPROVAL PRIOR TO BEGINNING ANY DEMOLITION.
2. CONTRACTOR SHALL REFER TO DETAILS ON SHEET C 01.01.1 FOR ADDITIONAL INFORMATION ON PAVEMENT DEMOLITION.
3. REFER TO SHEET C 11.02.1 FOR UNDERDRAIN DEMOLITION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EXISTING PAVEMENT. DAMAGE SHALL BE REPAIRED BY CITY'S PREQUALIFIED PCC REPAIRS CONTRACTOR AT TAXIWAY PAVEMENT REPLACEMENT CONTRACTOR'S COST.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	JAH
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

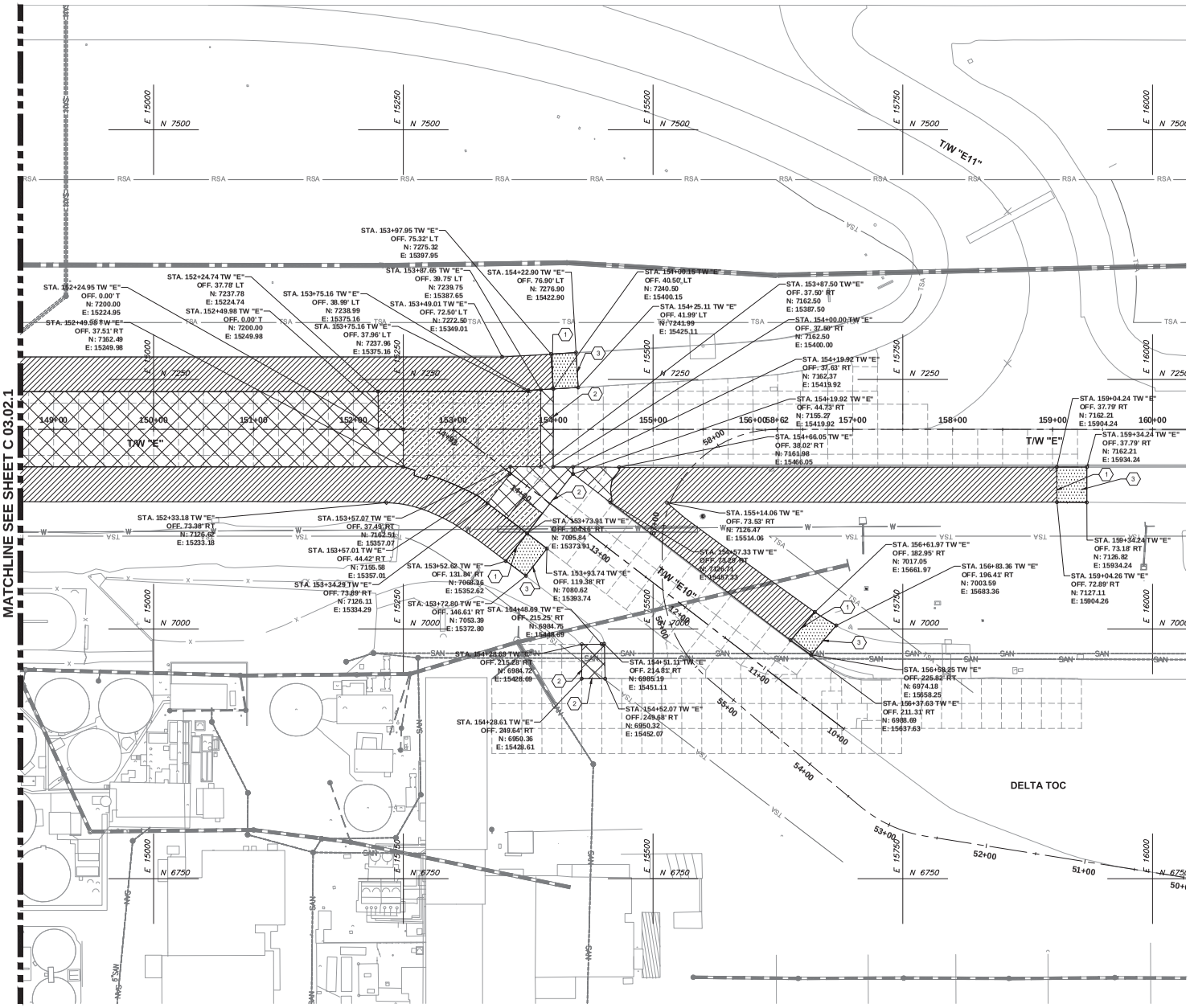
DEMOLITION PLAN

SHEET No

C 03.02.1

NOT ISSUED FOR CONSTRUCTION

2/15/2016 10:14 AM
C:\PW_WORK\ATRANGA01\D0891T1A\D0594S3\46586-C 03.01.1 DEMOLITION PLANS.DWG



LEGEND

- REMOVE EXISTING PCC PAVEMENT AND CTB/AGG LAYER
- REMOVE EXISTING PCC PAVEMENT AND BASE IN ENTIRETY
- REMOVE EXISTING ASPHALT SHOULDER W/ BASE
- 2" ASPHALT MILLING
- SURVEYED JOINTS
- X DEMOLISH EXISTING DRAINAGE STRUCTURE

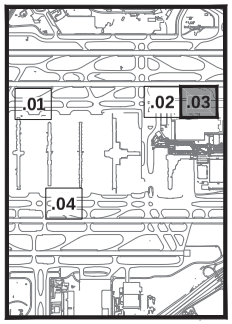
KEYED NOTES

1. FULL DEPTH SAWCUT
2. REMOVE TO EXISTING JOINT SAWCUT FACE OF REMAINING SLAB
3. 1" SAWCUT. SEE DETAIL 9, SHEET C 01.01.1

NOTES

1. CONTRACTOR SHALL STAKE ALL LIMITS OF DEMOLITION AND RECEIVE ENGINEER'S APPROVAL PRIOR TO BEGINNING ANY DEMOLITION.
2. CONTRACTOR SHALL REFER TO DETAILS ON SHEET C 01.01.1 FOR ADDITIONAL INFORMATION ON PAVEMENT DEMOLITION.
3. REFER TO SHEET C 11.03.1 FOR UNDERDRAIN DEMOLITION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EXISTING PAVEMENT. DAMAGED SLABS SHALL BE REPAIRED BY CITY'S PREQUALIFIED PCC REPAIRS CONTRACTOR AT TAXIWAY PAVEMENT REPLACEMENT CONTRACTOR'S COST.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	JAH
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

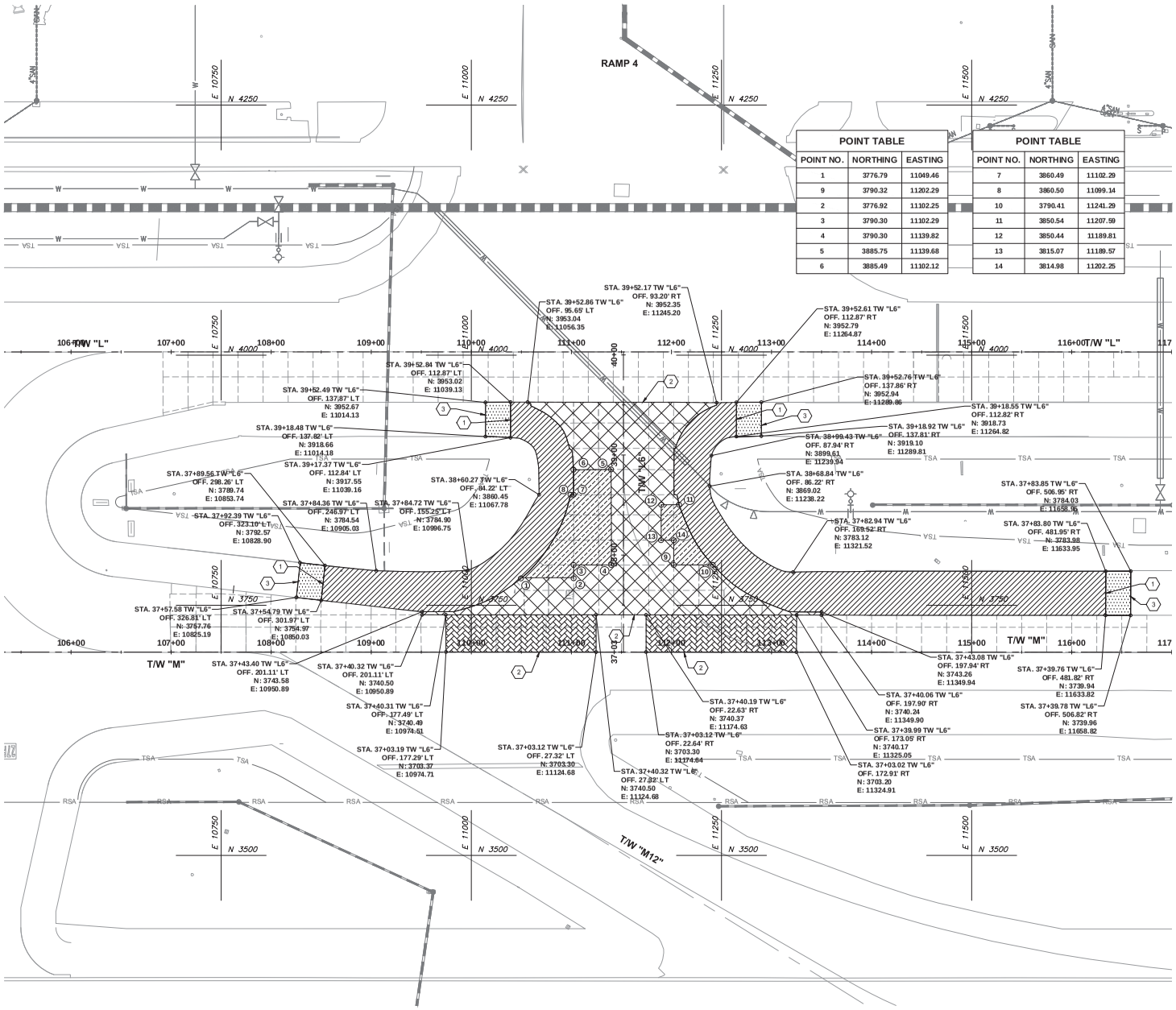
DEMOLITION PLAN

SHEET No

C 03.03.1

NOT ISSUED FOR CONSTRUCTION

2/15/2016 10:16 AM
C:\PW_WORK\ATRANGA01\D0891874\DM0504520\40586-C 03.01-1 DEMOLITION PLANS.DWG



POINT TABLE		
POINT NO.	NORTHING	EASTING
1	3776.79	11049.46
9	3790.32	11202.29
2	3776.92	11102.25
3	3790.30	11102.29
4	3790.30	11139.82
5	3885.75	11139.68
6	3885.49	11102.12

POINT TABLE		
POINT NO.	NORTHING	EASTING
7	3860.49	11102.29
8	3860.50	11099.14
10	3790.41	11241.29
11	3850.54	11207.59
12	3850.44	11189.81
13	3815.07	11189.57
14	3814.98	11202.25

LEGEND

- REMOVE EXISTING PCC PAVEMENT AND CTB/AGG LAYER
- REMOVE EXISTING PCC PAVEMENT AND BASE IN ENTIRETY
- REMOVE EXISTING PCC PAVEMENT
- REMOVE EXISTING ASPHALT SHOULDER W/ BASE
- 2" ASPHALT MILLING
- SURVEYED JOINTS
- X DEMOLISH EXISTING DRAINAGE STRUCTURE

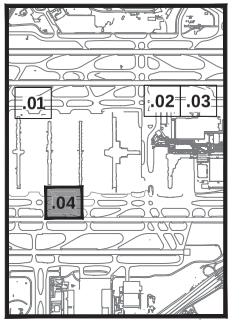
KEYED NOTES

1. FULL DEPTH SAWCUT
2. REMOVE TO EXISTING JOINT SAWCUT FACE OF REMAINING SLAB
3. 1" SAWCUT. SEE DETAIL 9, SHEET C 01.01.1

NOTES

1. CONTRACTOR SHALL STAKE ALL LIMITS OF DEMOLITION AND RECEIVE ENGINEER'S APPROVAL PRIOR TO BEGINNING ANY DEMOLITION.
2. CONTRACTOR SHALL REFER TO DETAILS ON SHEET C 01.01.1 FOR ADDITIONAL INFORMATION ON PAVEMENT DEMOLITION.
3. REFER TO SHEET C 11.04.1 FOR UNDERDRAIN DEMOLITION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EXISTING PAVEMENT. DAMAGED SLABS SHALL BE REPAIRED BY CITY'S PREQUALIFIED PCC REPAIRS CONTRACTOR AT TAXIWAY PAVEMENT REPLACEMENT CONTRACTOR'S COST.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	JAH
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

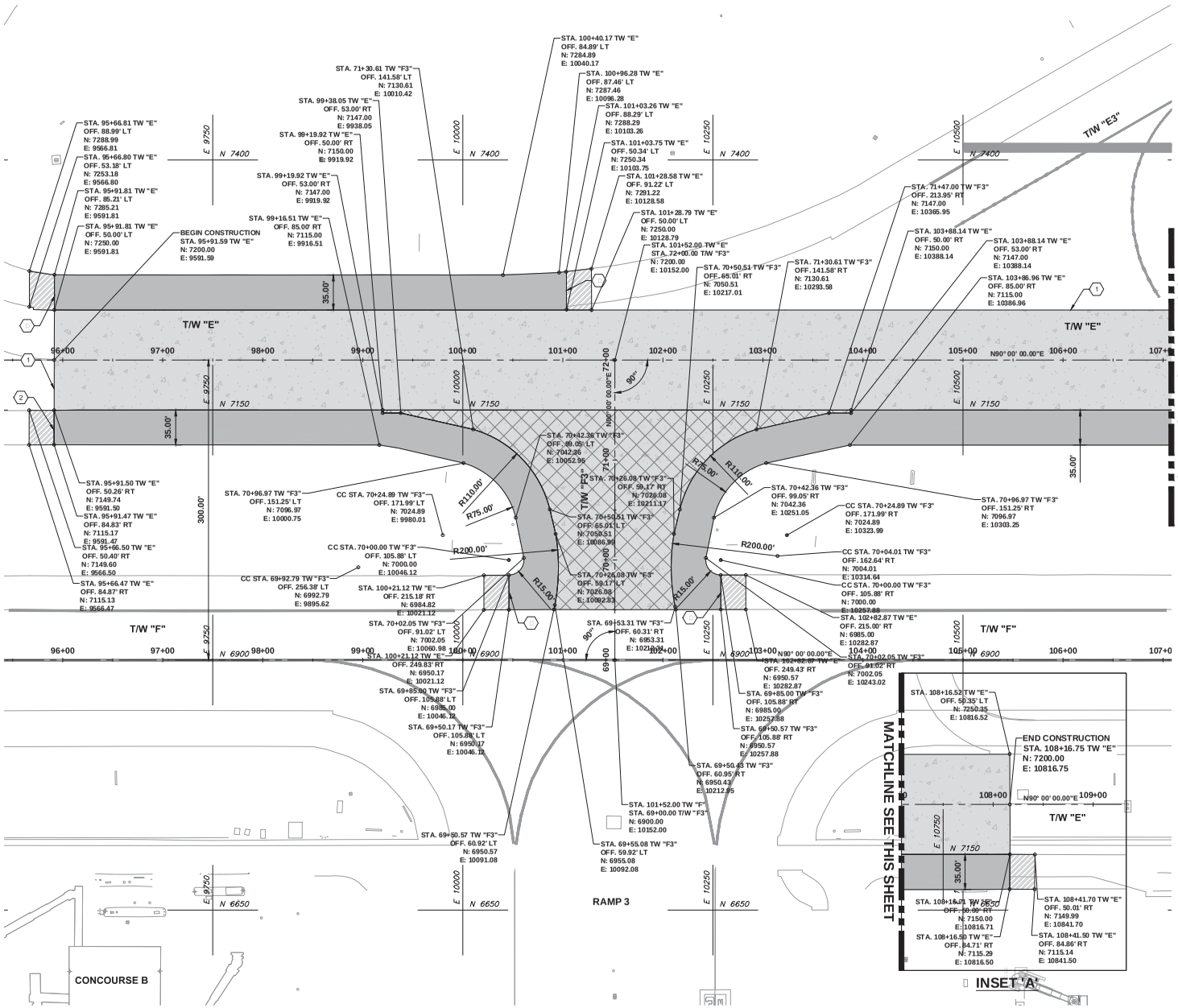
DEMOLITION PLAN

SHEET No

C 03.04.1

NOT ISSUED FOR CONSTRUCTION

2/15/2016 10:18 AM
C:\PW_WORK\ATRANGA01\D0891874\DM5945421\45586-C 03.01-1 DEMOLITION PLANS.DWG



LEGEND

- PROPOSED PCC PAVING WITH BITUMINOUS LEVELING COURSE
- PROPOSED ASPHALT SHOULDER PAVING
- 2" ASPHALT OVERLAY
- PROPOSED PCC PAVING WITH BITUMINOUS BASE COURSE

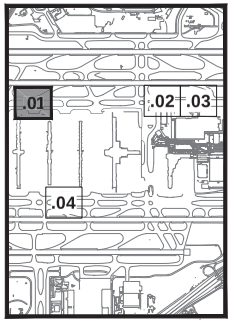
KEYED NOTES

1. CONSTRUCT TO EXISTING SLAB EDGE. SEE DEMOLITION PLANS FOR LIMITS.
2. TIE INTO EXISTING SHOULDER. SEE DEMOLITION PLANS FOR LIMITS. SEE DETAIL 9 SHEET C 01.01.1 FOR OVERLAY TIE-IN.

NOTES

1. ALL COORDINATES SHOWN ON THESE PLANS ARE BASED ON THE H-JAIA GRID SYSTEM.
2. ALL STATIONS AND OFFSETS ARE REFERENCED TO THE PROPOSED CENTERLINES FOR TAXIWAYS "E", "F3", AND "L6". ALL OTHER CENTERLINES ARE SHOWN FOR REFERENCE ONLY.
3. SEE SHEETS G 07.01 THRU G 07.03 FOR HORIZONTAL CONTROL DATA.
4. SEE DEMO PLANS, SHEET C 03.01 FOR PAVEMENT TIE-INS.

KEY MAP



NORTH

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	NA
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	####
H-JDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

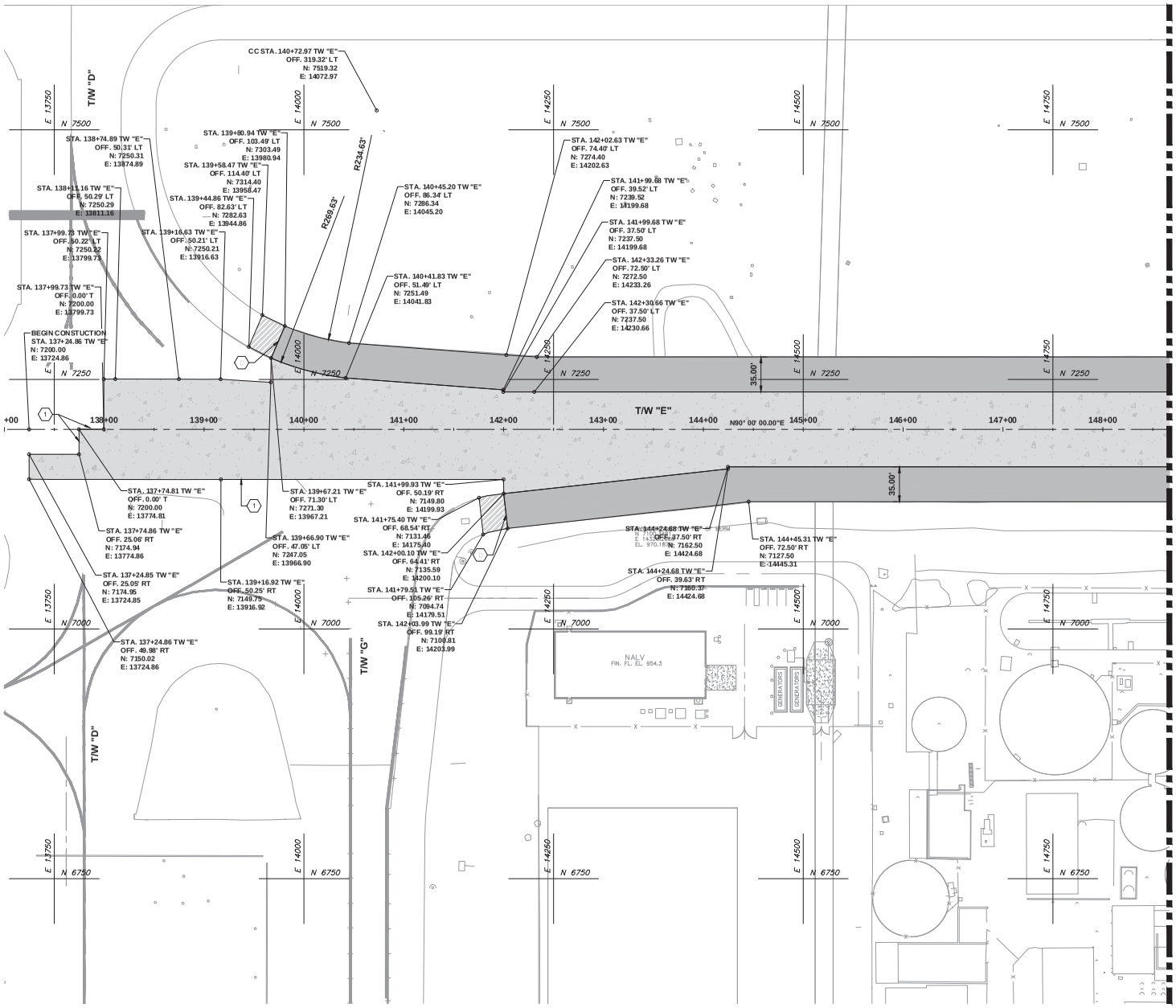
GEOMETRY PLAN

SHEET No

C 04.01.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 6:18 PM
C:\PW_WORK\ATRANGA01\D0891874\DM5954521\45586-C 04.01-1 GEOMETRY PLANS.DWG



LEGEND

- PROPOSED PCC PAVING WITH BITUMINOUS LEVELING COURSE
- PROPOSED ASPHALT SHOULDER PAVING
- 2" ASPHALT OVERLAY
- PROPOSED PCC PAVING WITH BITUMINOUS BASE COURSE

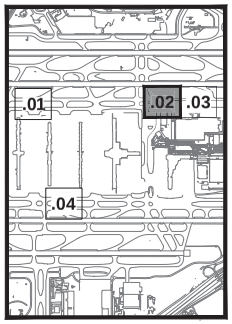
KEYED NOTES

1. CONSTRUCT TO EXISTING SLAB EDGE. SEE DEMOLITION PLANS FOR LIMITS.
2. TIE INTO EXISTING SHOULDER. SEE DEMOLITION PLANS FOR LIMITS. SEE DETAIL 9 SHEET C 01.01.1 FOR OVERLAY TIE-IN.

NOTES

1. ALL COORDINATES SHOWN ON THESE PLANS ARE BASED ON THE H-JAIA GRID SYSTEM.
2. ALL STATIONS AND OFFSETS ARE REFERENCED TO THE PROPOSED CENTERLINES FOR TAXIWAYS "E", "F3", AND "L6". ALL OTHER CENTERLINES ARE SHOWN FOR REFERENCE ONLY.
3. SEE SHEETS G 07.01 THRU G 07.03 FOR HORIZONTAL CONTROL DATA.
4. SEE DEMO PLANS, SHEET C 03.02 FOR PAVEMENT TIE-INS.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	NA
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	####
H-JOP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

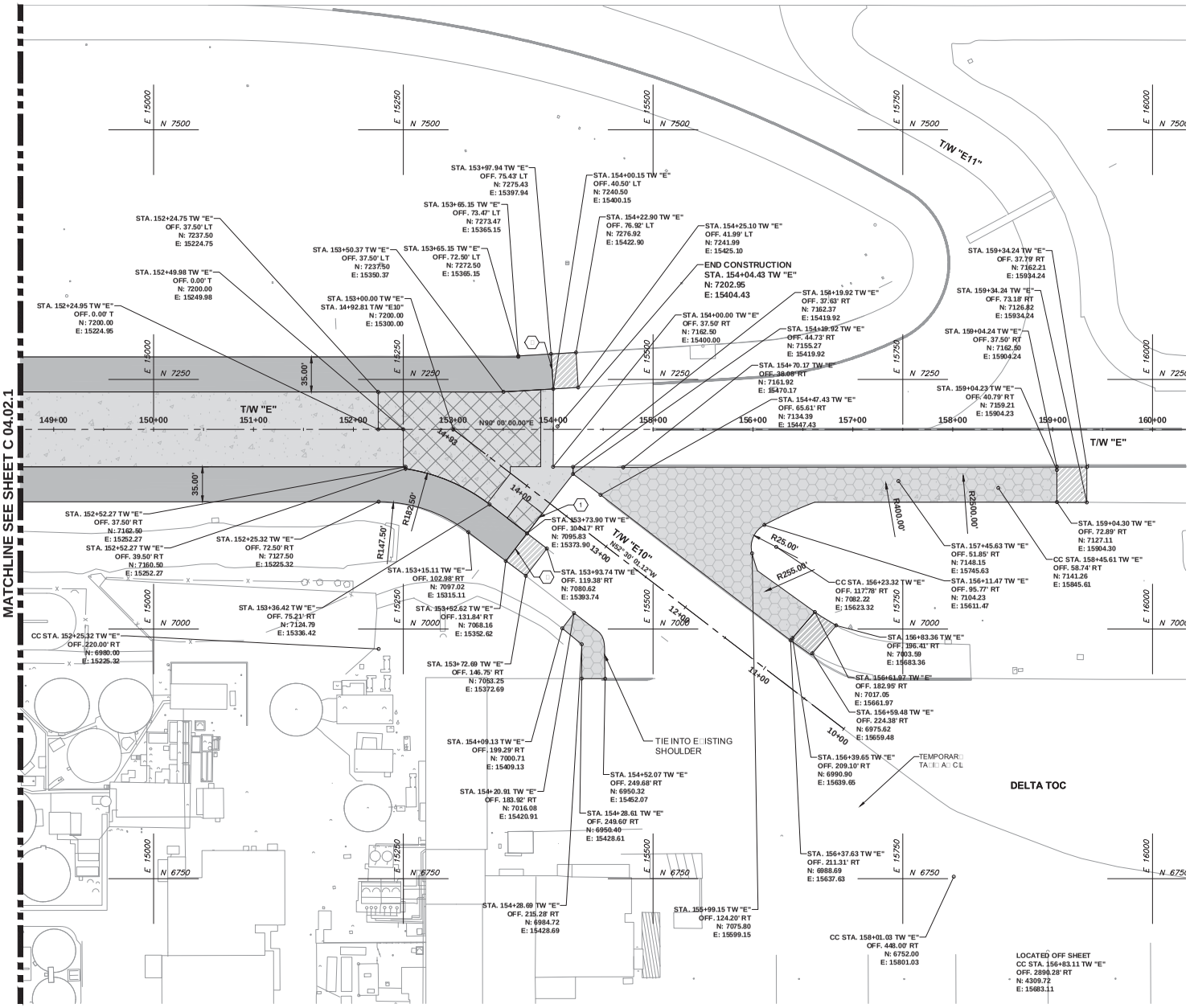
GEOMETRY PLAN

SHEET No

C 04.02.1

2/12/2016 6:20 PM
C:\PW_WORK\ATRNAGA01\D0586174\DM5094532\46586-C 04.01-1 GEOMETRY PLANS.DWG

MATCHLINE SEE SHEET C 04.02.1



LEGEND

- PROPOSED PCC PAVING WITH BITUMINOUS LEVELING COURSE
- PROPOSED ASPHALT SHOULDER PAVING
- TEMPORARY TAXIWAY PAVEMENT
- 2" ASPHALT OVERLAY
- PROPOSED PCC PAVING WITH BITUMINOUS BASE COURSE

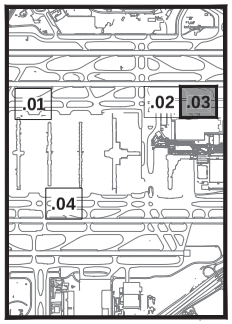
KEYED NOTES

1. CONSTRUCT TO EXISTING SLAB EDGE. SEE DEMOLITION PLANS FOR LIMITS.
2. TIE INTO EXISTING SHOULDER. SEE DEMOLITION PLANS FOR LIMITS. SEE DETAIL 9 SHEET C 01.01.1 FOR OVERLAY TIE-IN.

NOTES

1. ALL COORDINATES SHOWN ON THESE PLANS ARE BASED ON THE H-JAIA GRID SYSTEM.
2. ALL STATIONS AND OFFSETS ARE REFERENCED TO THE PROPOSED CENTERLINES FOR TAXIWAYS "E", "F3", AND "L6". ALL OTHER CENTERLINES ARE SHOWN FOR REFERENCE ONLY.
3. SEE SHEETS G 07.01 THRU G 07.03 FOR HORIZONTAL CONTROL DATA.
4. SEE DEMO PLANS, SHEET C 03.03 FOR PAVEMENT TIE-INS.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	NA
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	####
H-JOP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

GEOMETRY PLAN

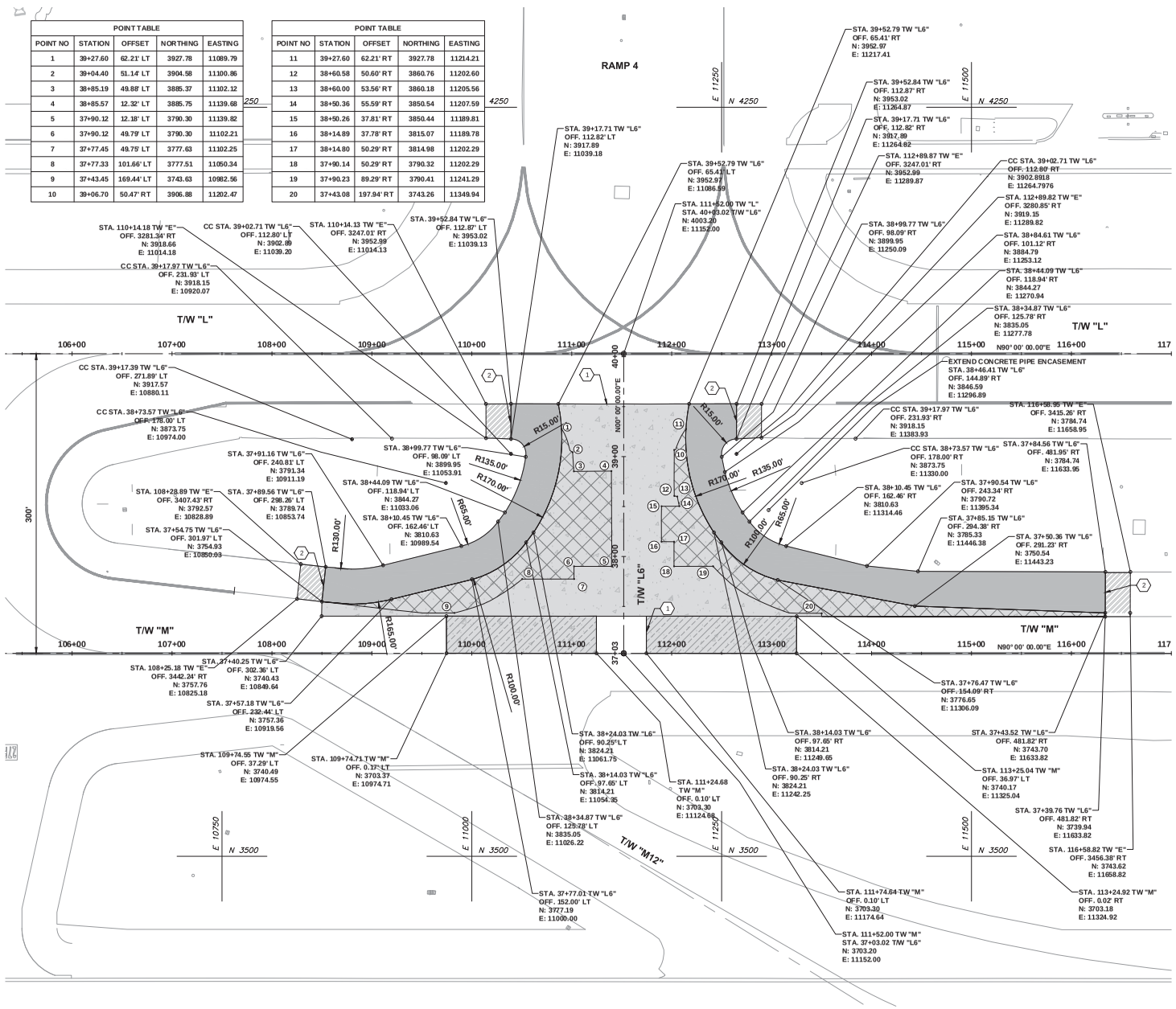
SHEET No

C 04.03.1

2/12/2016 6:23 PM
C:\PW_WORK\ATRANGA01\D0891374\D0590453\40586-C 04.01-1 GEOMETRY PLANS.DWG

POINT TABLE				
POINT NO	STATION	OFFSET	NORTHING	EASTING
1	39+27.60	62.21' LT	3927.78	11089.79
2	39+04.40	51.14' LT	3904.58	11100.86
3	38+85.19	49.88' LT	3885.37	11102.12
4	38+85.57	12.32' LT	3885.75	11139.68
5	37+90.12	12.18' LT	3790.30	11139.82
6	37+90.12	49.79' LT	3790.30	11102.21
7	37+77.45	49.75' LT	3777.63	11102.25
8	37+77.33	101.66' LT	3777.51	11050.34
9	37+43.45	169.44' LT	3743.63	10982.56
10	39+06.70	50.47' RT	3906.88	11202.47

POINT TABLE				
POINT NO	STATION	OFFSET	NORTHING	EASTING
11	39+27.60	62.21' RT	3927.78	11214.21
12	38+60.58	50.60' RT	3860.76	11202.60
13	38+60.00	53.56' RT	3860.18	11205.56
14	38+50.36	55.59' RT	3850.54	11207.59
15	38+50.26	37.81' RT	3850.44	11189.81
16	38+14.89	37.78' RT	3815.07	11189.78
17	38+14.80	50.29' RT	3814.98	11202.29
18	37+90.14	50.29' RT	3790.32	11202.29
19	37+90.23	89.29' RT	3790.41	11241.29
20	37+43.08	197.94' RT	3743.26	11349.94



LEGEND

- PROPOSED PCC PAVING WITH BITUMINOUS LEVELING COURSE
- PROPOSED ASPHALT SHOULDER PAVING
- 2" ASPHALT OVERLAY
- PROPOSED PCC PAVING WITH BITUMINOUS BASE COURSE
- PROPOSED PCC PAVING

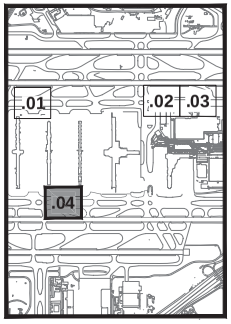
KEYED NOTES

1. CONSTRUCT TO EXISTING SLAB EDGE. SEE DEMOLITION PLANS FOR LIMITS.
2. TIE INTO EXISTING SHOULDER. SEE DEMOLITION PLANS FOR LIMITS. SEE DETAIL 9 SHEET C 01.01.1 FOR OVERLAY TIE-IN.

NOTES

1. ALL COORDINATES SHOWN ON THESE PLANS ARE BASED ON THE H-JAIA GRID SYSTEM.
2. ALL STATIONS AND OFFSETS ARE REFERENCED TO THE PROPOSED CENTERLINES FOR TAXIWAYS "E", "F3", AND "L6". ALL OTHER CENTERLINES ARE SHOWN FOR REFERENCE ONLY.
3. SEE SHEETS G 07.01 THRU G 07.03 FOR HORIZONTAL CONTROL DATA.
4. SEE DEMO PLANS, SHEET C 03.04 FOR PAVEMENT TIE-INS.

KEY MAP



NORTH

GRAPHIC SCALE (IN FEET)
50 0 50 100

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	NA
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
COA PROJECT No	WWW
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

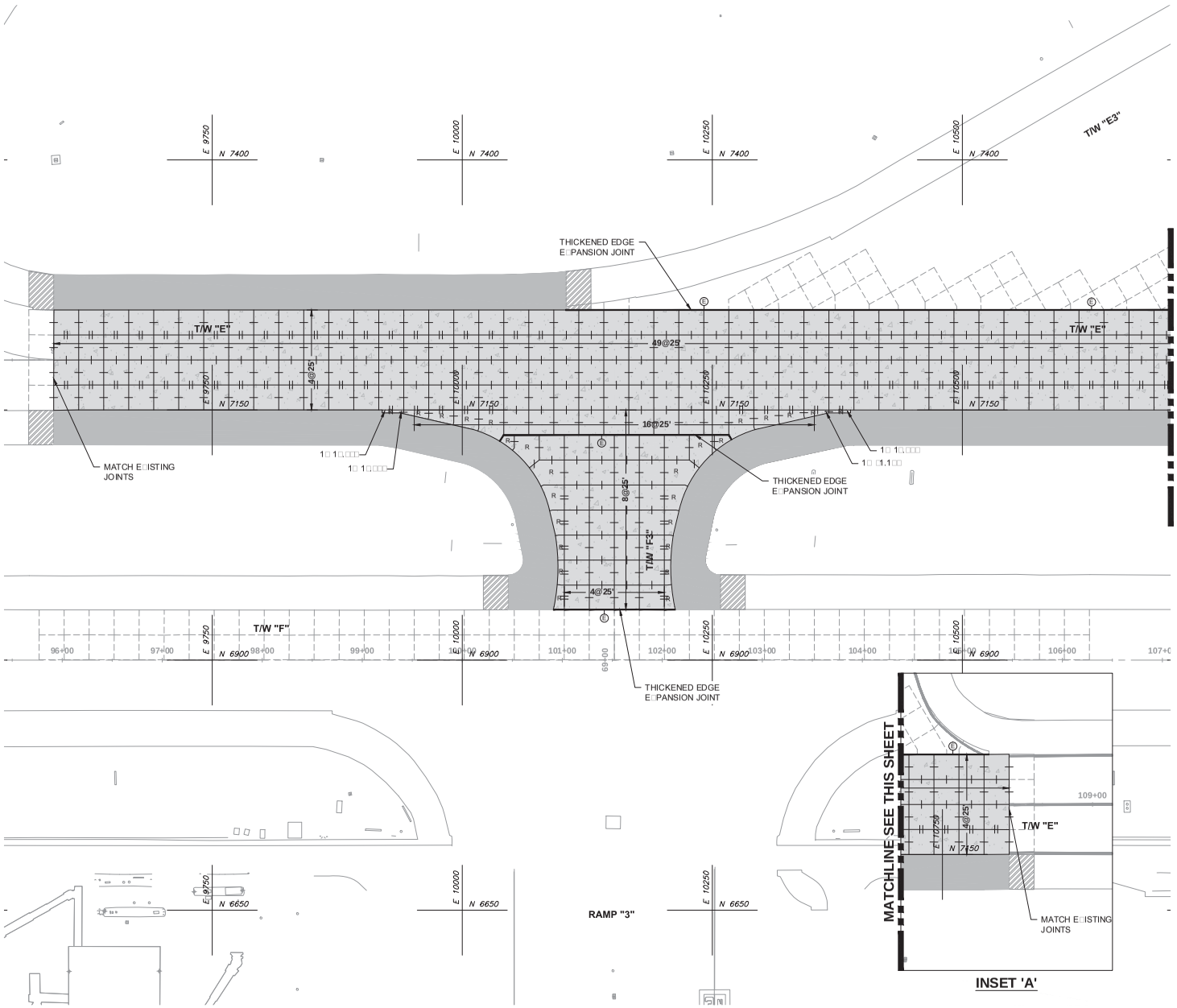
GEOMETRY PLAN

SHEET No

C 04.04.1

NOT ISSUED FOR CONSTRUCTION

2/15/2016 9:00 AM
C:\PW_WORK\ATRNAD01\GRA7517\D0450452\46586-C 04.01-1 GEOMETRY PLANS.DWG



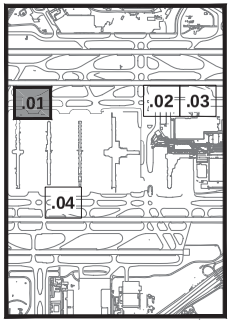
LEGEND

- R — REINFORCED CONCRETE SLAB
- SMOOTH DOWELED JOINT
- DEFORMED DOWELED JOINT
- THICKENED EDGE EXPANSION JOINT
- PROPOSED PCC PAVING
- PROPOSED ASPHALT PAVING
- PROPOSED ASPHALT OVERLAY

NOTES

1. FOR ALL PROPOSED PCC PAVEMENT TO EXISTING PCC PAVEMENT INTERFACES, JOINT SPACING SHALL MATCH FIELD CONDITIONS.
2. SEE G 04 SERIES FOR CONSTRUCTION PHASING PLAN.
3. SEE SHEET C 05.09.1 FOR JOINT DETAILS

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

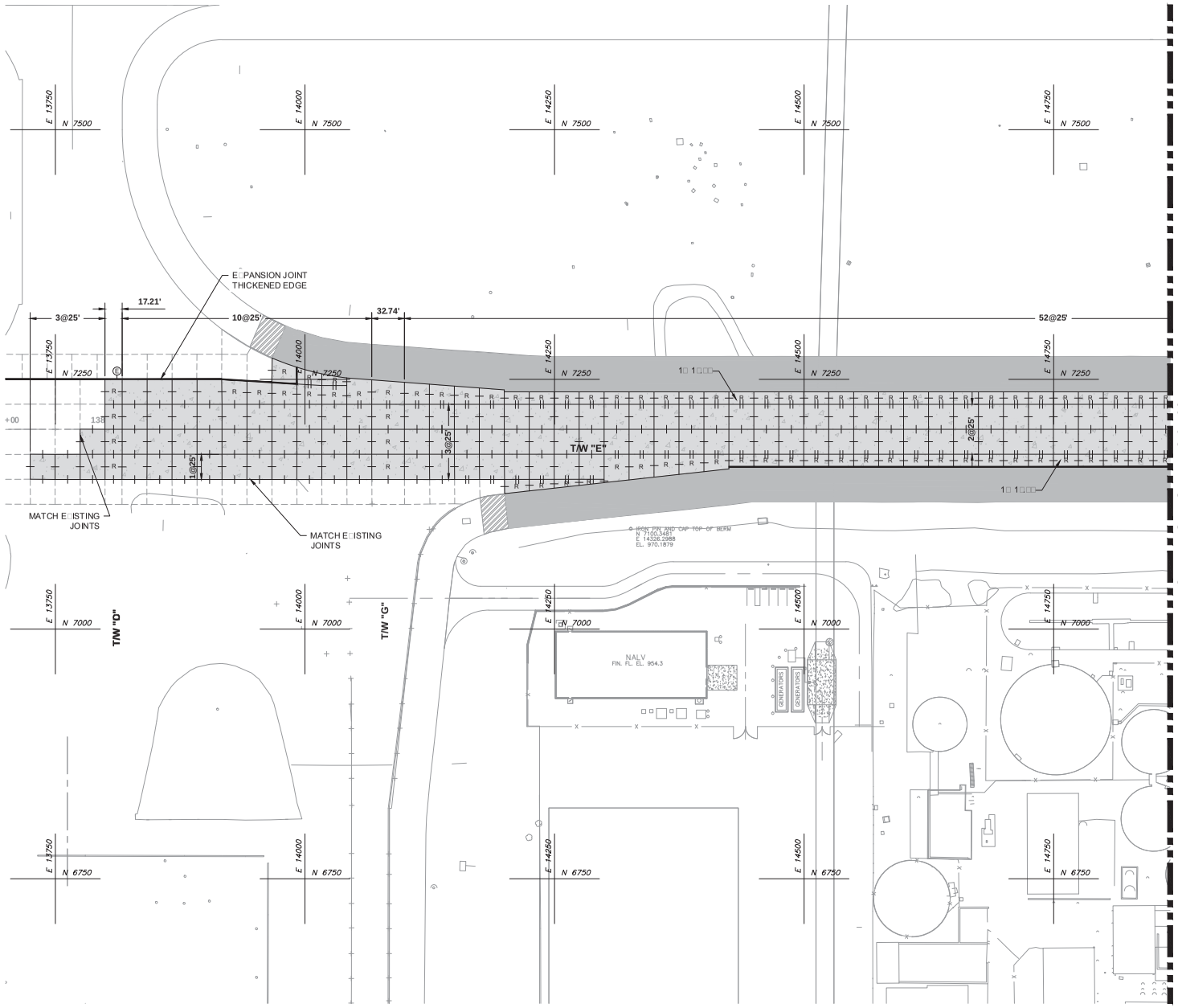
SHEET NAME

JOINT PLAN

SHEET No

C 05.01.1

2/12/2016 6:41 PM
C:\PW_WORK\ATRANDA01\JOB61874\JM505452\J405861-C 05.01.1 JOINT PLANS.DWG



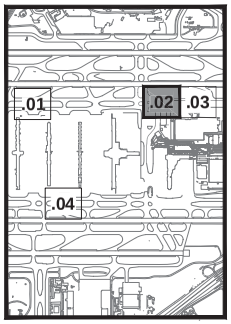
LEGEND

R	REINFORCED CONCRETE SLAB
|	SMOOTH DOWELED JOINT
||	DEFORMED DOWELED JOINT
Ⓔ	THICKENED EDGE EXPANSION JOINT
	PROPOSED PCC PAVING
	PROPOSED ASPHALT PAVING
	PROPOSED ASPHALT OVERLAY

NOTES

1. FOR ALL PROPOSED PCC PAVEMENT TO EXISTING PCC PAVEMENT INTERFACES, JOINT SPACING SHALL MATCH FIELD CONDITIONS.
2. SEE SHEET C 05.09.1 FOR JOINT DETAILS

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE
(IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	WWW
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

JOINT PLAN

SHEET No

C 05.02.1

2/12/2016 6:43 PM
C:\PW_WORK\ATRANDA01\JOB61714\JM5054452\J40586-C 05.01-1 JOINT PLANS.DWG

MATCHLINE SEE SHEET C 05.02.1

T/W "E"

T/W "E10"

T/W "E1"

EXPANSION JOINT

MATCH EXISTING JOINTS

ABUT AGAINST EXISTING ASPHALT SHOULDER

DELTA TOC RAMP

5 @ 25'

10 @ 25'

11 @ 20'

2 @ 17.5'

3 @ 25'

LEGEND

- R — REINFORCED CONCRETE SLAB
- SMOOTH DOWELED JOINT
- DEFORMED DOWELED JOINT
- THICKENED EDGE EXPANSION JOINT
- PROPOSED PCC PAVING
- PROPOSED ASPHALT PAVING
- PROPOSED ASPHALT OVERLAY

NOTES

1. FOR ALL PROPOSED PCC PAVEMENT TO EXISTING PCC PAVEMENT INTERFACES, JOINT SPACING SHALL MATCH FIELD CONDITIONS.
2. SEE SHEET C 05.09.1 FOR JOINT DETAILS

KEY MAP

.01 .02 .03 .04

NORTH

GRAPHIC SCALE (IN FEET)

50 0 50 100

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	IWWX
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

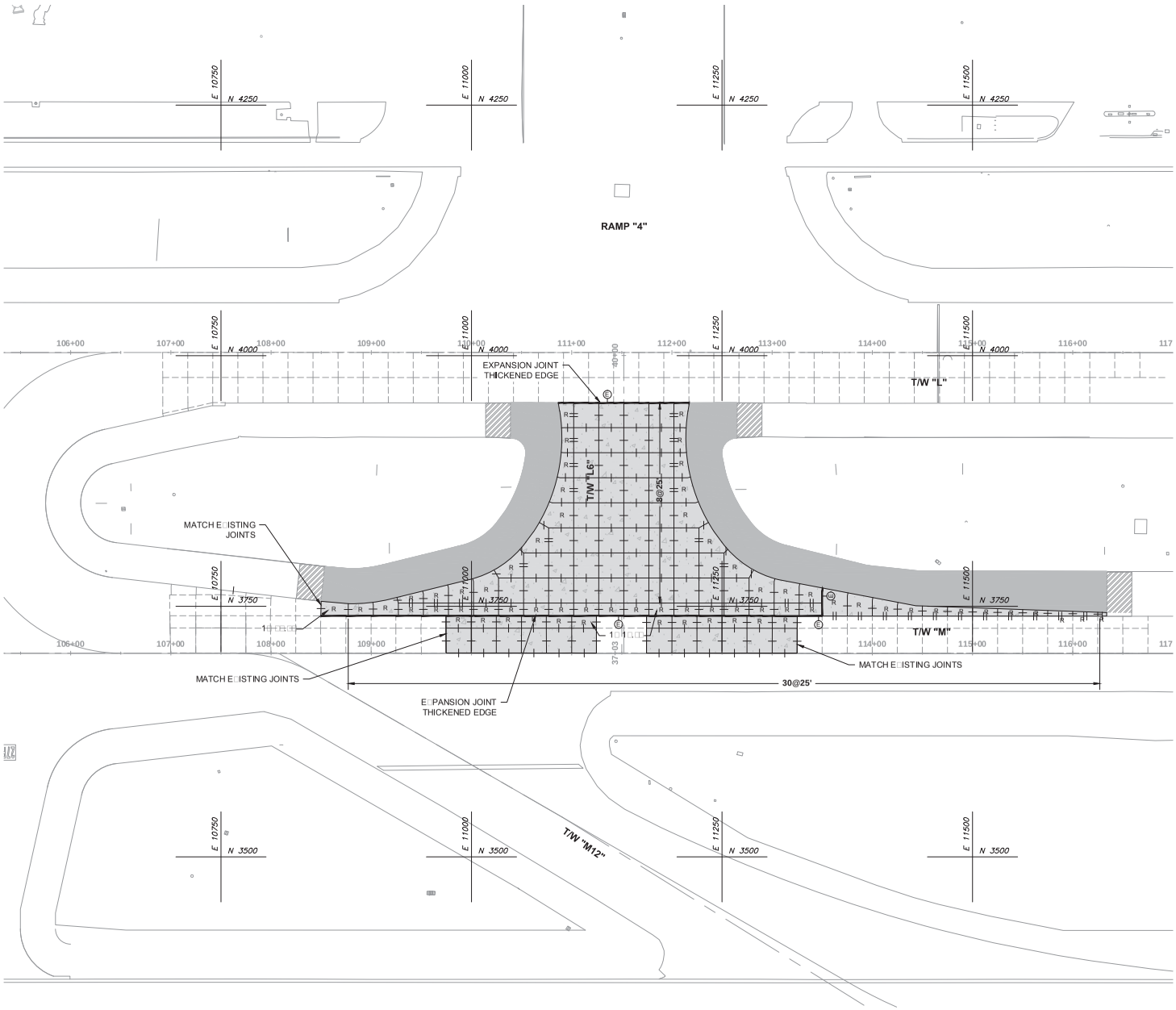
SHEET NAME

JOINT PLAN

SHEET No

C 05.03.1

2/12/2016 5:06 PM
C:\PW_WORK\ATRNAD01\DCR6617A\M0504520\482586~C 05.03.1 JOINT PLAN.DWG



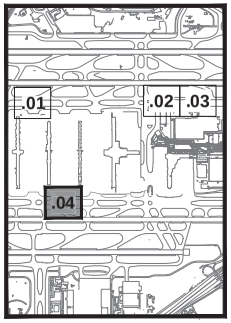
LEGEND

R	REINFORCED CONCRETE SLAB
|	SMOOTH DOWELED JOINT
‖	DEFORMED DOWELED JOINT
Ⓔ	THICKENED EDGE EXPANSION JOINT
	PROPOSED PCC PAVING
	PROPOSED ASPHALT PAVING
	PROPOSED ASPHALT OVERLAY

NOTES

1. FOR ALL PROPOSED PCC PAVEMENT TO EXISTING PCC PAVEMENT INTERFACES, JOINT SPACING SHALL MATCH FIELD CONDITIONS.
2. SEE SHEET C 05.09.1 FOR JOINT DETAILS

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJIP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

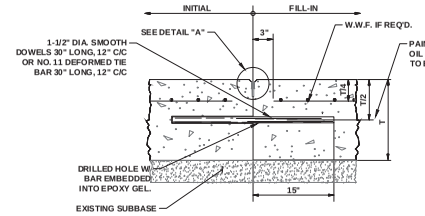
JOINT PLAN

SHEET No

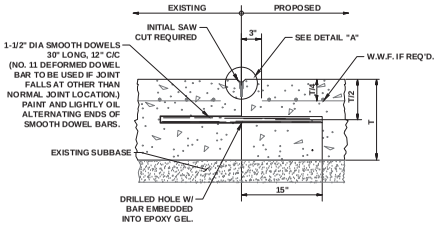
C 05.04.1

NOT ISSUED FOR CONSTRUCTION

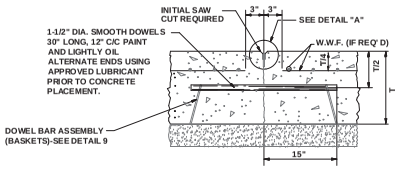
2/12/2016 5:08 PM
C:\PW_WORK\ATRNAD01\D0586174\{M0504452}\42586-C 05.01-1 JOINT PLANS.DWG



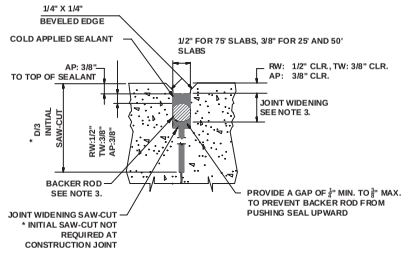
1 LONGITUDINAL CONSTRUCTION JOINT
C.05.09.1 SCALE: N.T.S.



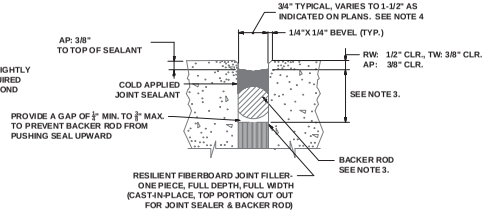
2 TRANSVERSE CONSTRUCTION JOINT
C.05.09.1 SCALE: N.T.S.



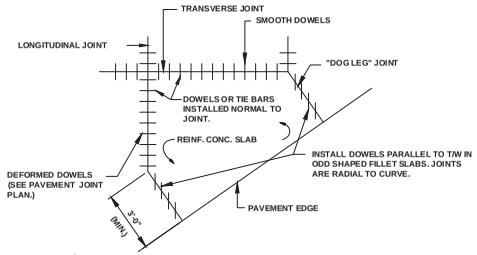
3 TRANSVERSE CONTRACTION JOINT
C.05.09.1 SCALE: N.T.S.



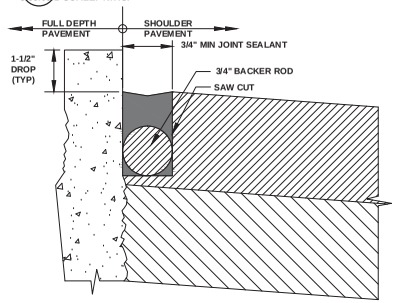
DETAIL "A"
4 LONGITUDINAL AND TRANSVERSE JOINT SEAL DETAIL
C.05.09.1 SCALE: N.T.S.



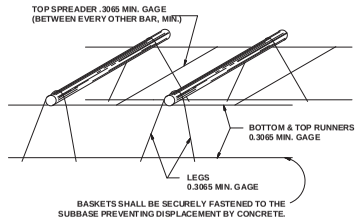
DETAIL "B"
5 EXPANSION JOINT SEAL DETAIL
C.05.09.1 SCALE: N.T.S.



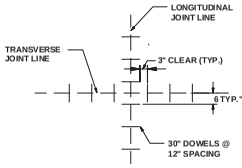
6 SKEWED DOWEL INSTALLATION
C.05.09.1 SCALE: N.T.S.



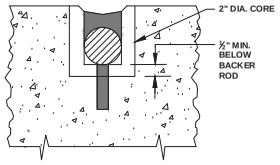
7 ASPHALT/PCC PAVEMENT JOINT DETAIL
C.05.09.1 SCALE: N.T.S.



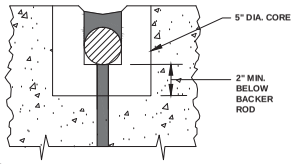
8 TYPICAL DOWEL BAR BASKET
C.05.09.1 SCALE: N.T.S.



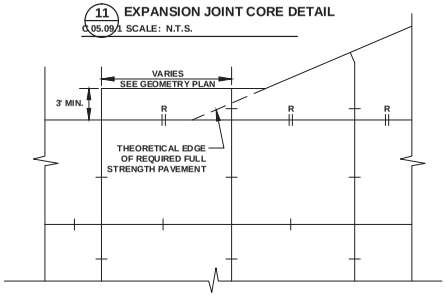
9 DOWEL SPACING DETAIL AT JOINT CORNERS
C.05.09.1 SCALE: N.T.S.



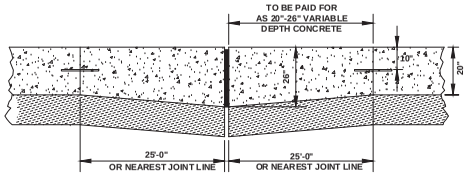
10 CONTRACTION/CONSTRUCTION JOINT CORE DETAIL
C.05.09.1 SCALE: N.T.S.



11 EXPANSION JOINT CORE DETAIL
C.05.09.1 SCALE: N.T.S.



12 PCC SLAB DETAIL AT LEAD-IN TERMINATION
C.05.09.1 SCALE: N.T.S.



13 THICKENED EDGE EXPANSION JOINT
C.05.09.1 SCALE: N.T.S.

NOTES FOR DOWEL AND TIE BAR HOLE DRILLING AND INSTALLATION:

A. DRILLING AND INSTALLATION METHOD SHALL BE CAPABLE OF MAINTAINING DRILL HOLES AND EMBEDDED BARS: (A) PARALLEL TO THE CONCRETE SURFACE, AND (B) NORMAL TO THE JOINT LINE, WITHIN 1/4" AT THE END OF THE DOWEL OR TIE BAR EXCEPT WHERE SPECIFIED OTHERWISE. DRILL HOLES SHALL BE ACCURATELY LAID OUT SO THAT THE MAXIMUM DEVIATION DOES NOT EXCEED 1". DRILL HOLE DIAMETER TO BE APPROXIMATELY 1/8" CLEAR OF BAR ALL AROUND.

B. AFTER THE DRILLING IS COMPLETE AND PRIOR TO INSTALLATION OF THE DOWEL OR TIE BARS, THE HOLES SHALL BE THOROUGHLY CLEANED TO REMOVE DRILLING DUST, CONCRETE CHIPS, AND ANY MATERIAL DETRIMENTAL TO BONDING.

C. EPOXY GEL SHALL BE APPLIED TO THE DOWEL AND SUFFICIENT GEL INJECTED IN THE BACK OF THE TIE BAR HOLE BY A MECHANICAL MIXING/PUMP DEVICE, SO THAT A SLIGHT AMOUNT OF GEL WILL BE FORCED OUT WHEN THE DOWEL OR TIE BAR IS INSERTED AND TAPPED TO THE CORRECT POSITION. IT WILL BE NECESSARY TO TWIST THE BAR BACK AND FORTH SEVERAL TIMES TO ELIMINATE THE AIR ENTRAPPED IN THE HOLE. SMALL WEDGES MAY BE USED TO SUPPORT THE DOWEL OR TIE BAR IN CORRECT ALIGNMENT UNTIL THE GEL HARDENS.

D. EPOXY SHALL MEET THE GEORGIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION, SECTION 886 FOR TYPE VIII EPOXY GEL.

DOWELL BAR BASKET NOTES:

1. WIRE USED IN BASKETS SHALL CONFORM TO ASTM-A82 COLD DRAWN WIRE.
2. DOWEL BAR ATTACHMENT MAY BE FABRICATED BY ARC OR RESISTANCE TYPE WELDING.
3. WIRE FRAME MEMBERS SHALL BE RESISTANCE WELDED EXCEPT FOR SPREADER WIRES WHICH MAY BE ARC WELDED.
4. DOWEL BASKETS SHALL BE TAPERED TO ACCOMMODATE THICKENED EDGE PAVEMENT WHEN USED IN LONGITUDINAL DIRECTION.

GENERAL NOTES:

1. LONGITUDINAL AND TRANSVERSE JOINTS SHALL BE SAWED AS INDICATED.
2. TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED ONLY WHEN APPROVED BY THE ENGINEER.
3. FOR ALL JOINTS THE BACKER ROD MATERIAL SHALL BE COMPATIBLE WITH THE COLD POURED SEALANT AND SLIGHTLY OVERSIZED TO PREVENT MOVEMENT DURING THE JOINT SEALANT OPERATION.
4. THE WIDTH OF THE JOINTS SHALL BE CORRECTED FOR 68° F.
5. JOINT CONFIGURATION SHALL MEET JOINT SEAL MANUFACTURER'S SPECIFICATIONS, EXCEPT AS NOTED ON PLANS AND IN SPECIFICATIONS.
6. ALL DOWEL BARS ARE TO BE INSTALLED WITH BASKETS FOR TRANSVERSE JOINTS.
7. WELDED WIRE REINFORCING SHALL BE 6X6 D6/D6. ALL REINFORCING STEEL SHALL BE DELIVERED IN FLAT SHEETS. NO ROLL STOCK WILL BE ACCEPTABLE.

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	####
H-DOP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

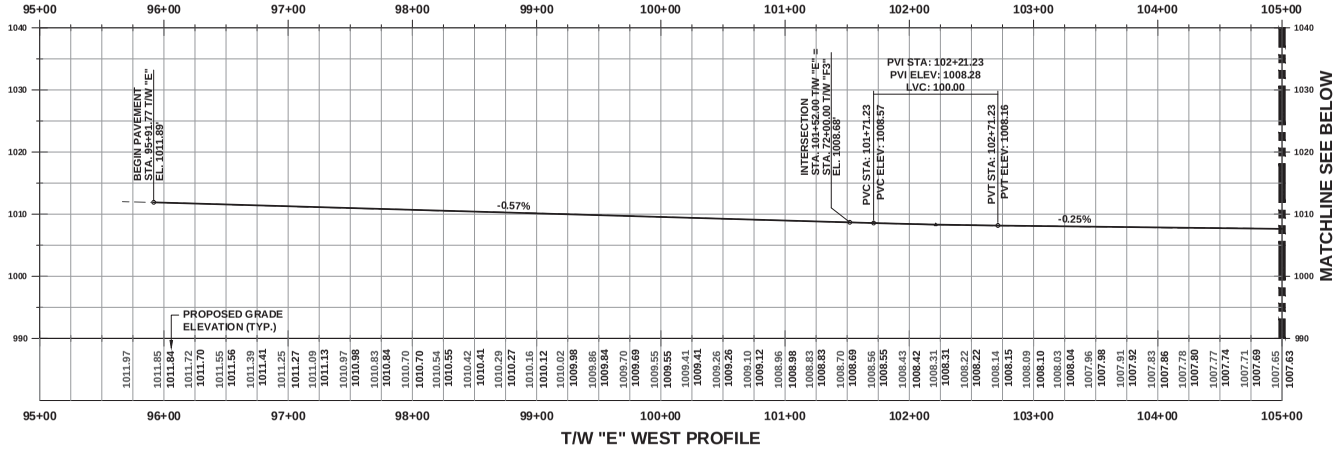
JOINT DETAILS

SHEET No

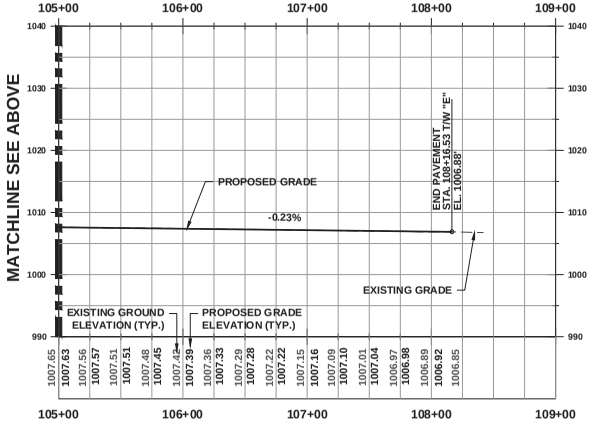
C 05.09.1

NOT ISSUED FOR CONSTRUCTION

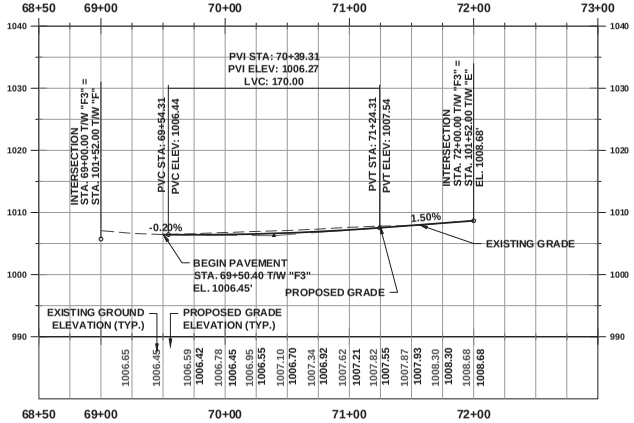
2/12/2016 4:56 PM
C:\PW_WORK\ATRMGA01\HANN6618\JN039452\J45580-C 05.09.1 JOINT DETAILS.DWG



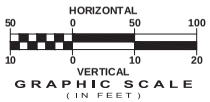
T/W "E" WEST PROFILE



T/W "E" WEST PROFILE



T/W "F3" PROFILE



CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	SLK
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
COA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

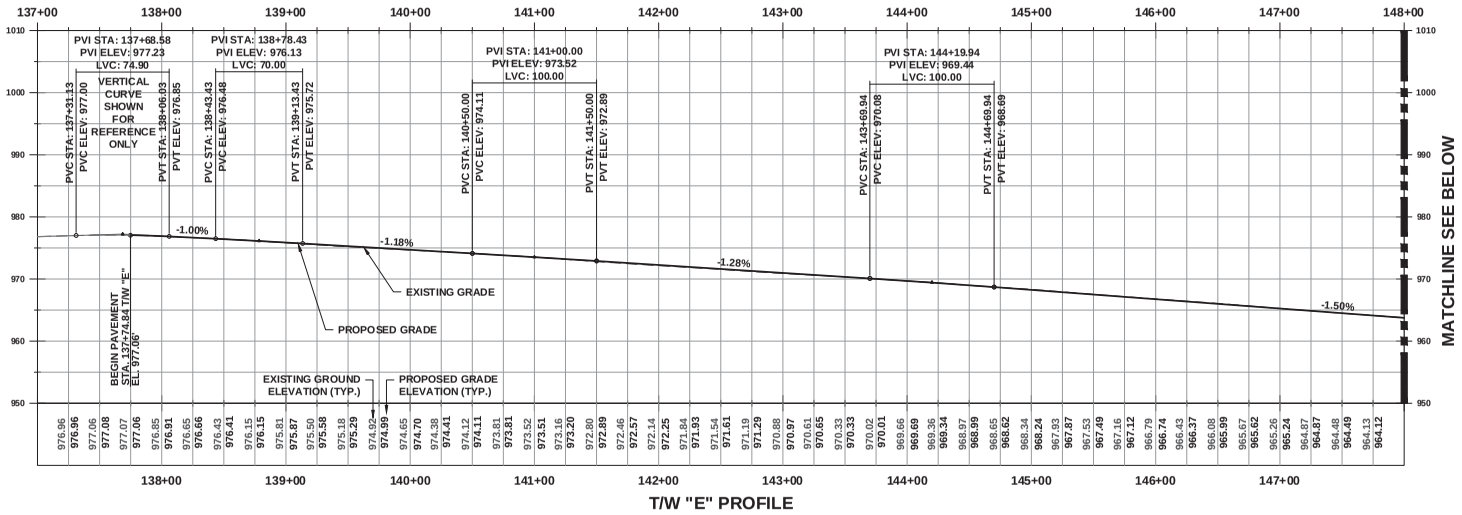
PROFILES

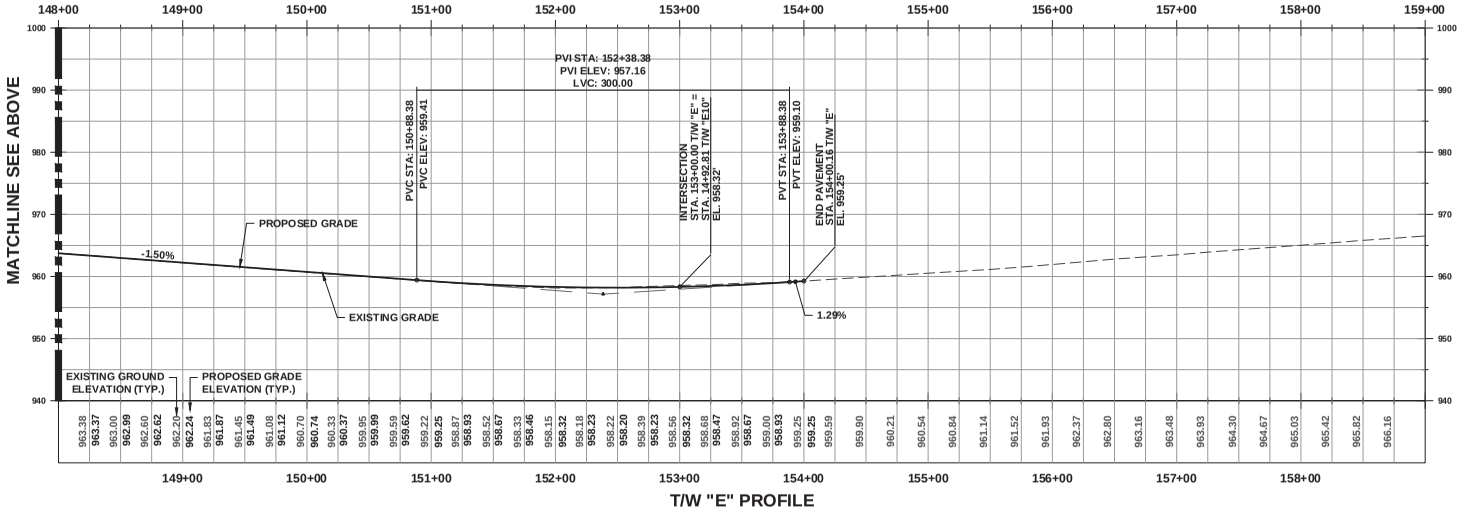
SHEET No

C 06.01.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 5:09 PM
C:\PW_WORK\ATRNAD01\SRA7517\D4509452\46586~C 06.01.1 PROFILES.DWG





HORIZONTAL
50 0 50 100
10 0 10 20
VERTICAL
GRAPHIC SCALE
(IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	SLK
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

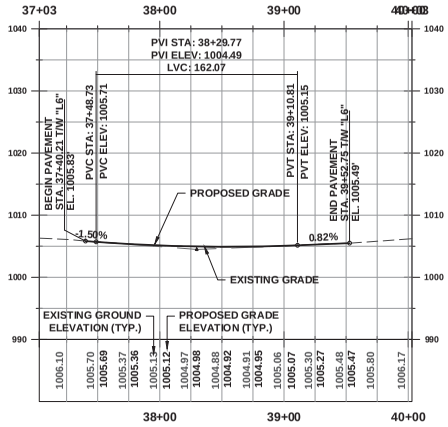
PROFILES

SHEET No

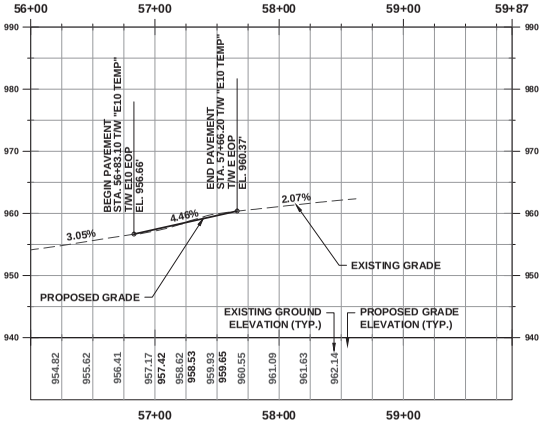
C 06.02.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 5:09 PM
C:\PW_WORK\ATKINSAD01\GSA7517\DA5O9452\46586-C 06.01-1 PROFILES.DWG



T/W "L6" PROFILE



T/W "E10 TEMP" PROFILE

HORIZONTAL
50 0 50 100
10 0 10 20
VERTICAL
GRAPHIC SCALE
(IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	SLK
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

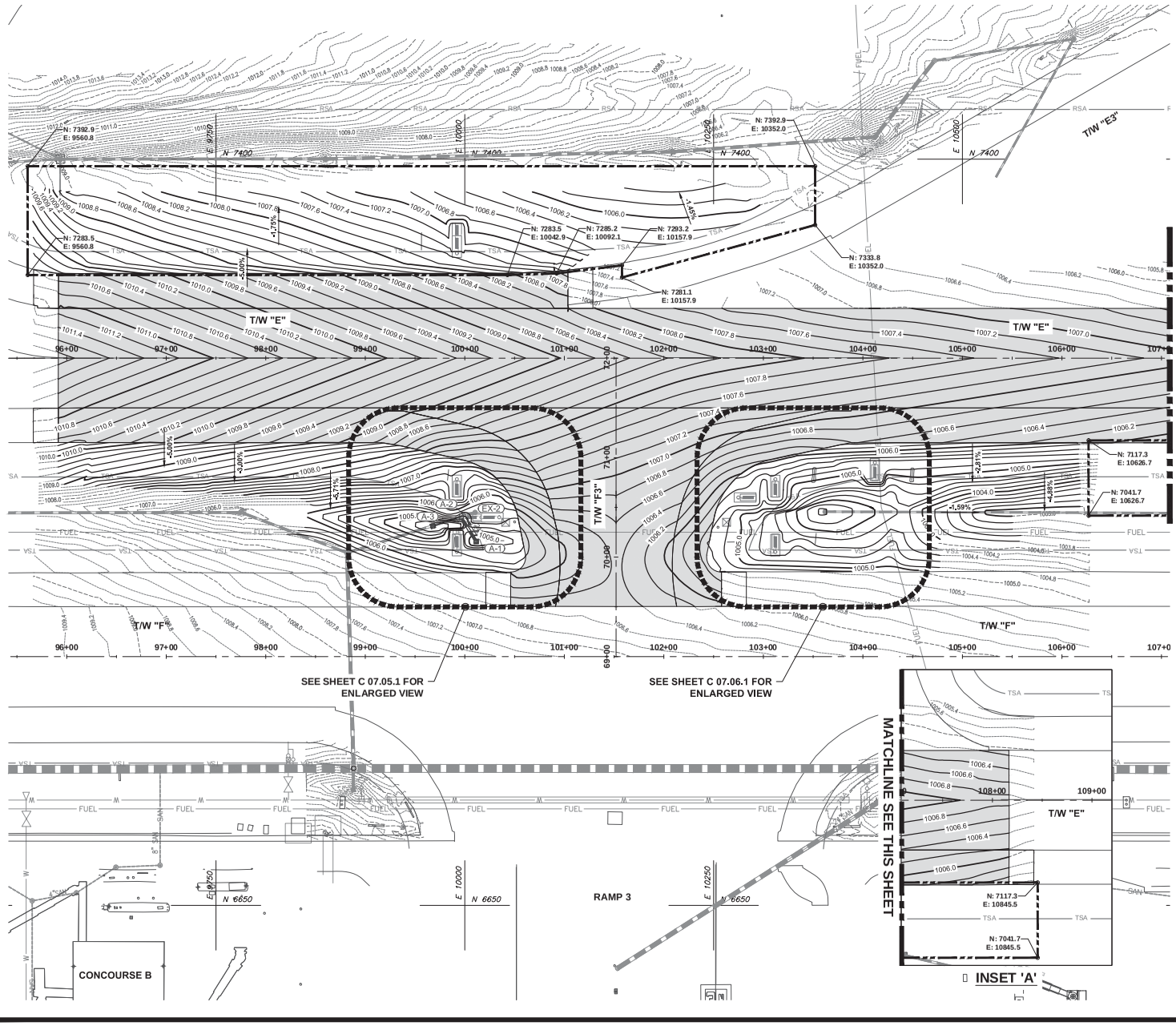
SHEET NAME

PROFILES

SHEET No

C 06.03.1

2/12/2016 5:10 PM
C:\PW_WORK\ATRANDA01\GRA7517\DAS0452\46586-C 06.01.1 PROFILES.DWG



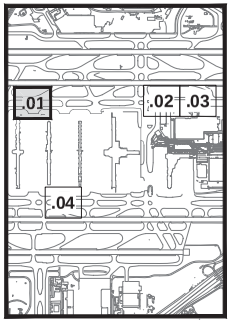
LEGEND

- PROPOSED PAVEMENT REPLACEMENT
- SUPPLEMENTAL SURVEY REQUIRED BY CONTRACTOR (SEE NOTE 1)
- 990.0 — PROPOSED MAJOR CONTOUR
- 990.2 — PROPOSED MINOR CONTOUR
- 990.0 — EXISTING MAJOR CONTOUR
- 990.2 — EXISTING MINOR CONTOUR

NOTES

1. AT PROJECT START, CONTRACTOR SHALL SURVEY ALL AREAS SHOWN AND SUBMIT TO ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITIES, FOR GRADING LIMIT VERIFICATION.
2. CONTRACTOR SHALL SOD AND SEED AREAS AS SHOWN ON SHEETS C 13.21.1 THRU C 13.24.1 AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTURBED AREAS AS DIRECTED BY THE ENGINEER.
3. REFER TO SHEETS C 07.11.1 THRU C 07.17.1 FOR DETAILED PAVEMENT ELEVATIONS.
4. REFER TO C 08 SHEET SERIES FOR DRAINAGE PLANS AND PROFILES.
5. AT SHOULDER EDGE OF MILL AND OVERLAY AREAS, CONTRACTOR SHALL MAINTAIN A 1.5" DROP AND GRADE TO DRAIN AWAY FROM SHOULDER EDGE AT A 1.5% MINIMUM SLOPE.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	AWW
HJDP WBS No	D.02.30.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

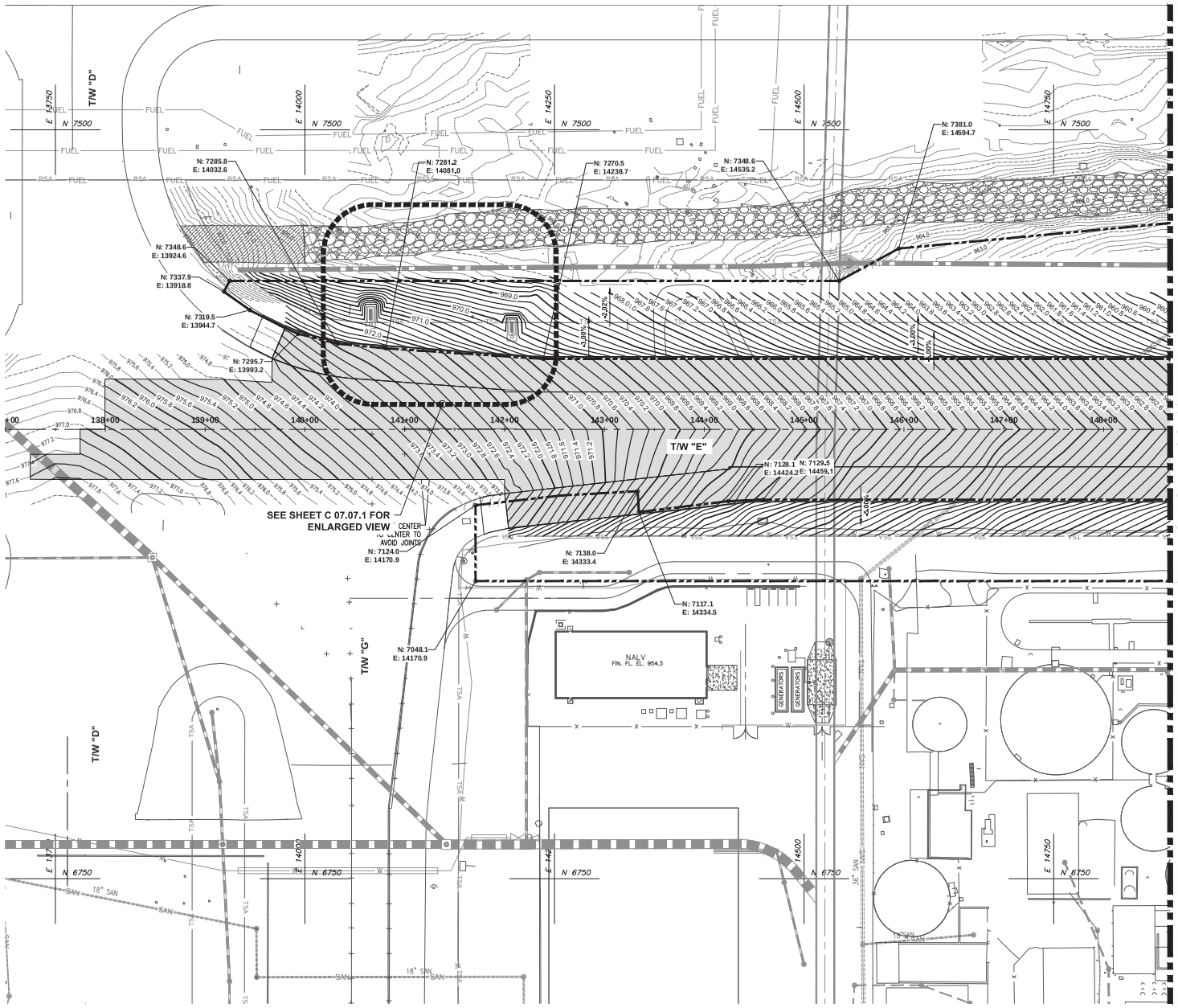
GRADING PLAN

SHEET No

C 07.01.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 4:53 PM
C:\PW_WORK\ATRNAD01\GBA75517\DAD50452\46586-C 07.01.1 GRADING PLANS.DWG



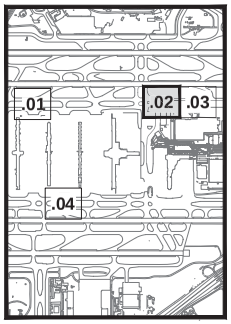
LEGEND

- PROPOSED PAVEMENT REPLACEMENT
- SUPPLEMENTAL SURVEY REQUIRED BY CONTRACTOR (SEE NOTE 1)
- 990.0 — PROPOSED MAJOR CONTOUR
- 990.2 — PROPOSED MINOR CONTOUR
- 990.0 — EXISTING MAJOR CONTOUR
- 990.2 — EXISTING MINOR CONTOUR

NOTES

1. AT PROJECT START, CONTRACTOR SHALL SURVEY ALL AREAS SHOWN AND SUBMIT TO ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITIES, FOR GRADING LIMIT VERIFICATION.
2. CONTRACTOR SHALL SOD AND SEED AREAS AS SHOWN ON SHEETS C 13.21.1 THRU C 13.24.1 AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTURBED AREAS AS DIRECTED BY THE ENGINEER.
3. REFER TO SHEETS C 07.11.1 THRU C 07.17.1 FOR DETAILED PAVEMENT ELEVATIONS.
4. REFER TO C 08 SHEET SERIES FOR DRAINAGE PLANS AND PROFILES.
5. AT SHOULDER EDGE OF MILL AND OVERLAY AREAS, CONTRACTOR SHALL MAINTAIN A 1.5" DROP AND GRADE TO DRAIN AWAY FROM SHOULDER EDGE AT A 1.5% MINIMUM SLOPE.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
COA PROJECT No	WWW
HJDP WBS No	D.02.30.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

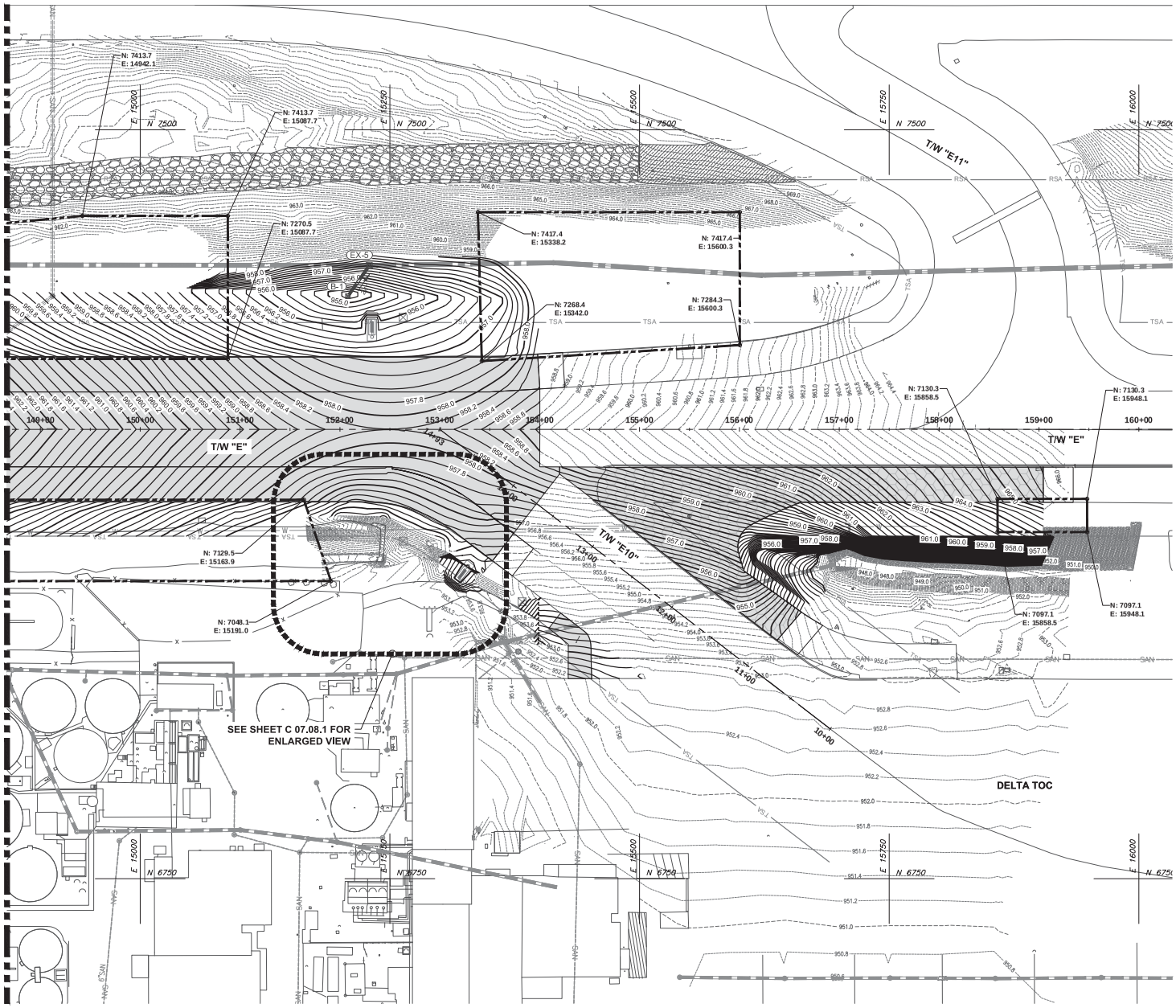
GRADING PLAN

SHEET No

C 07.02.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 4:55 PM
C:\PW_WORK\ATKINSAD01\GSR7517\DMS0452\46586-C 07.01.1 GRADING PLANS.DWG



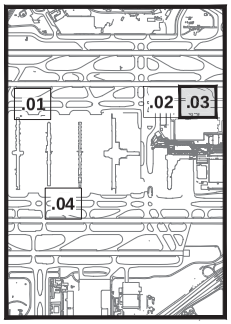
LEGEND

- PROPOSED PAVEMENT REPLACEMENT
- SUPPLEMENTAL SURVEY REQUIRED BY CONTRACTOR (SEE NOTE 1)
- 990.0 — PROPOSED MAJOR CONTOUR
- 990.2 — PROPOSED MINOR CONTOUR
- 990.0 — EXISTING MAJOR CONTOUR
- 990.2 — EXISTING MINOR CONTOUR

NOTES

1. AT PROJECT START, CONTRACTOR SHALL SURVEY ALL AREAS SHOWN AND SUBMIT TO ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITIES, FOR GRADING LIMIT VERIFICATION.
2. CONTRACTOR SHALL SOD AND SEED AREAS AS SHOWN ON SHEETS C 13.21.1 THRU C 13.24.1 AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTURBED AREAS AS DIRECTED BY THE ENGINEER.
3. REFER TO SHEETS C 07.11.1 THRU C 07.17.1 FOR DETAILED PAVEMENT ELEVATIONS.
4. REFER TO C 08 SHEET SERIES FOR DRAINAGE PLANS AND PROFILES.
5. AT SHOULDER EDGE OF MILL AND OVERLAY AREAS, CONTRACTOR SHALL MAINTAIN A 1.5" DROP AND GRADE TO DRAIN AWAY FROM SHOULDER EDGE AT A 1.5% MINIMUM SLOPE.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE
(IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
COA PROJECT No	WWW
HJDP WBS No	D.02.30.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

GRADING PLAN

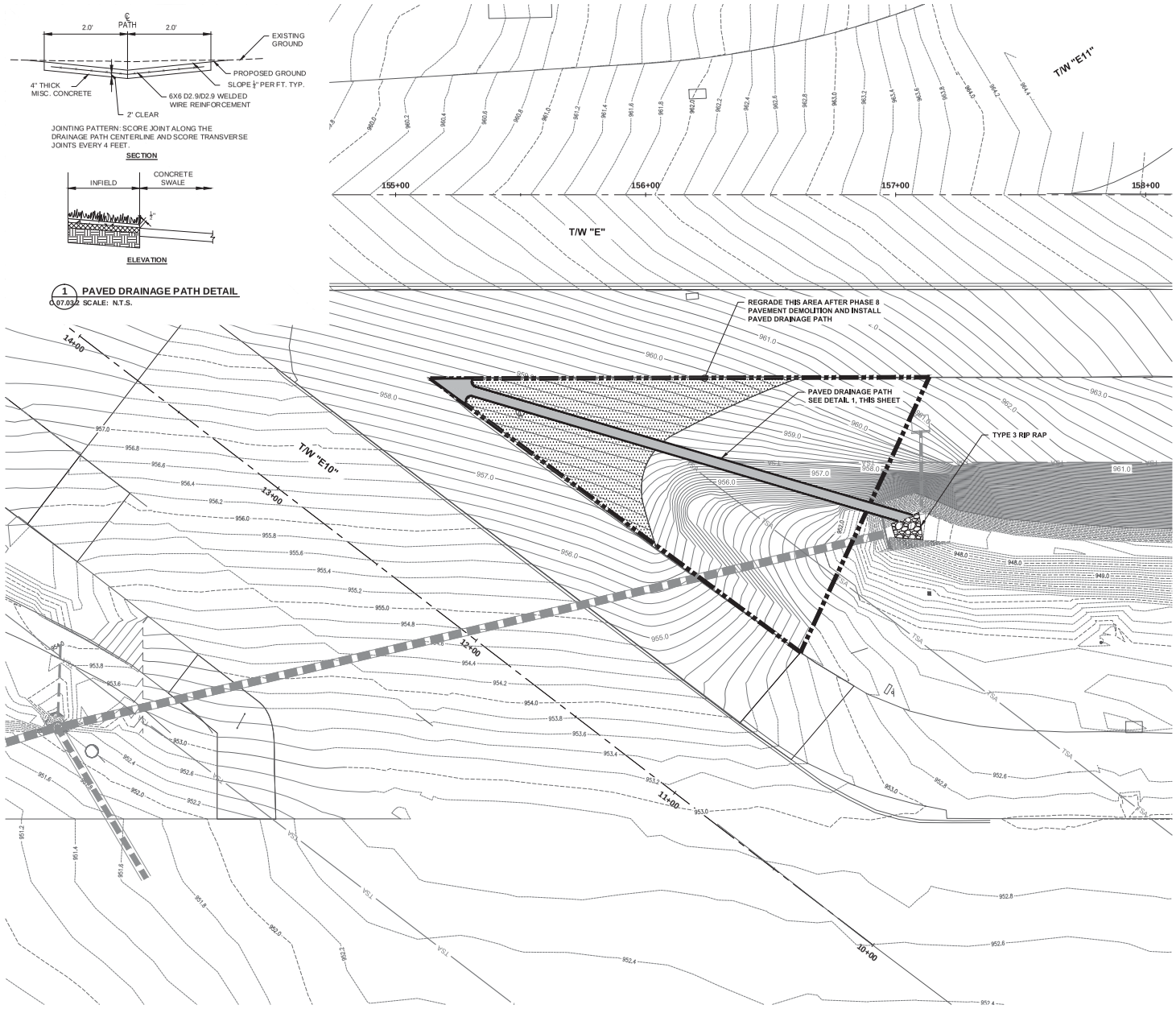
SHEET No

C 07.03.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 4:56 PM
C:\PW_WORK\ATRNAD01\DMS70517\DMS09452\46586-C 07.01-1 GRADING PLANS.DWG

1 PAVED DRAINAGE PATH DETAIL
C 07.03.2 SCALE: N.T.S.



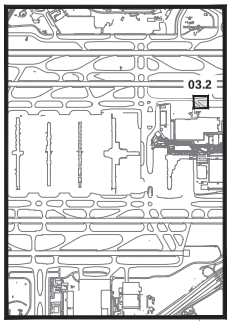
LEGEND

- PCC PAVEMENT DEMOLITION
- 990.0 — PROPOSED MAJOR CONTOUR
- 990.2 — PROPOSED MINOR CONTOUR
- 990.0 — EXISTING MAJOR CONTOUR
- 990.2 — EXISTING MINOR CONTOUR

NOTES

1. CONTRACTOR SHALL SOD DISTURBED AREA SHOWN.

KEY MAP



NORTH

50 0 50 100
GRAPHIC SCALE
(IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	WWW
HJIP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

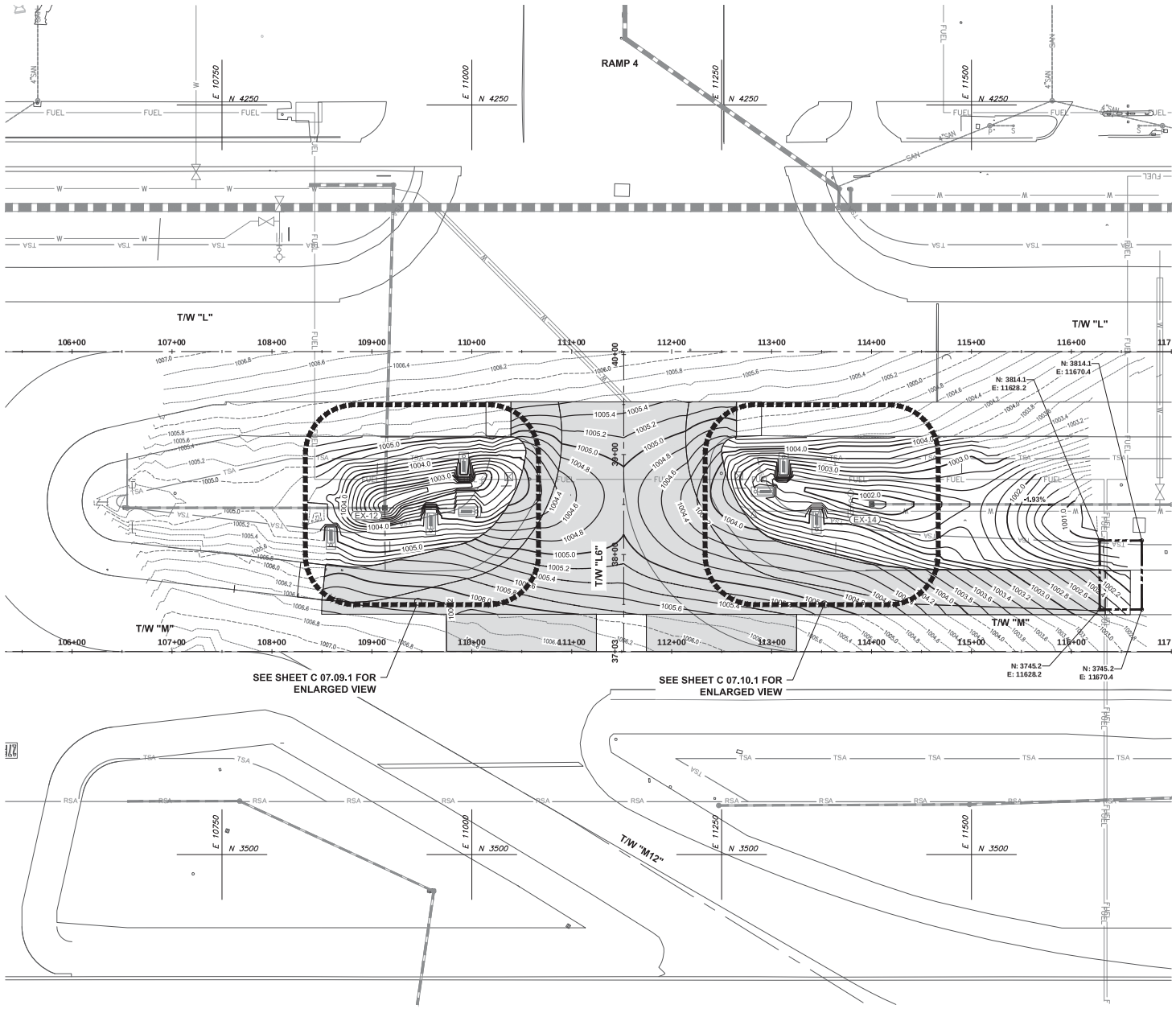
SHEET NAME

GRADING AND DRAINAGE PLAN PHASE 8

SHEET No

C 07.03.2

2/12/2016 6:55 PM
C:\PW_WORK\ATRANDA01\GRA7517\DAE90452\46586-C 07.03.2 GRADING PLANS.DWG



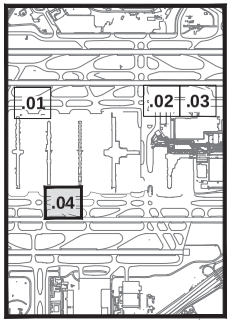
LEGEND

- PROPOSED PAVEMENT REPLACEMENT
- SUPPLEMENTAL SURVEY REQUIRED BY CONTRACTOR (SEE NOTE 1)
- 990.0 — PROPOSED MAJOR CONTOUR
- 990.2 — PROPOSED MINOR CONTOUR
- 990.0 — EXISTING MAJOR CONTOUR
- 990.2 — EXISTING MINOR CONTOUR

NOTES

1. AT PROJECT START, CONTRACTOR SHALL SURVEY ALL AREAS SHOWN AND SUBMIT TO ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITIES, FOR GRADING LIMIT VERIFICATION.
2. CONTRACTOR SHALL SOD AND SEED AREAS AS SHOWN ON SHEETS C 13.21.1 THRU C 13.24.1 AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTURBED AREAS AS DIRECTED BY THE ENGINEER.
3. REFER TO SHEETS C 07.11.1 THRU C 07.17.1 FOR DETAILED PAVEMENT ELEVATIONS.
4. REFER TO C 08 SHEET SERIES FOR DRAINAGE PLANS AND PROFILES.
5. AT SHOULDER EDGE OF MILL AND OVERLAY AREAS, CONTRACTOR SHALL MAINTAIN A 1.5" DROP AND GRADE TO DRAIN AWAY FROM SHOULDER EDGE AT A 1.5% MINIMUM SLOPE.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	WWW
HJIP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

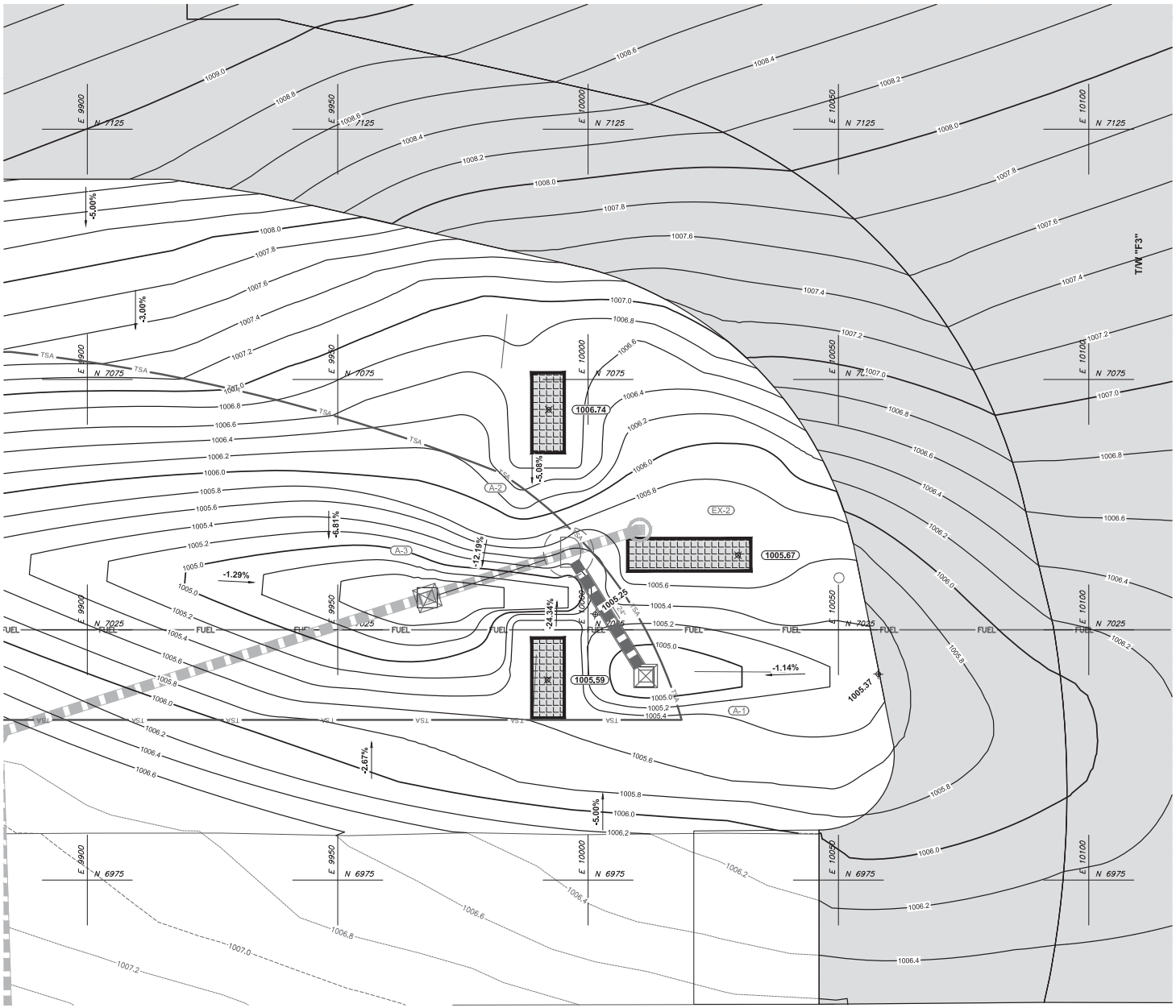
GRADING PLAN

SHEET No

C 07.04.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 4:57 PM
C:\PW_WORK\ATRNAD01\GSA7517\D0450452\46586-C 07.01.1 GRADING PLANS.DWG



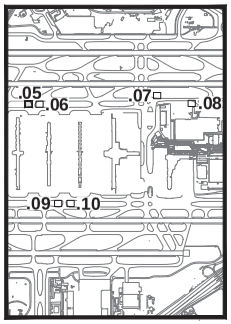
LEGEND

- PROPOSED SIGN PAD LOCATION
- PROPOSED PAVEMENT REPLACEMENT
- 990.0 — PROPOSED MAJOR CONTOUR
- 990.2 — PROPOSED MINOR CONTOUR
- 990.0 — EXISTING MAJOR CONTOUR
- 990.2 — EXISTING MINOR CONTOUR
- 1004.88 SPOT ELEVATION
- 1005.08 SIGN PAD ELEVATION

NOTES

1. AT PROJECT START, CONTRACTOR SHALL SURVEY ALL AREAS IDENTIFIED ON SHEETS C 01.01.1 THRU C 07.04.1 AND SUBMIT TO ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITIES, FOR GRADING LIMIT VERFICATION.
2. CONTRACTOR SHALL SOD AND SEED AREAS AS SHOWN ON SHEETS C 13.21.1 THRU C 13.24.1 AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTURBED AREAS AS DIRECTED BY THE ENGINEER.

KEY MAP



NORTH

10 0 10 20

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	4HW
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

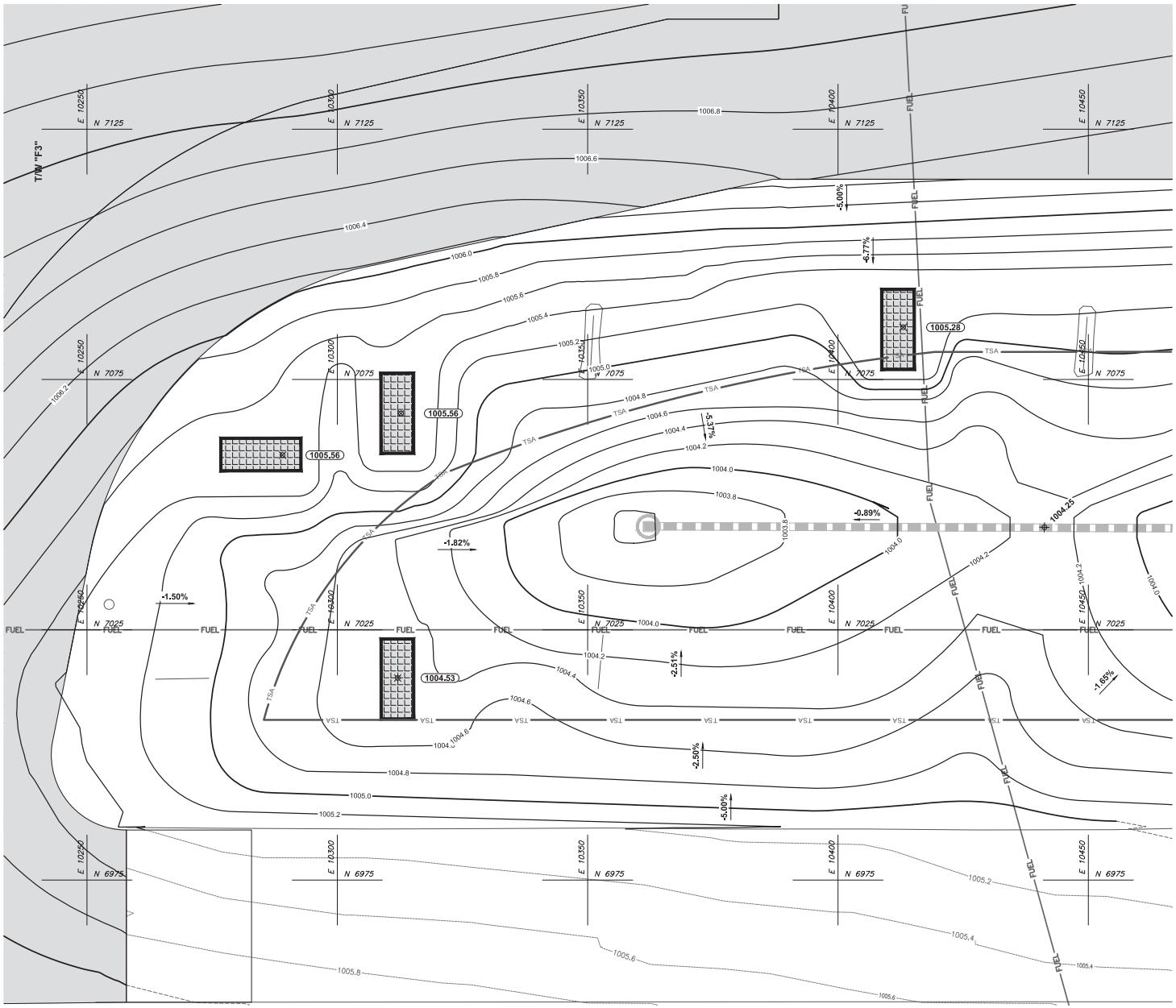
SHEET NAME

ENLARGED GRADING PLAN

SHEET No

C 07.05.1

2/12/2016 5:23 PM
C:\PW_WORK\ATRNAD01\GRA7517\D0450452\46586-C 07.05.1 ENLARGED GRADING PLANS.DWG



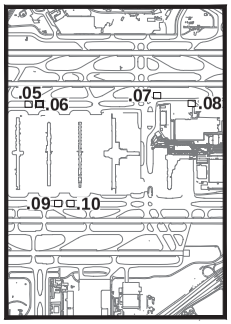
LEGEND

- PROPOSED SIGN PAD LOCATION
- PROPOSED PAVEMENT REPLACEMENT
- 990.0 — PROPOSED MAJOR CONTOUR
- 990.2 — PROPOSED MINOR CONTOUR
- 990.0 — EXISTING MAJOR CONTOUR
- 990.2 — EXISTING MINOR CONTOUR
- 1004.88 SPOT ELEVATION
- (1005.08) SIGN PAD ELEVATION

NOTES

1. AT PROJECT START, CONTRACTOR SHALL SURVEY ALL AREAS IDENTIFIED ON SHEETS C 01.01.1 THRU C 07.04.1 AND SUBMIT TO ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITIES, FOR GRADING LIMIT VERFICATION.
2. CONTRACTOR SHALL SOD AND SEED AREAS AS SHOWN ON SHEETS C 13.21.1 THRU C 13.24.1 AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTURBED AREAS AS DIRECTED BY THE ENGINEER.

KEY MAP



NORTH

10 0 10 20

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	HHW
HJDP WBS No	D.02.30.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

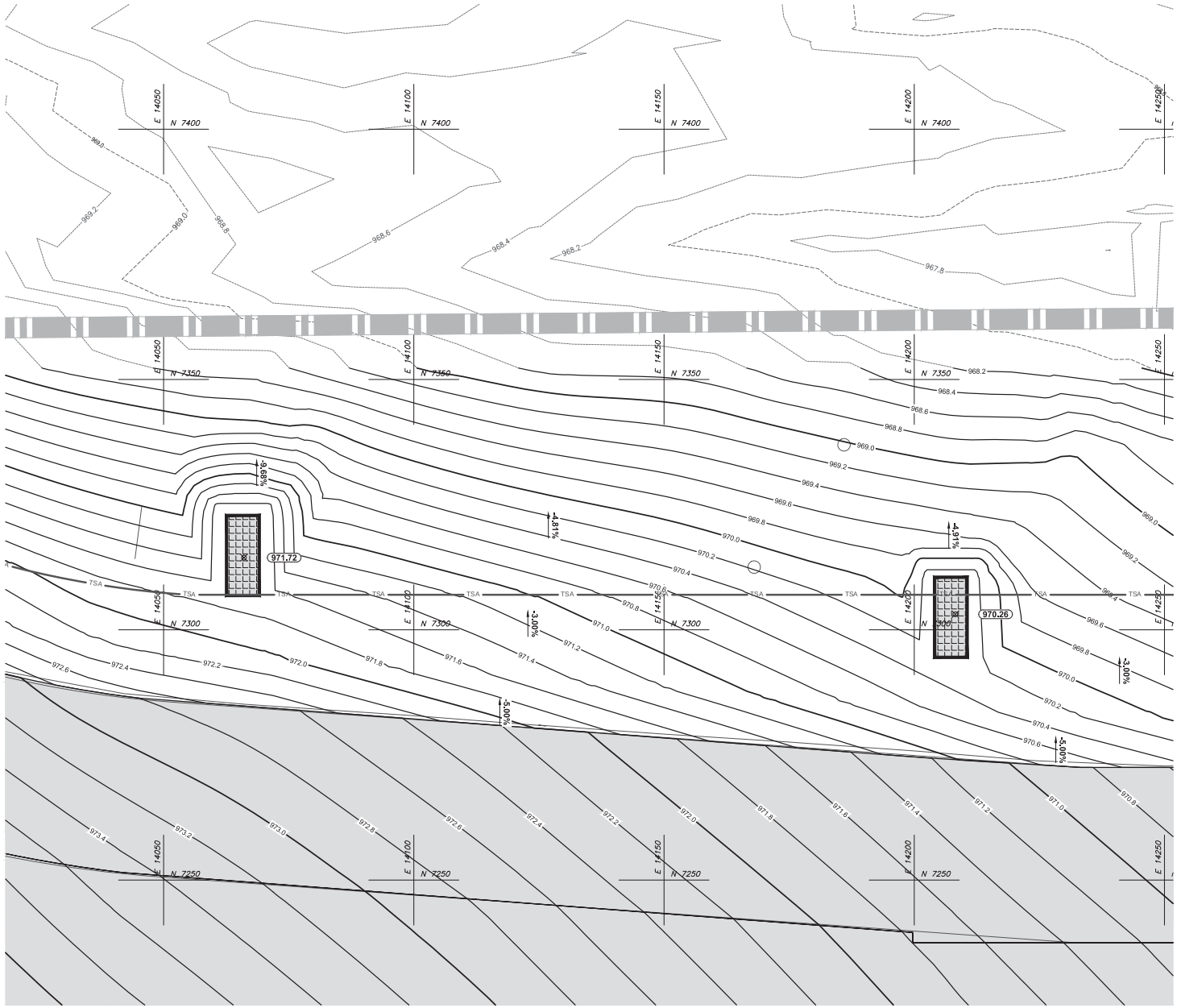
SHEET NAME

ENLARGED GRADING PLAN

SHEET No

C 07.06.1

2/12/2016 5:24 PM
C:\PW_WORK\ATRNAD01\GRA7517\D0450452\46586-C 07.05.1 ENLARGED GRADING PLANS.DWG



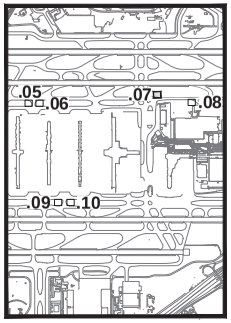
LEGEND

- PROPOSED SIGN PAD LOCATION
- PROPOSED PAVEMENT REPLACEMENT
- 990.0 — PROPOSED MAJOR CONTOUR
- 990.2 — PROPOSED MINOR CONTOUR
- 990.0 — EXISTING MAJOR CONTOUR
- 990.2 — EXISTING MINOR CONTOUR
- 1004.68 SPOT ELEVATION
- 1005.08 SIGN PAD ELEVATION

NOTES

1. AT PROJECT START, CONTRACTOR SHALL SURVEY ALL AREAS IDENTIFIED ON SHEETS C 01.01.1 THRU C 07.04.1 AND SUBMIT TO ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITIES, FOR GRADING LIMIT VERFICATION.
2. CONTRACTOR SHALL SOD AND SEED AREAS AS SHOWN ON SHEETS C 13.21.1 THRU C 13.24.1 AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTURBED AREAS AS DIRECTED BY THE ENGINEER.

KEY MAP



NORTH

10 0 10 20

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	4HW
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

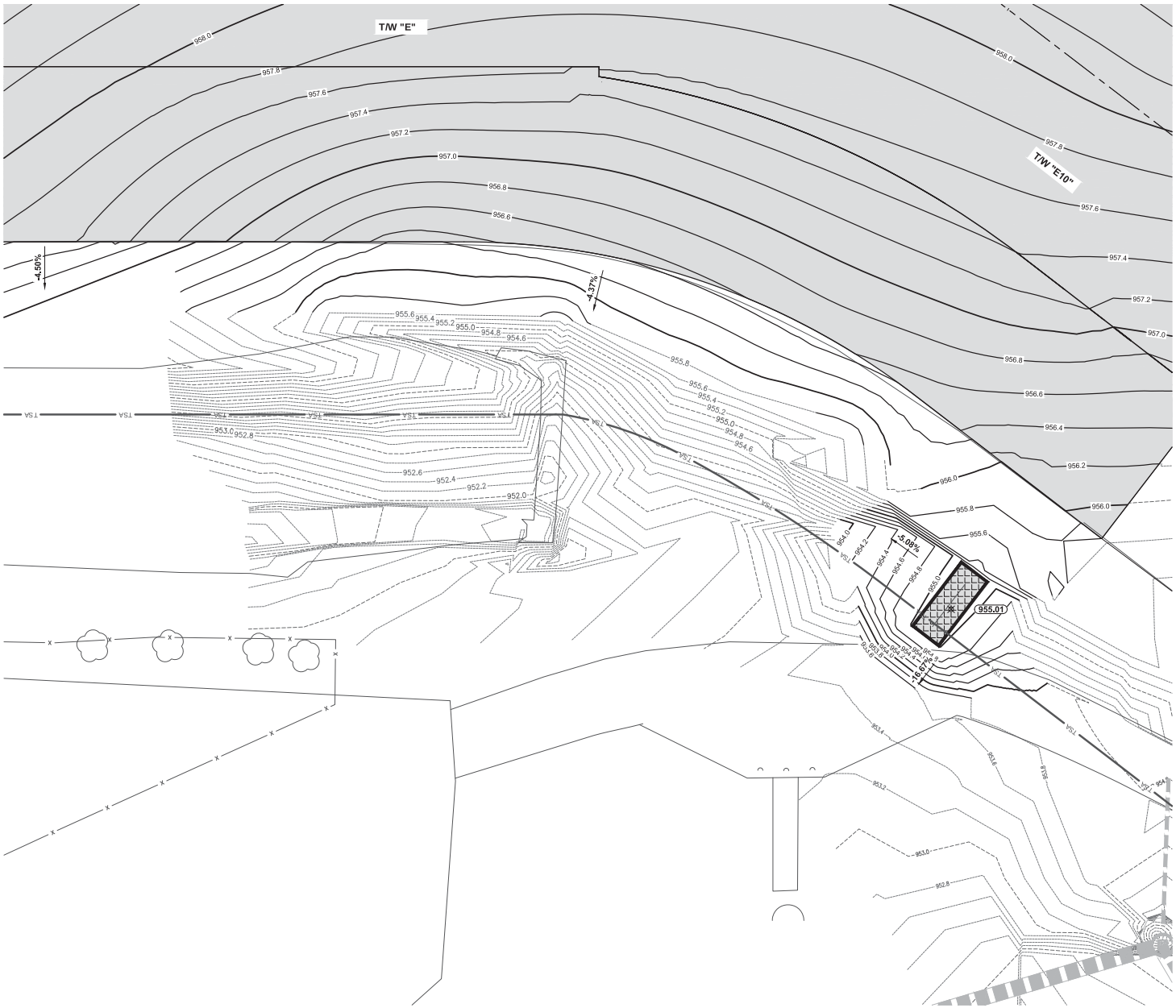
SHEET NAME

ENLARGED GRADING PLAN

SHEET No

C 07.07.1

2/12/2016 5:25 PM
C:\PW_WORK\ATRNAD01\GBA7517\D0450452\46586-C 07.05.1 ENLARGED GRADING PLANS.DWG



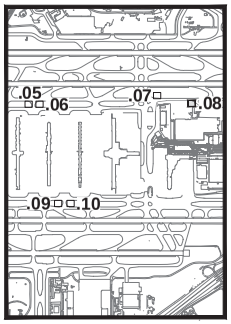
LEGEND

- PROPOSED SIGN PAD LOCATION
- PROPOSED PAVEMENT REPLACEMENT
- 990.0 — PROPOSED MAJOR CONTOUR
- 990.2 — PROPOSED MINOR CONTOUR
- 990.0 — EXISTING MAJOR CONTOUR
- 990.2 — EXISTING MINOR CONTOUR
- 1004.88 SPOT ELEVATION
- 1005.08 SIGN PAD ELEVATION

NOTES

1. AT PROJECT START, CONTRACTOR SHALL SURVEY ALL AREAS IDENTIFIED ON SHEETS C 01.01.1 THRU C 07.04.1 AND SUBMIT TO ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITIES, FOR GRADING LIMIT VERFICATION.
2. CONTRACTOR SHALL SOD AND SEED AREAS AS SHOWN ON SHEETS C 13.21.1 THRU C 13.24.1 AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTURBED AREAS AS DIRECTED BY THE ENGINEER.

KEY MAP



NORTH

10 0 10 20

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	4HW
HJDP WBS No	D.02.30.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

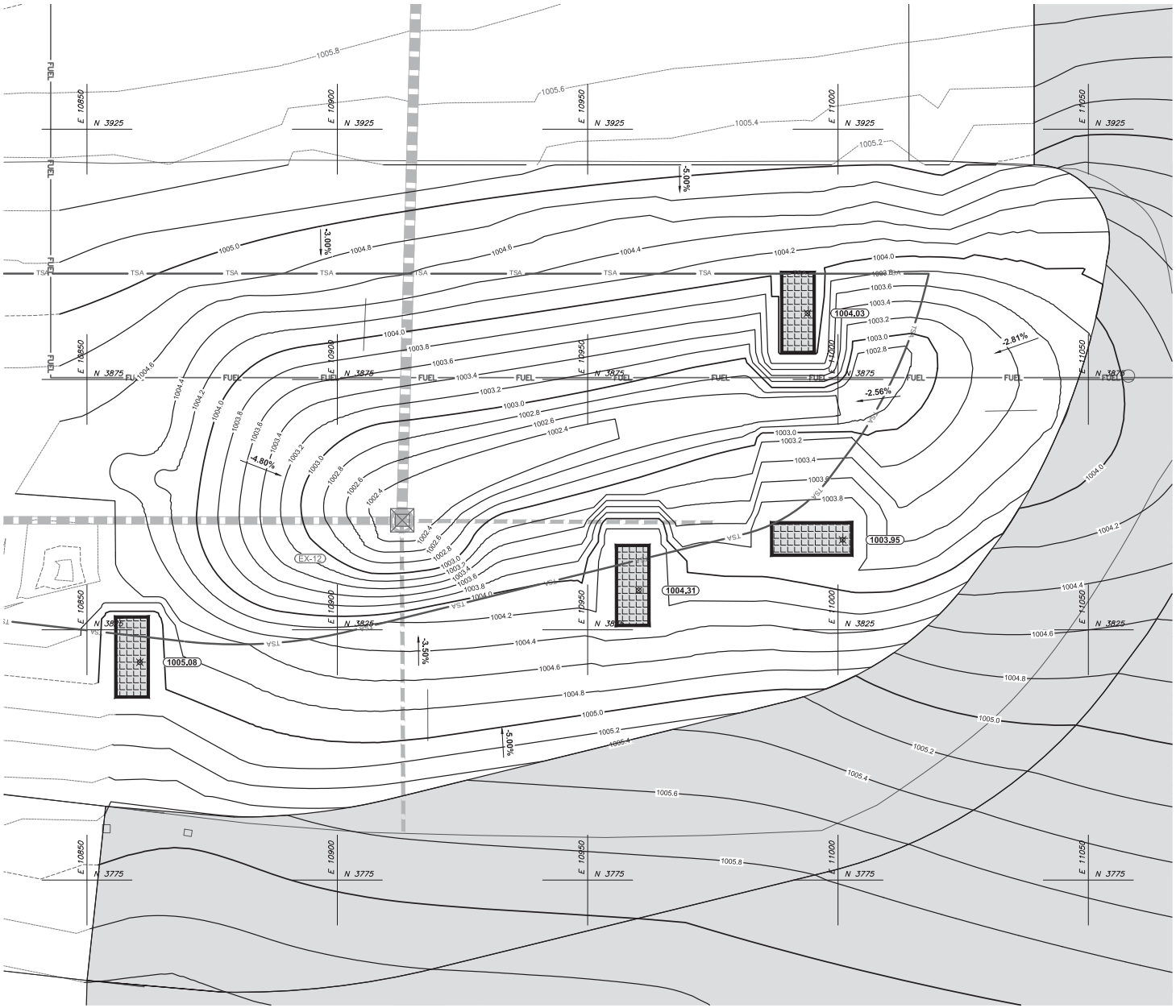
SHEET NAME

ENLARGED GRADING PLAN

SHEET No

C 07.08.1

2/12/2016 5:27 PM
C:\PW_WORK\ATRNAD01\SRA7517\DMS0452\46586-C 07.05.1 ENLARGED GRADING PLANS.DWG



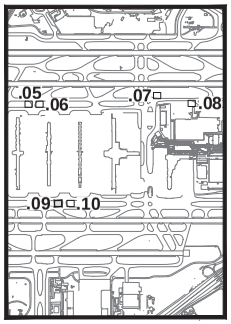
LEGEND

- PROPOSED SIGN PAD LOCATION
- PROPOSED PAVEMENT REPLACEMENT
- 990.0 — PROPOSED MAJOR CONTOUR
- 990.2 — PROPOSED MINOR CONTOUR
- 990.0 — EXISTING MAJOR CONTOUR
- 990.2 — EXISTING MINOR CONTOUR
- 1004.68 SPOT ELEVATION
- 1005.08 SIGN PAD ELEVATION

NOTES

1. AT PROJECT START, CONTRACTOR SHALL SURVEY ALL AREAS IDENTIFIED ON SHEETS C 01.01.1 THRU C 07.04.1 AND SUBMIT TO ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITIES, FOR GRADING LIMIT VERFICATION.
2. CONTRACTOR SHALL SOD AND SEED AREAS AS SHOWN ON SHEETS C 13.21.1 THRU C 13.24.1 AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTURBED AREAS AS DIRECTED BY THE ENGINEER.

KEY MAP



NORTH

10 0 10 20

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	4HW
HJDP WBS No	D.02.30.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

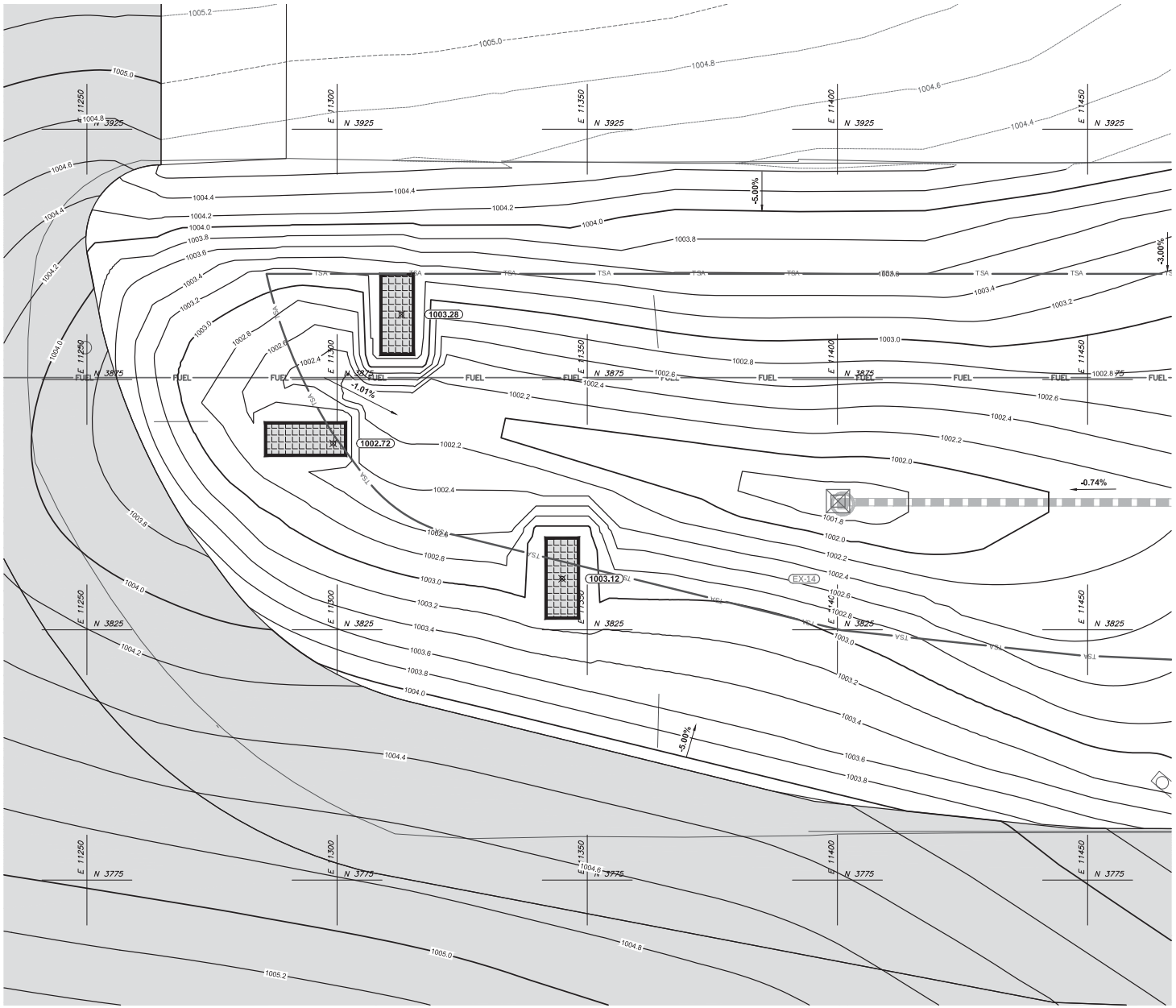
ENLARGED GRADING PLAN

SHEET No

C 07.09.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 5:28 PM
C:\PW_WORK\ATRNAD01\QSA7517\D4506452\46586-C 07.05.1 ENLARGED GRADING PLANS.DWG



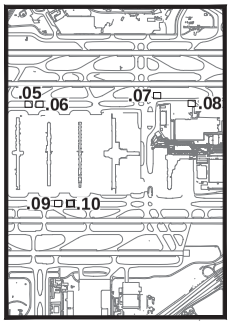
LEGEND

- PROPOSED SIGN PAD LOCATION
- PROPOSED PAVEMENT REPLACEMENT
- 990.0 — PROPOSED MAJOR CONTOUR
- 990.2 — PROPOSED MINOR CONTOUR
- 990.0 — EXISTING MAJOR CONTOUR
- 990.2 — EXISTING MINOR CONTOUR
- 1004.68 SPOT ELEVATION
- 1005.08 SIGN PAD ELEVATION

NOTES

1. AT PROJECT START, CONTRACTOR SHALL SURVEY ALL AREAS IDENTIFIED ON SHEETS C 01.01.1 THRU C 07.04.1 AND SUBMIT TO ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITIES, FOR GRADING LIMIT VERFICATION.
2. CONTRACTOR SHALL SOD AND SEED AREAS AS SHOWN ON SHEETS C 13.21.1 THRU C 13.24.1 AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTURBED AREAS AS DIRECTED BY THE ENGINEER.

KEY MAP



NORTH

10 0 10 20

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

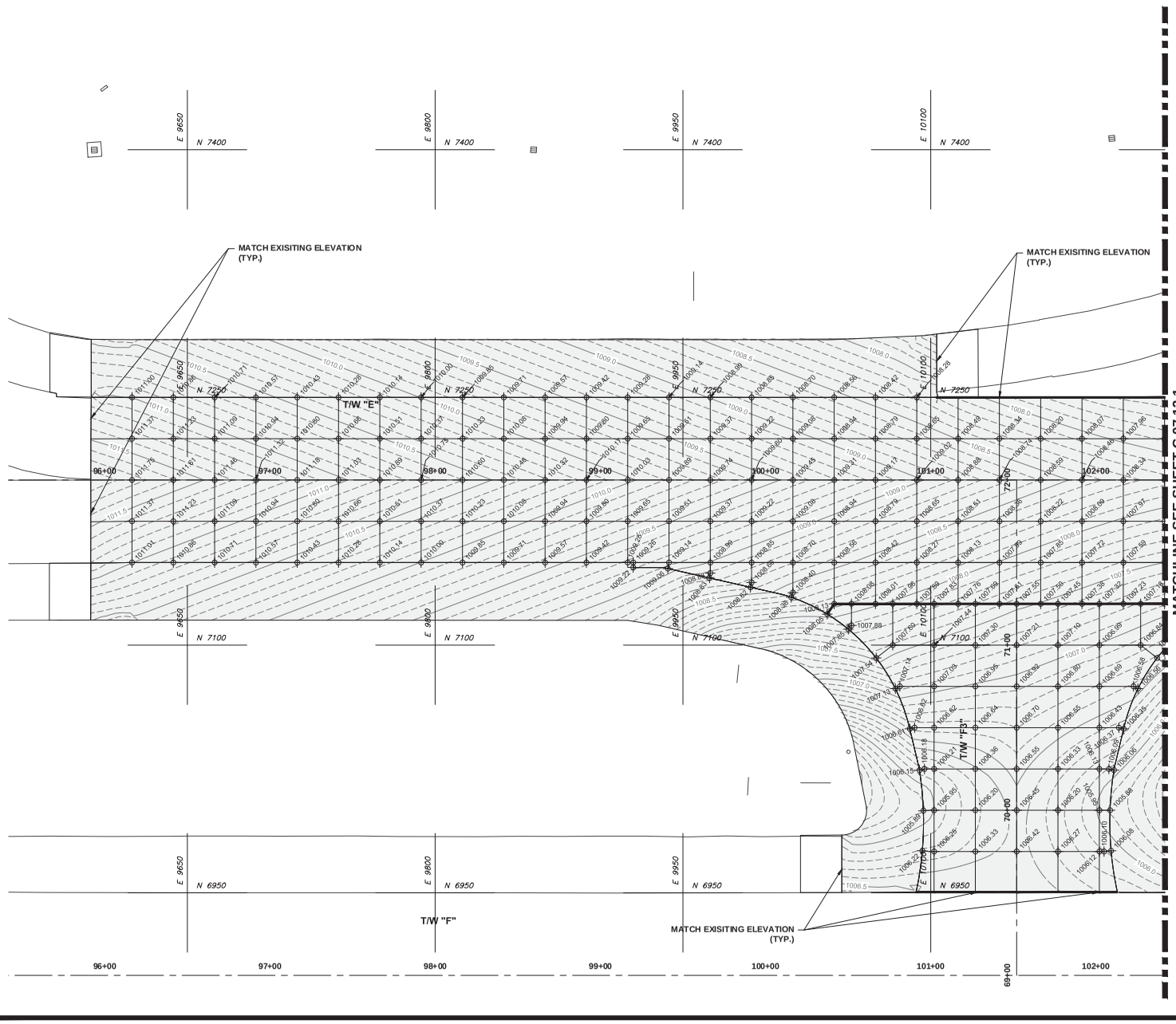
ENLARGED GRADING PLAN

SHEET No

C 07.10.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 5:29 PM
C:\PW_WORK\ATRNAD01\GBA7517\D0450452\46586-C 07.05.1 ENLARGED GRADING PLANS.DWG



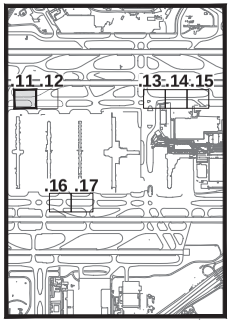
LEGEND

- PROPOSED PAVEMENT REPLACEMENT
- 990.0 — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- 990.15 PROPOSED SPOT ELEVATION

NOTES

1. ALL ELEVATIONS SHOWN ON THIS PLAN ARE THE TOP OF PAVEMENT UNLESS OTHERWISE SPECIFIED.

KEY MAP



CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

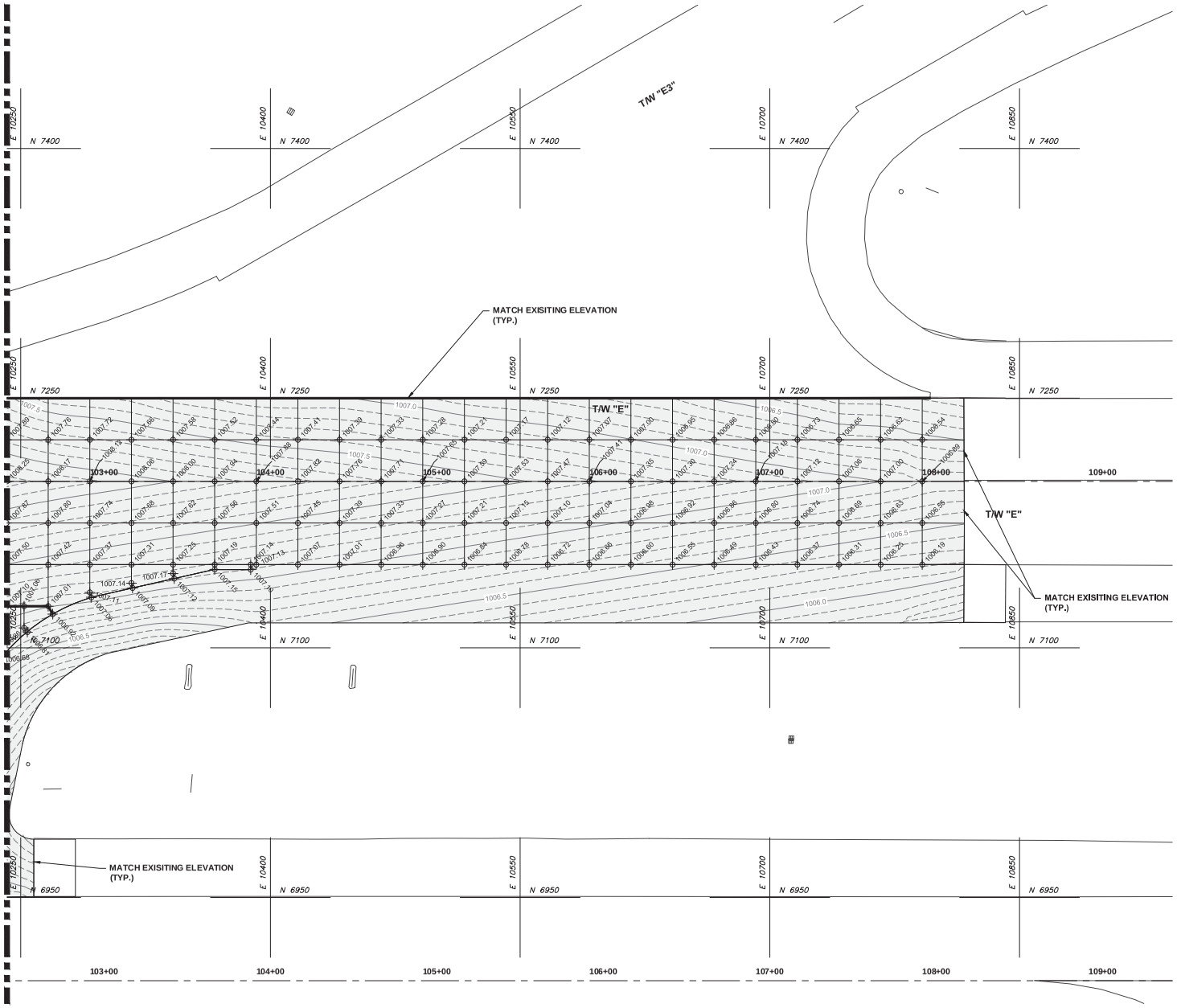
DETAILED PAVEMENT ELEVATION PLAN

SHEET No

C 07.11.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 4:06 PM
C:\PW_WORK\ATRDAD01\GSA7517\DAD50452\46586-C 07.05.1 PAVEMENT ELEVATIONS.DWG



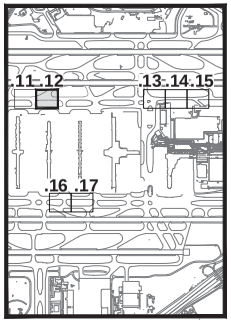
LEGEND

- PROPOSED PAVEMENT REPLACEMENT
- 990.0 — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- 990.15 PROPOSED SPOT ELEVATION

NOTES

1. ALL ELEVATIONS SHOWN ON THIS PLAN ARE THE TOP OF PAVEMENT UNLESS OTHERWISE SPECIFIED.

KEY MAP



NORTH

30 0 30 30

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	WWW
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

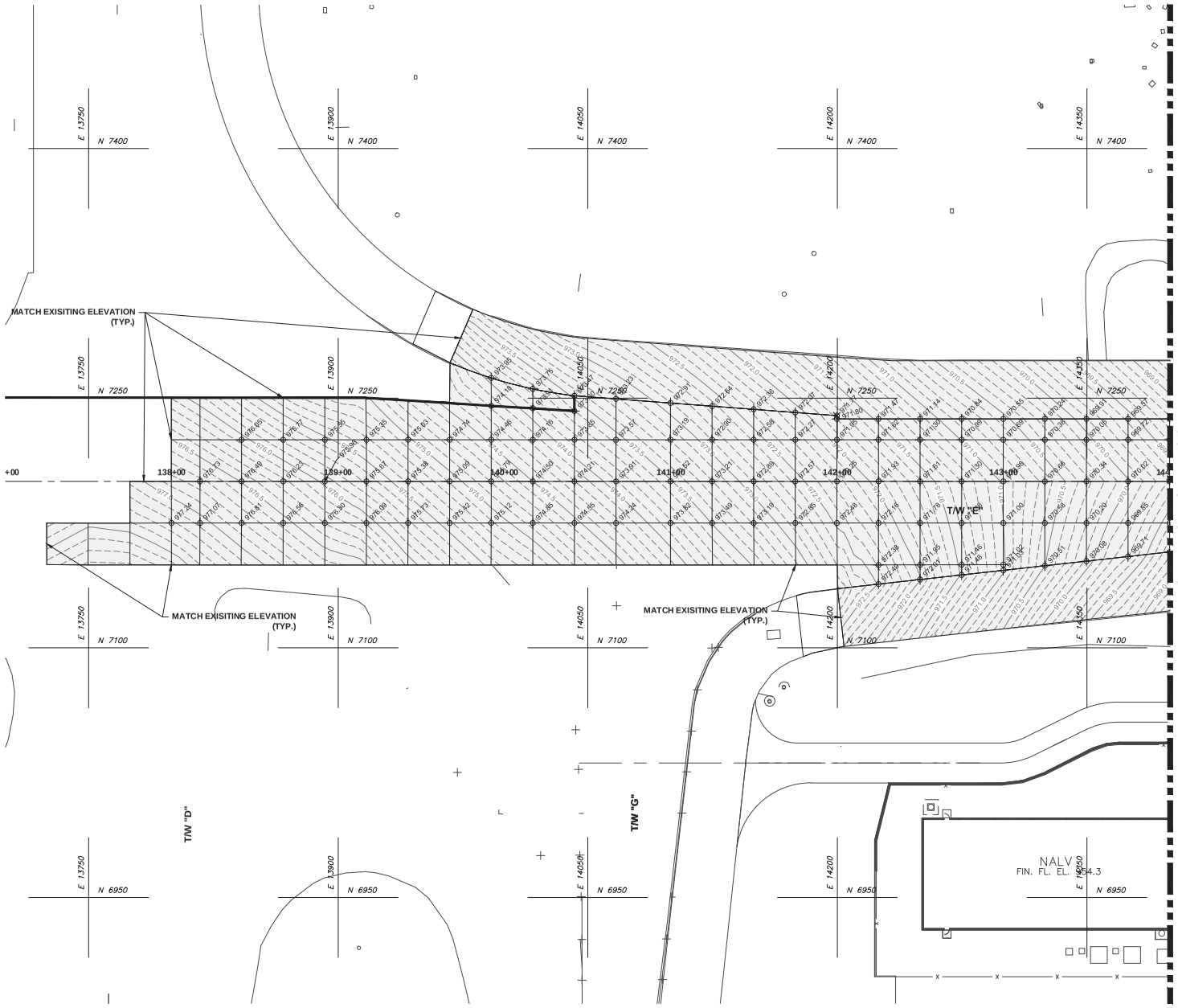
DETAILED PAVEMENT ELEVATION PLAN

SHEET No

C 07.12.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 4:07 PM
C:\PW_WORK\ATRNAD01\GRA7517\DMS0452\46586~C 07.05.1 PAVEMENT ELEVATIONS.DWG



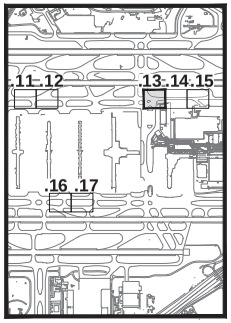
LEGEND

- PROPOSED PAVEMENT REPLACEMENT
- 990.0 — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- 990.15 PROPOSED SPOT ELEVATION

NOTES

1. ALL ELEVATIONS SHOWN ON THIS PLAN ARE THE TOP OF PAVEMENT UNLESS OTHERWISE SPECIFIED.

KEY MAP



NORTH

30 0 30 30

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	###
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

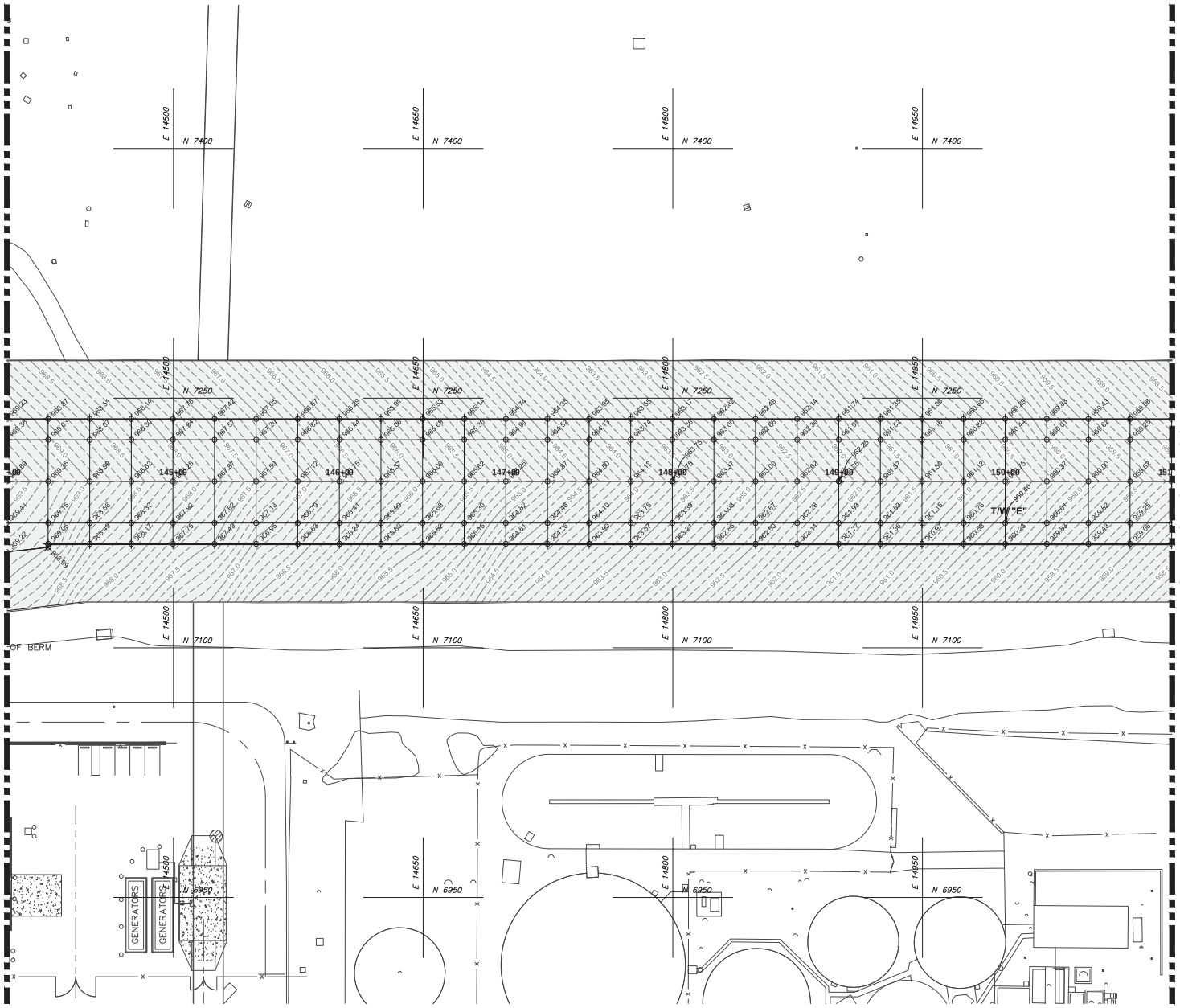
DETAILED PAVEMENT ELEVATION PLAN

SHEET No

C 07.13.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 4:08 PM
C:\PW_WORK\ATRNAD01\SRA7517\DMS0452\46586~C 07.05.1 PAVEMENT ELEVATIONS.DWG



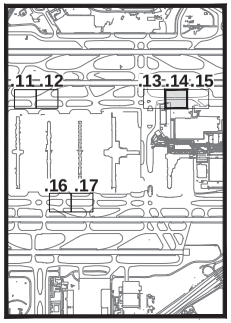
LEGEND

- PROPOSED PAVEMENT REPLACEMENT
- 990.0 — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- 990.15 PROPOSED SPOT ELEVATION

NOTES

1. ALL ELEVATIONS SHOWN ON THIS PLAN ARE THE TOP OF PAVEMENT UNLESS OTHERWISE SPECIFIED.

KEY MAP



NORTH

30 0 30 30

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
COA PROJECT No	HHW
HJDP WBS No	D.02.30.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

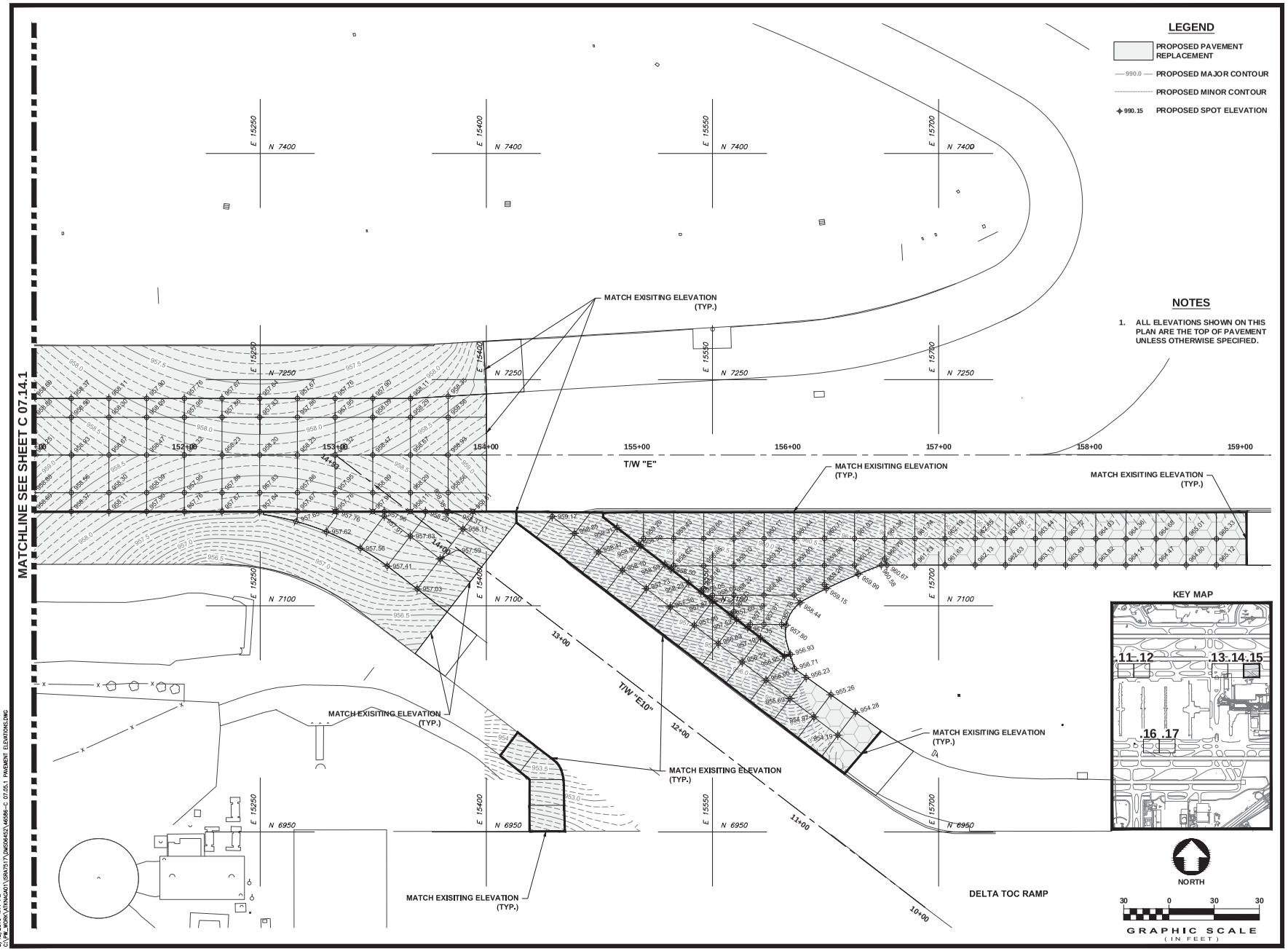
SHEET NAME

DETAILED PAVEMENT ELEVATION PLAN

SHEET No

C 07.14.1

2/12/2016 4:10 PM
C:\PW_WORK\ATRNAD01\SRA7517\DMS0452\46586~C 07.05.1 PAVEMENT ELEVATIONS.DWG



CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	WWW
HJIP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

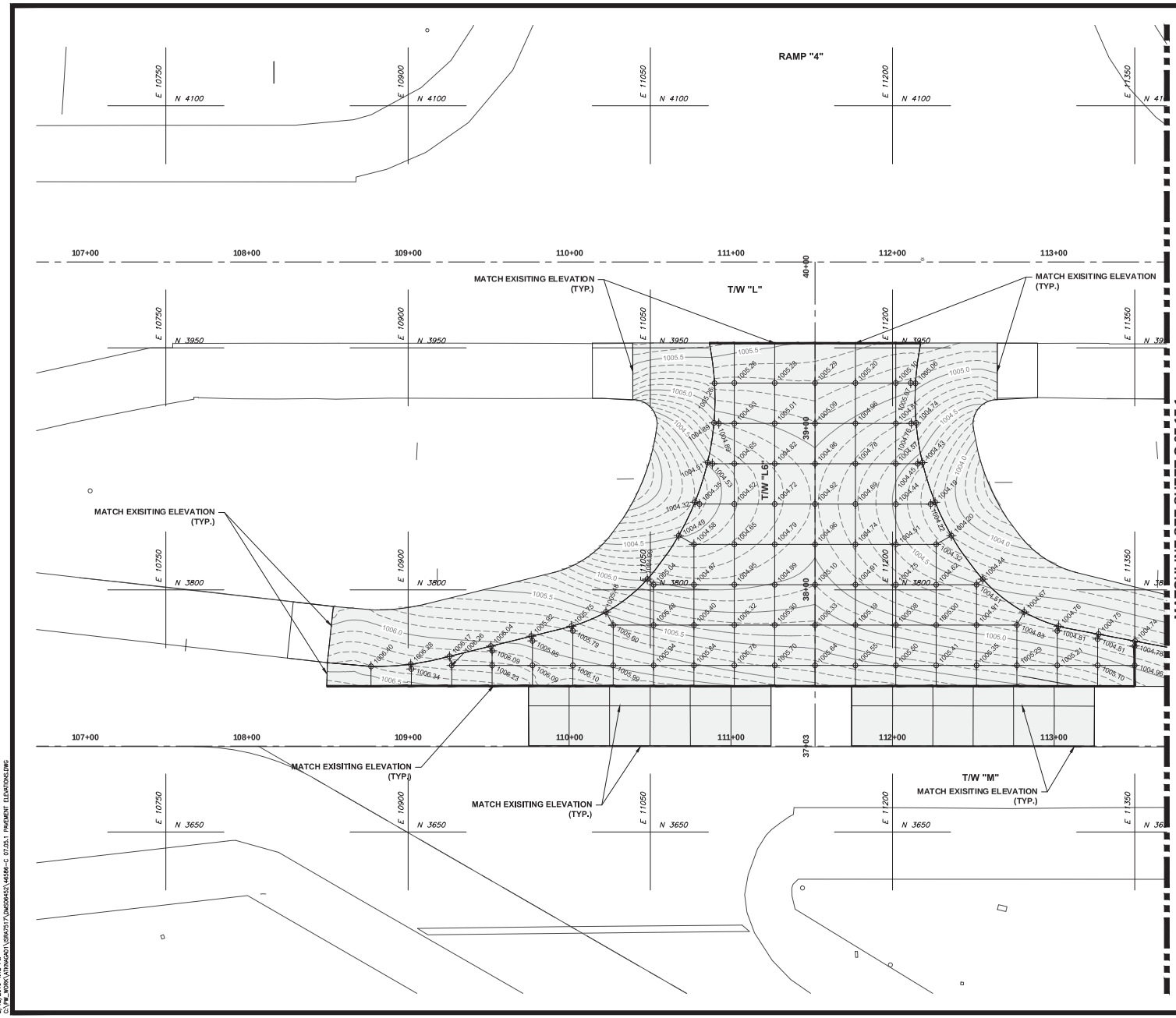
DETAILED PAVEMENT ELEVATION PLAN

SHEET No

C 07.15.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 4:11 PM
C:\PW_WORK\ATRNAD01\GRA7517\DMS0452\46586~C 07.15.1 PAVEMENT ELEVATIONS.DWG



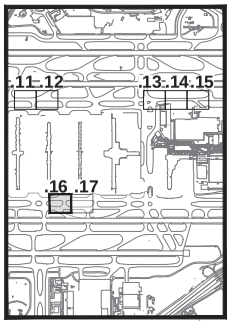
LEGEND

- PROPOSED PAVEMENT REPLACEMENT
- 990.0 — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- 990.15 PROPOSED SPOT ELEVATION

NOTES

1. ALL ELEVATIONS SHOWN ON THIS PLAN ARE THE TOP OF PAVEMENT UNLESS OTHERWISE SPECIFIED.

KEY MAP



NORTH

30 0 30 30

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	WWW
HJIP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

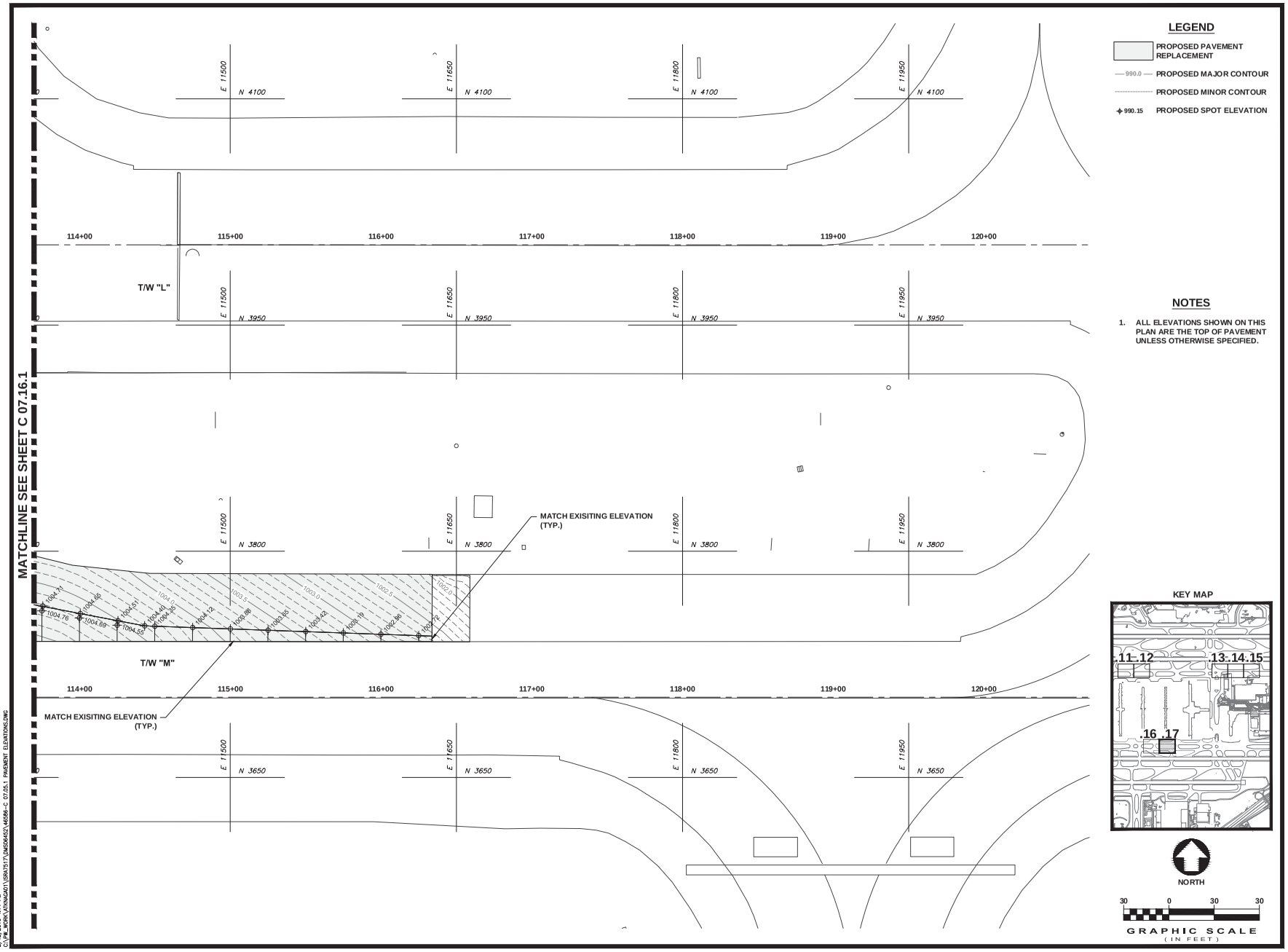
DETAILED PAVEMENT ELEVATION PLAN

SHEET No

C 07.16.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 4:12 PM
C:\PW_WORK\ATRNAD01\GRA7517\DM5R0452\46586-C 07.05.1 PAVEMENT ELEVATIONS.DWG



2/12/2016 4:14 PM
C:\PW_WORK\ATRNAD01\SRA7517\DMS0452\46586-C 07.16.1 PAVEMENT ELEVATIONS.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	###
HJIP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

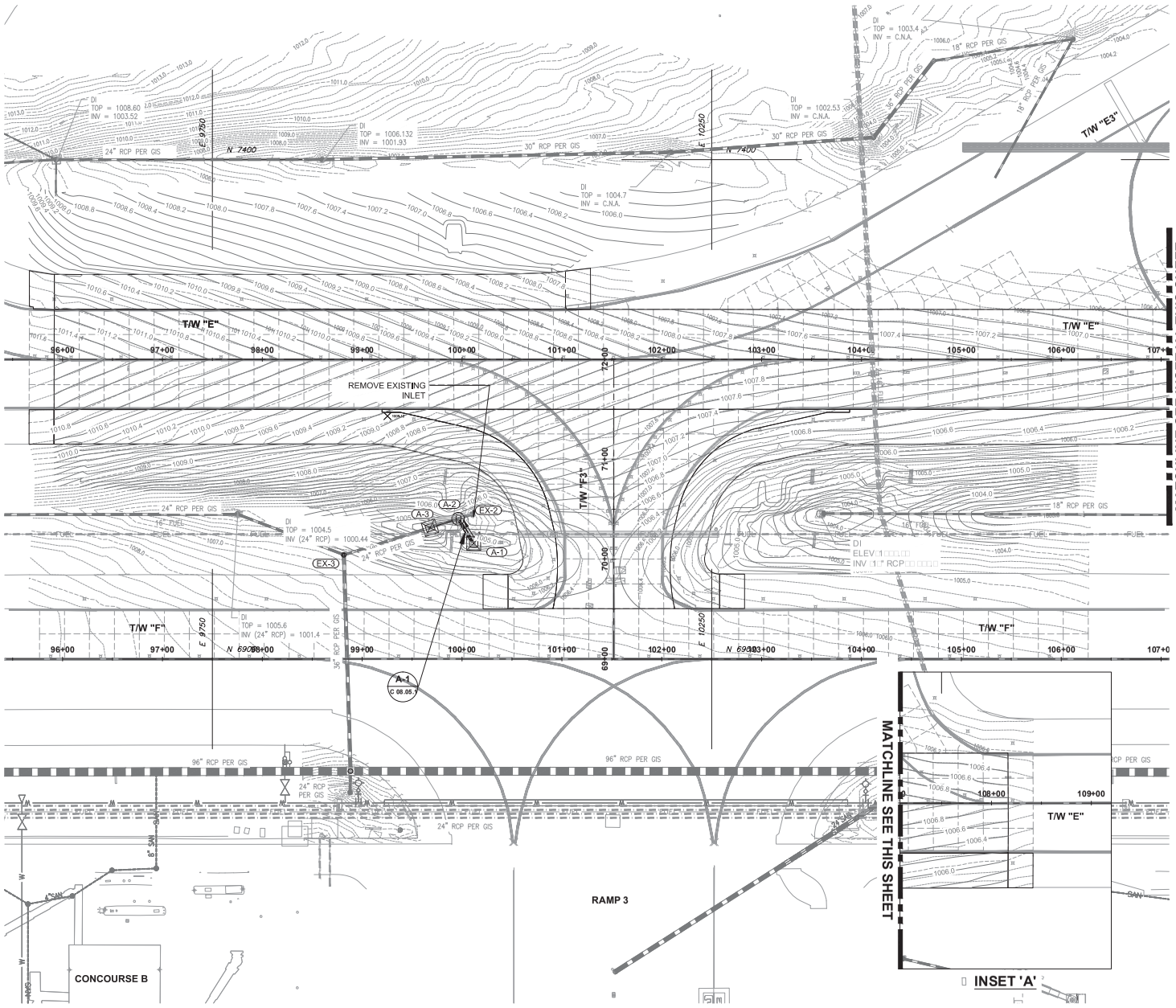
FEBRUARY 16, 2016

SHEET NAME

DETAILED PAVEMENT ELEVATION PLAN

SHEET No

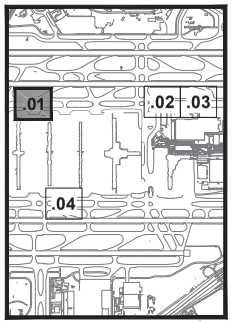
C 07.17.1



LEGEND

- PROPOSED STORM MANHOLE
- PROPOSED DROP INLET WITH CONCRETE APRON
- PROPOSED STORM DRAINAGE LINE
- X-X / C X.X.X — PROFILE CROSS REFERENCE

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSONATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	DDL
DRAWN BY	DDL
CHECKED BY	IDB
APPROVED BY	---

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBURARY 16, 2016

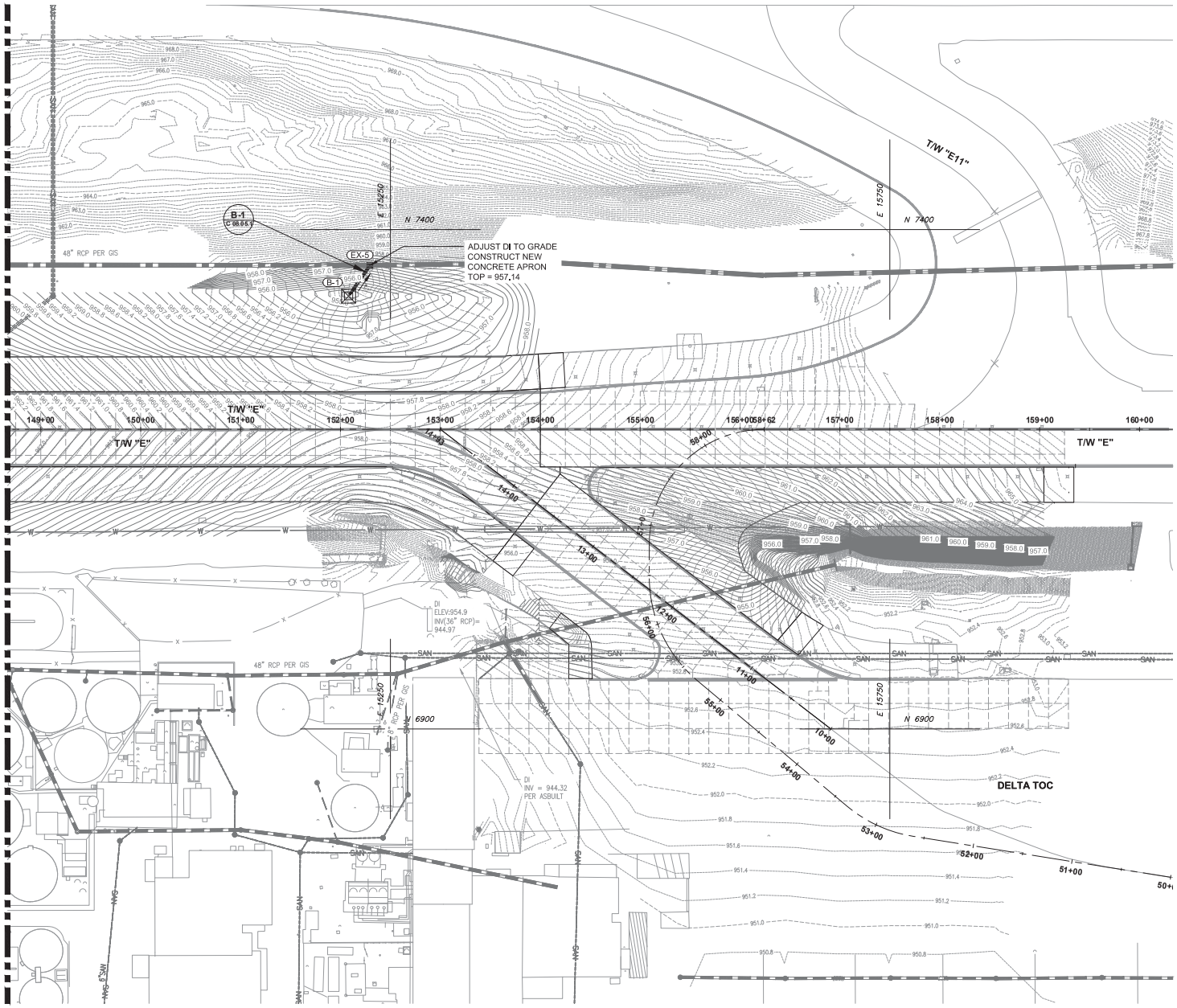
SHEET NAME

DRAINAGE PLAN

SHEET No

C 08.01.1

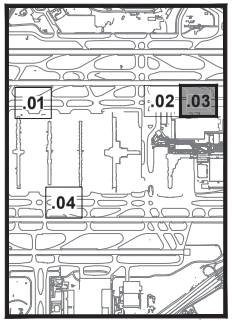
2/14/2016 7:51 PM
C:\PW_WORK\ATRANGA01\PALBATTLE\D0250452\M0580_C 08.01.1 DRAINAGE PLAN.DWG



LEGEND

- PROPOSED STORM MANHOLE
- PROPOSED DROP INLET WITH CONCRETE APRON
- PROPOSED STORM DRAINAGE LINE
- X-X / C X.X.X — PROFILE CROSS REFERENCE

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE
(IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	DDL
DRAWN BY	DDL
CHECKED BY	IDB
APPROVED BY	---

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBURARY 16, 2016

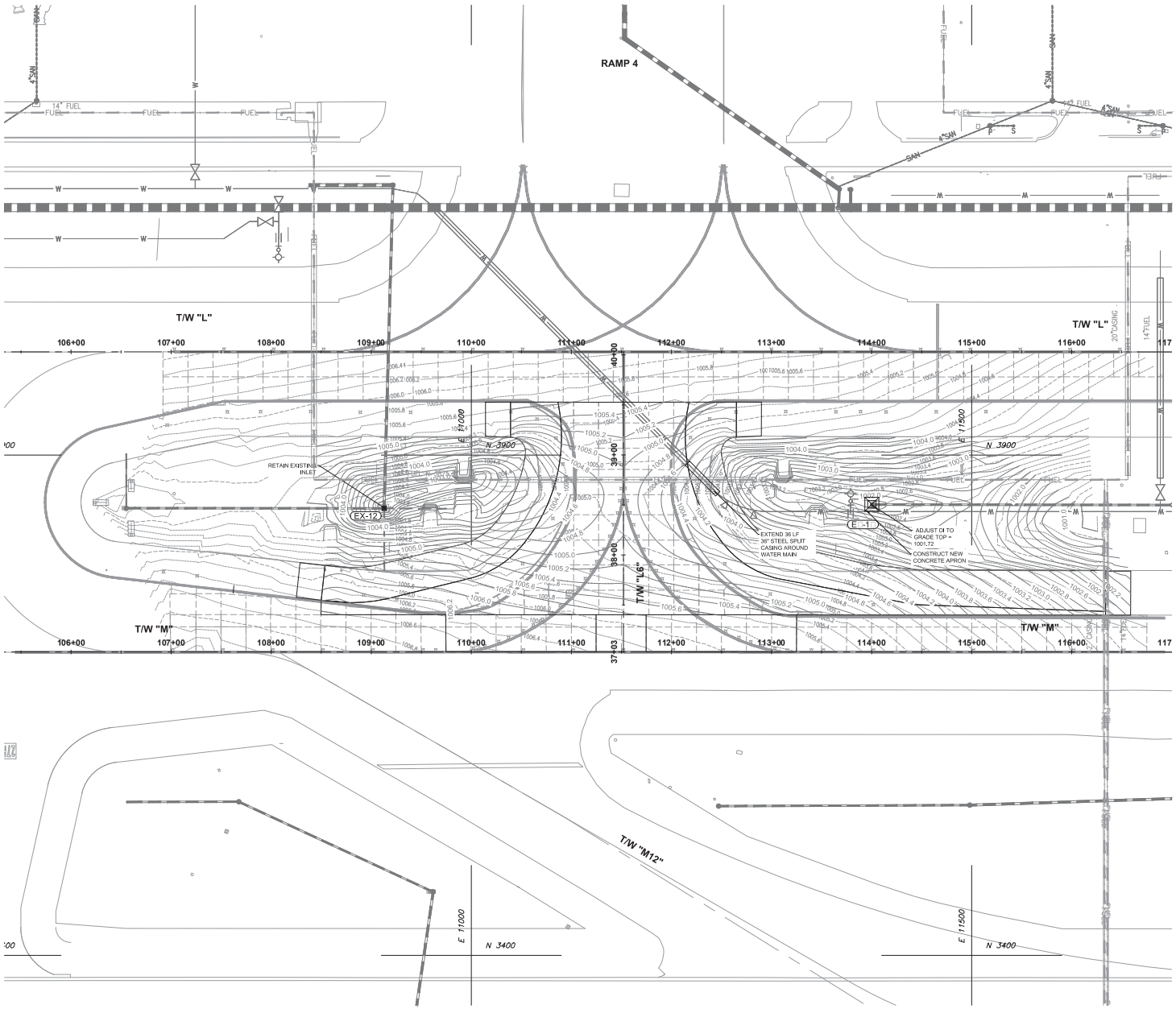
SHEET NAME

DRAINAGE PLAN

SHEET No

C 08.03.1

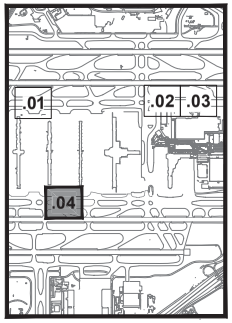
2/14/2016 7:52 PM
C:\PW_WORK\ATRANGA01\RLBATTLE\D0350452\M0580_C 08.01.1 DRAINAGE PLAN.DWG



LEGEND

- PROPOSED STORM MANHOLE
- PROPOSED DROP INLET WITH CONCRETE APRON
- PROPOSED STORM DRAINAGE LINE
- X-X / c.x.x.x — PROFILE CROSS REFERENCE

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	DDL
DRAWN BY	DDL
CHECKED BY	IDB
APPROVED BY	---

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBURARY 16 2016

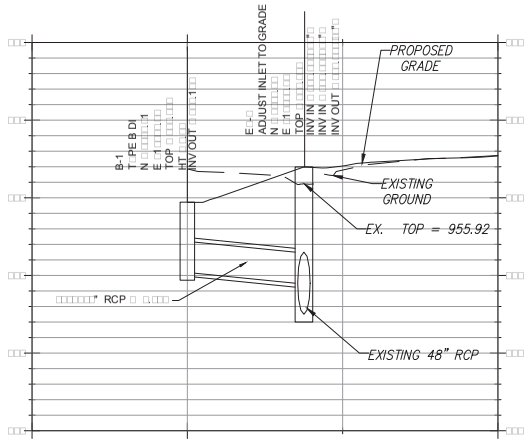
SHEET NAME

DRAINAGE PLAN

SHEET No

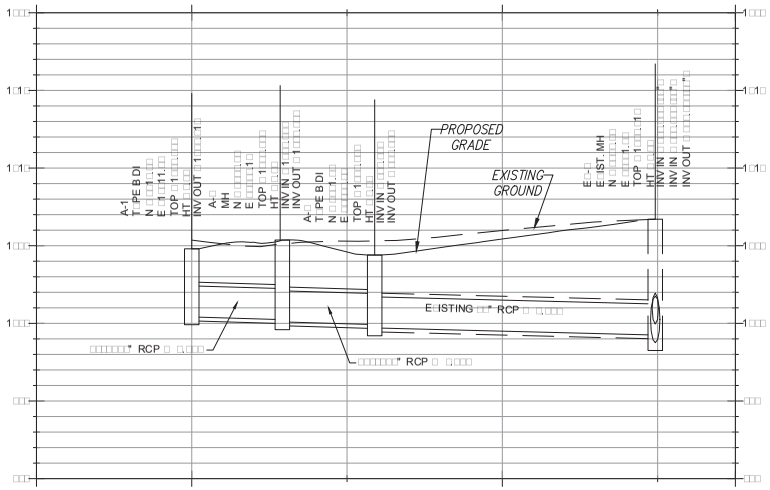
C 08.04.1

2/14/2016 7:53 PM
C:\PW_WORK\ATKINGA01\R\BATTLE\D6596452\M6596~2 08.01.1 DRAINAGE PLAN.DWG



B-1 LINE

HORI□ONTAL SCALE□1"□□□□
VERITCAL SCALE□1"□□□



A-1 LINE

HORI□ONTAL SCALE□1"□□□□
VERITCAL SCALE□1"□□□

NOTES□
TOP ELEVATION AND COORDINATES SHO□ N ARE TO THE CENTER OF THE BO□ AT THE TOP OF GRATE OR MANHOLE COVER.

HEIGHT SHO□ N IS FROM TOP OF GRATE TO INVERT OF PIPE

2/12/2016 12:07 PM
C:\PW_WORK\ATKINGAD1\R\BATTLE\D6056452\M5586-2 08.05.1--DRAINAGE PROFILES.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	DDL
DRAWN BY	DDL
CHECKED BY	IDB
APPROVED BY	---

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

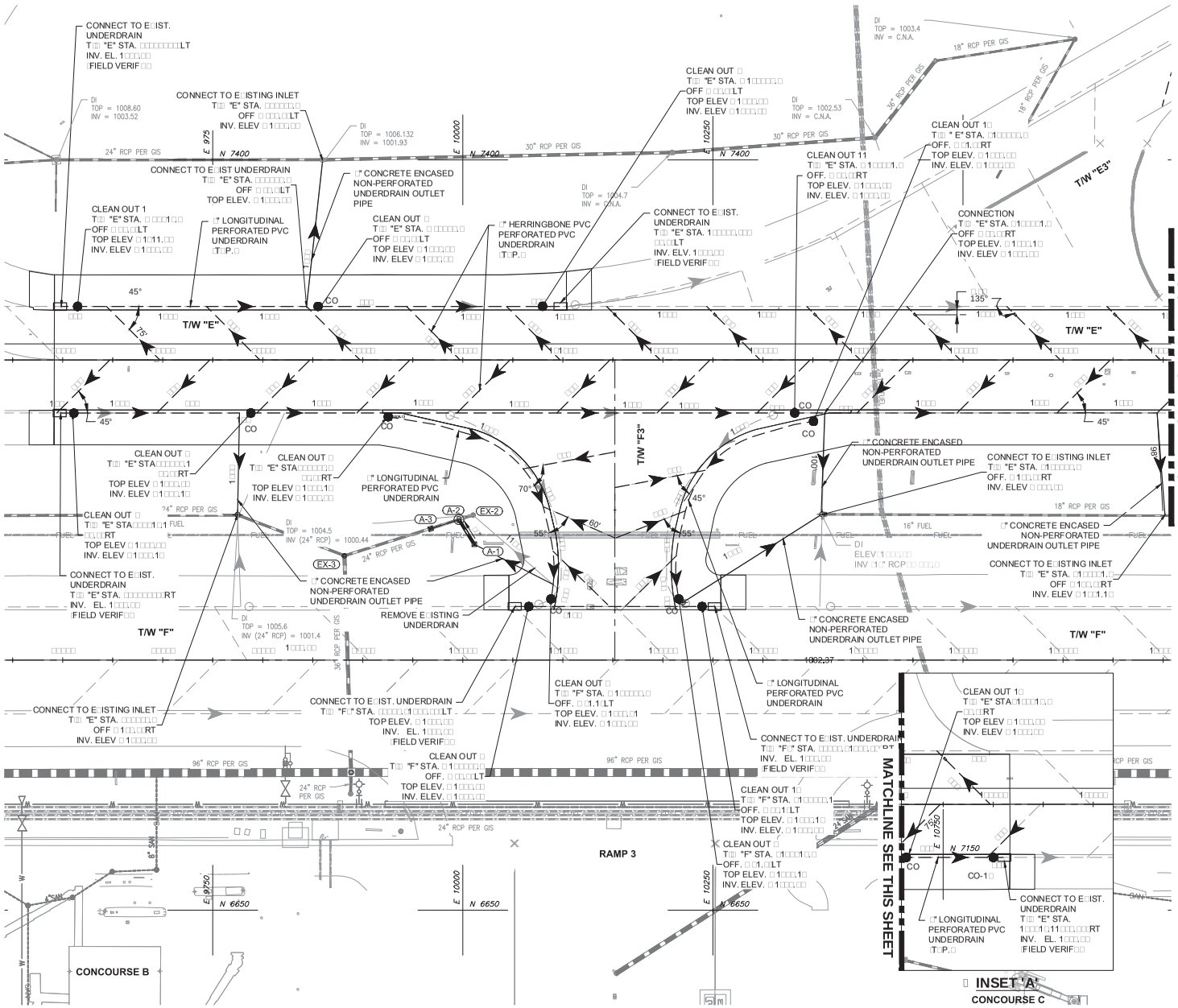
FEBURARY 16, 2016

SHEET NAME

DRAINAGE PROFILES

SHEET No

C 08.05.1



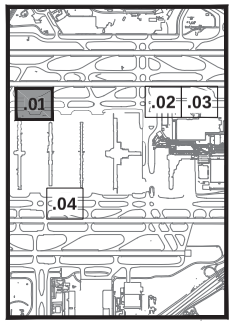
LEGEND

- CO — CLEANOUT
- PERFORATED UNDERDRAIN (EXIST.)
- NON-PERFORATED UNDERDRAIN (EXIST.)
- 6" OR 8" PERFORATED UNDERDRAIN (PROP.)
- 8" NON-PERFORATED UNDERDRAIN (PROP.)
- CONNECT TO EXISTING UNDERDRAIN (SEE DETAIL 6 ON SHEET C11.05.1)

NOTES

1. UNDERDRAINS SHALL BE INSTALLED AT STANDARD DEPTH.
2. CONTRACTOR TO VERIFY CONNECTION TO EXISTING UNDERDRAIN PRIOR TO REPLACING.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	DP
DRAWN BY	EC
CHECKED BY	TG
APPROVED BY	-

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	-
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

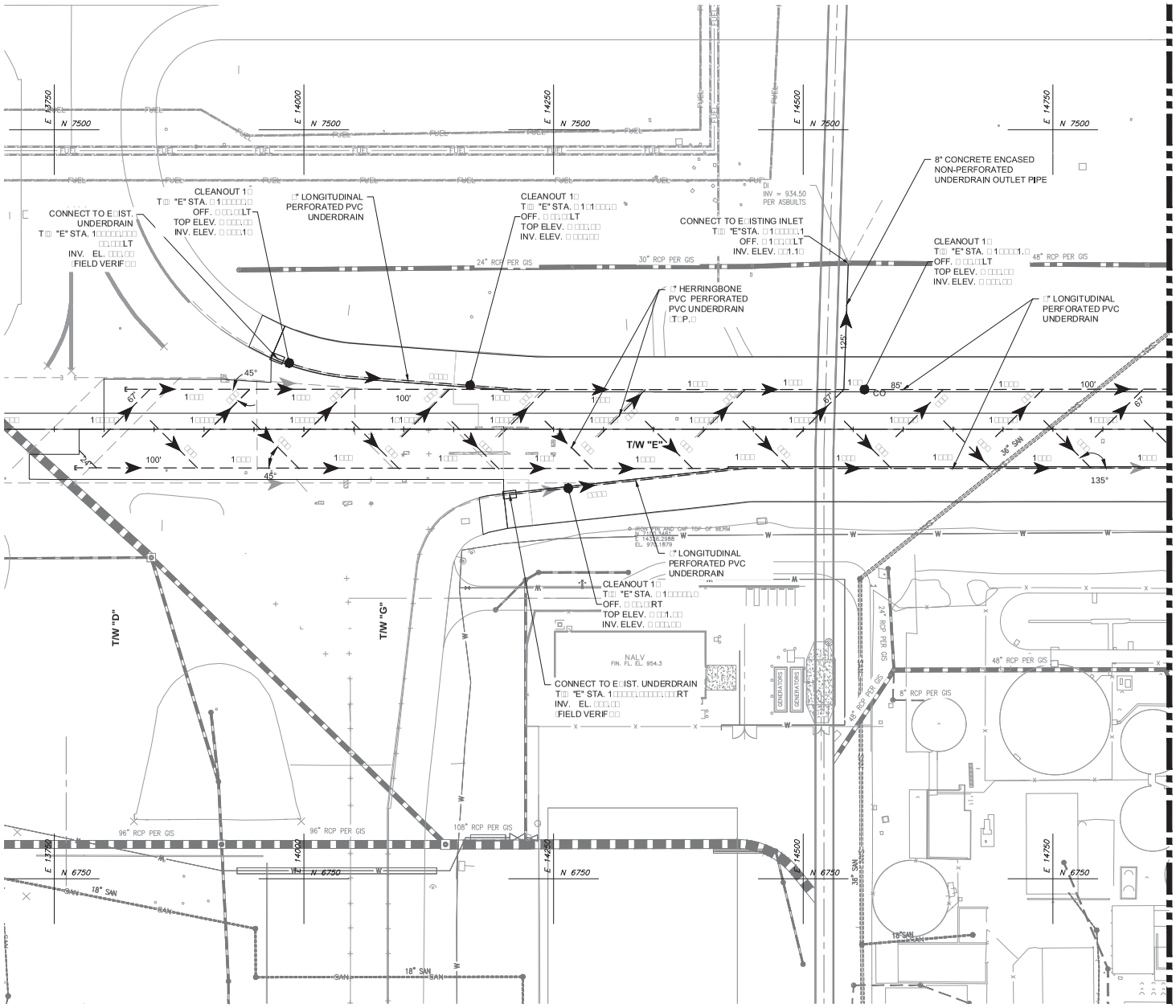
SHEET NAME

UNDERDRAIN PLAN

SHEET No

C 11.01.1

2/12/2016 12:33 PM
C:\PW_WORK\ATKINGA01\DANIEL.PAUL25\D0450452\d0580-C 11.01.1 UNDERDRAIN PLAN.DWG



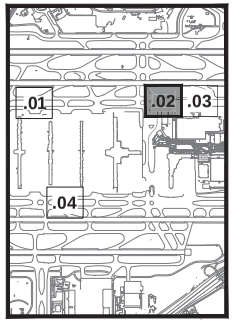
LEGEND

- CO — CLEANOUT
- PERFORATED UNDERDRAIN (EXIST.)
- NON-PERFORATED UNDERDRAIN (EXIST.)
- 6" OR 8" PERFORATED UNDERDRAIN (PROP.)
- 8" NON-PERFORATED UNDERDRAIN (PROP.)
- CONNECT TO EXISTING UNDERDRAIN (SEE DETAIL 6 ON SHEET C11.05.1)

NOTES

1. UNDERDRAINS SHALL BE INSTALLED AT STANDARD DEPTH.
2. CONTRACTOR TO VERIFY CONNECTION TO EXISTING UNDERDRAIN PRIOR TO REPLACING.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	DP
DRAWN BY	EC
CHECKED BY	TG
APPROVED BY	-

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	-
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

UNDERDRAIN PLAN

SHEET No

C 11.02.1

2/12/2016 12:36 PM
C:\PW_WORK\ATKINGA01\DANIEL.PAULDS\D0450452\d6586-C 11.01.1 UNDERDRAIN PLAN.DWG

MATCHLINE SEE SHEET C 11.03.1

□" CONC. ENCASED NON-PERFORATED UNDERDRAIN OUTLET PIPE

CONNECT TO E□ISTING INLET T□ "E" STA. □1□□□□□.1 OFF. □1□□□□LT INV. ELEV. □ □□□.□□

□" LONGITUDINAL PERFORATED PVC UNDERDRAIN

CLEANOUT 1□ T□ "E" STA. □1□□□□□.□ OFF. □ □□□□LT TOP ELEV. □ □□□.□□ INV. ELEV. □ □□□.□□

□" HERRINGBONE PVC PERFORATED PVC UNDERDRAIN □T□P.□

CONNECTION T□ "E" STA. □1□□□□□.□ OFF. □ □□.□□LT

CLEANOUT □□ T□ "E" STA. □1□□□□□.□ OFF. □ □□.1□LT TOP ELEV. □ □□□.□□ INV. ELEV. □ □□□.□□

CONNECT TO E□IST. UNDERDRAIN T□ "E" STA. 1□□□□□□.□1□□□.□□□LT INV. EL. □□□.□□ □FIELD VERIF□□

CLEANOUT □□ T□ "E" STA. □1□□□□□.□ OFF. □ □□.□□RT TOP ELEV. □ □□□.□□ INV. ELEV. □ □□□.□□

CLEAN OUT □1 T□ "E" STA. □1□□□□□.□ OFF. □ □□.□□RT TOP ELEV. □ □□□.□□ INV. ELEV. □ □□□.□□

CLEAN OUT □□ T□ "E" STA. □1□□□□□.□ OFF. □ □□.□□RT TOP ELEV. □ □□□.□□ INV. ELEV. □□□.□□

□" CONC. ENCASED NON-PERFORATED UNDERDRAIN OUTLET PIPE

CONNECT TO E□ISTING MH T□ "E" STA. □1□□□□□.□ OFF. □ □□□.□RT INV. ELEV. □ □□1.□

DISCHARGE TO BASIN BOTTOM. CONSTRUCT CONCRETE OUTLET APRON FOR DETAIL REF. SHEET C11.□□.1 DETAIL □

□" CONC. ENCASED NON-PERFORATED UNDERDRAIN OUTLET PIPE

CONNECT TO E□IST. UNDERDRAIN T□ "E" STA. 1□□□□□.□□□□□.□□RT INV. EL. □□□.□□ □FIELD VERIF□□

CONNECT TO E□IST. UNDERDRAIN T□ "E" STA. 1□□□□□.11□1□□□□RT INV. EL. □□□.□□ □FIELD VERIF□□

DI ELEV:954.9 INV(36" RCP)= 944.97

DI INV = 944.32 PER ASBUILT

48" RCP PER GIS

T/W "E11"

T/W "E"

T/W "E10"

DELTA TOC

E 15000 N 7500 / E 15250 N 7500 / E 15500 N 7500 / E 15750 N 7500 / E 16000 N 7500

E 15000 N 6750 / E 15250 N 6750 / E 15500 N 6750 / E 15750 N 6750 / E 16000 N 6750

EX-5 B-1 CO

100' 45° 67° 135° 102' 240'

LEGEND

- CO — CLEANOUT
- PERFORATED UNDERDRAIN (EXIST.)
- NON-PERFORATED UNDERDRAIN (EXIST.)
- 6" OR 8" PERFORATED UNDERDRAIN (PROP.)
- 8" NON-PERFORATED UNDERDRAIN (PROP.)
- CONNECT TO EXISTING UNDERDRAIN (SEE DETAIL 6 ON SHEET C11.05.1)

NOTES

1. UNDERDRAINS SHALL BE INSTALLED AT STANDARD DEPTH.
2. CONTRACTOR TO VERIFY CONNECTION TO EXISTING UNDERDRAIN PRIOR TO REPLACING.

KEY MAP

.01 .02 .03 .04

NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	DP
DRAWN BY	EC
CHECKED BY	TG
APPROVED BY	-

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	-
HJOP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

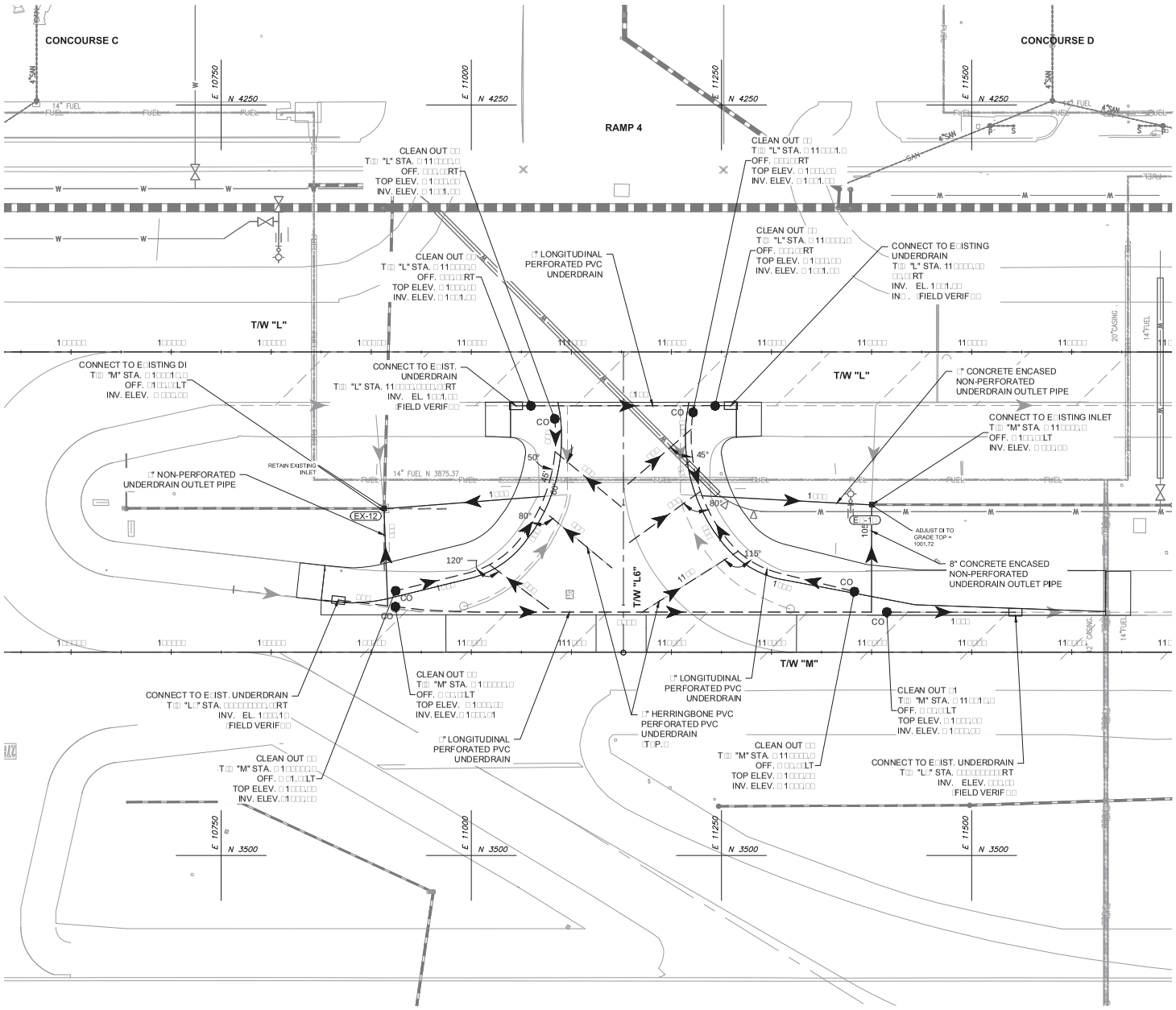
SHEET NAME

UNDERDRAIN PLAN

SHEET No

C 11.03.1

2/12/2016 12:37 PM
C:\PW_WORK\ATKINGA01\DANIEL.PAUL05\D0450452\d0586-C 11.01.1 UNDERDRAIN PLAN.DWG



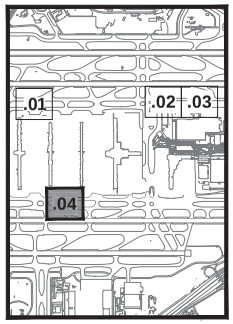
LEGEND

- CO — CLEANOUT
- PERFORATED UNDERDRAIN (EXIST.)
- NON-PERFORATED UNDERDRAIN (EXIST.)
- 6" OR 8" PERFORATED UNDERDRAIN (PROP.)
- 8" NON-PERFORATED UNDERDRAIN (PROP.)
- CONNECT TO EXISTING UNDERDRAIN (SEE DETAIL 6 ON SHEET C11.05.1)

NOTES

1. UNDERDRAINS SHALL BE INSTALLED AT STANDARD DEPTH.
2. CONTRACTOR TO VERIFY CONNECTION TO EXISTING UNDERDRAIN PRIOR TO REPLACING.

KEY MAP



NORTH

GRAPHIC SCALE (IN FEET)
50 0 50 100

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	DP
DRAWN BY	EC
CHECKED BY	TG
APPROVED BY	-

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	-
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

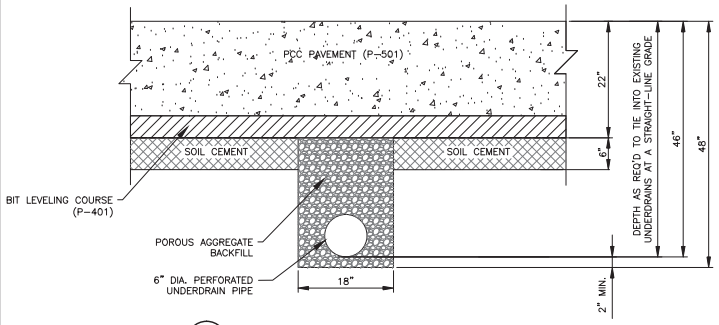
UNDERDRAIN PLAN

SHEET No

C 11.04.1

NOT ISSUED FOR CONSTRUCTION

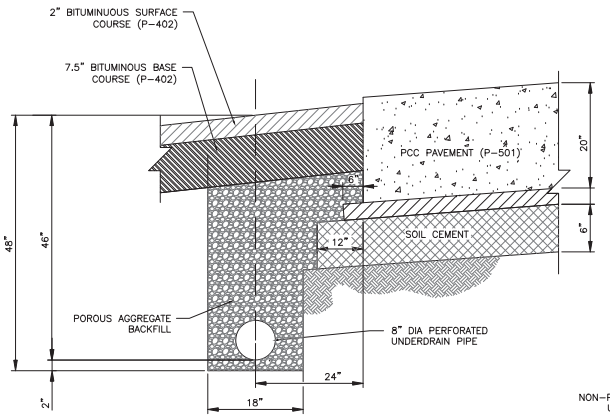
2/12/2016 12:38 PM
C:\PW_WORK\ATKINGA01\DANIEL.PAULDS\D0450452\I6586-C 11.01.1 UNDERDRAIN PLAN.DWG



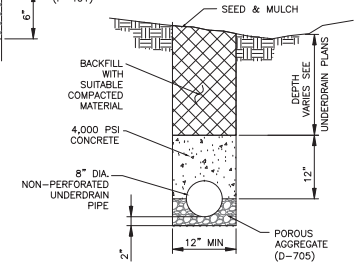
1 C11.05.1 TRANSVERSE UNDERDRAIN UNDER TAXIWAY NTS

NOTES:

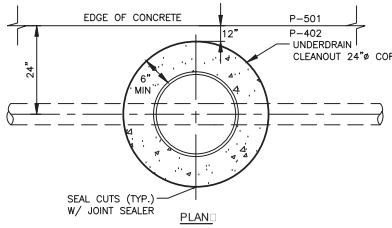
1. CONTRACTOR SHALL REMOVE EXISTING UNDERDRAINS AND REPLACE WITH NEW UNDERDRAIN INSTALLED AT DEPTH SHOWN. ANY OLD AGGREGATE OR SOIL SHALL BE REMOVED AS NECESSARY TO CONSTRUCT NEW TRENCH PER DETAILS.
2. PIPE SHALL BE ONE CONTINUOUS PIECE IF POSSIBLE, IF JOINTS ARE REQUIRED, THEY SHALL BE MADE WITH COLLARS CONSISTENT WITH THE PIPE MATERIAL. THE ENDS OF THE PIPE SHALL BE COATED WITH A THICK PORTION OF MASTIC PRIOR TO INSTALLING THE COLLAR. AFTER THE COLLAR IS MADE SNUG, THE ENTIRE LENGTH OF THE COLLAR SHALL BE ENCASED IN NOT LESS THAN 6" THICK CONCRETE ALL AROUND.
3. THE CONTRACTOR SHALL USE #89 STONE FOR THE POROUS UNDERDRAIN BACKFILL.
4. SEE UNDERDRAIN LAYOUT PLANS FOR INVERT ELEVATIONS THAT DIFFER FROM STANDARD DEPTH. NOTIFY ENGINEER IF ANY UNSUITABLE SOIL AREAS REQUIRE UNDERCUTTING BELOW THE ELEVATION OF THE NEAREST PROPOSED UNDERDRAINS. IN THESE CASES, THE ENGINEER WILL NEED TO MODIFY UNDERDRAIN ELEVATIONS.



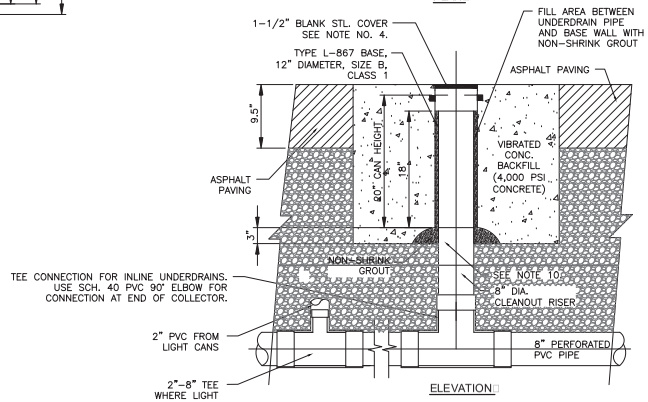
2 C11.05.1 LONGITUDINAL UNDERDRAIN UNDER SHOULDER PAVING NTS



4 C11.05.1 CONCRETE ENCASED UNDERDRAIN OUTLET DETAIL NTS

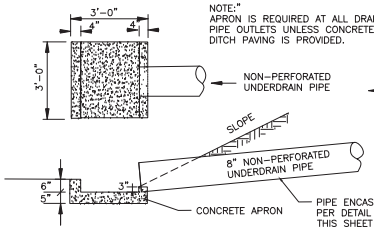


PLAN



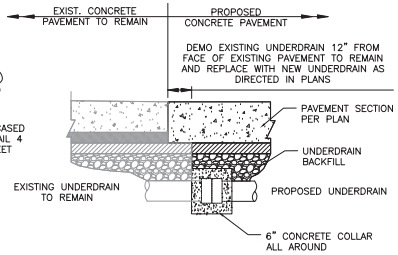
ELEVATION

3 C11.05.1 UNDERDRAIN CLEANOUT DETAIL SHOWN FOR INSTALLATION IN ASPHALT, SIMILAR FOR CONCRETE NTS



NOTE:
APRON IS REQUIRED AT ALL DRAIN PIPE OUTLETS UNLESS CONCRETE DITCH PAVING IS PROVIDED.

5 C11.05.1 OUTLET APRON NTS



6 C11.05.1 UNDERDRAIN TIE-IN COUPLING NTS

UNDERDRAIN NOTES

1. THE CONTRACTOR SHALL LOCATE THE EXISTING UNDERDRAINS WHERE CONNECTIONS ARE SHOWN TO BE MADE WITH THE NEW ONES AND FIELD VERIFY THEIR LOCATION AND ELEVATION. ADJUSTMENTS SHALL BE MADE AS NEEDED IN THE FIELD AFTER CONSULTATION WITH THE ENGINEER TO ENSURE THAT THE NEW UNDERDRAINS ARE INSTALLED AT A PROPER DEPTH UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL INSPECT WITH VIDEO CAMERAS ALL EXISTING UNDERDRAINS INDICATED TO REMAIN WHERE CONNECTIONS ARE TO BE MADE AND ALL NEW UNDERDRAINS, UPON COMPLETION OF PROJECT, AND PER DOA INSTRUCTION TO ENSURE THAT THEY ARE FREE OF SILT AND OTHER MATERIALS THAT COULD CAUSE BLOCKAGES OR REDUCE THE FLOW OF WATER. IF SILT OR OTHER FOREIGN MATERIALS HAVE ACCUMULATED HE WILL CLEAN THEM AND ENSURE THAT THEY ARE FULLY OPERATIONAL.
3. ALL OUTFLOW PIPES INDICATED TO BE ABANDONED SHALL BE FILLED WITH SAND OR FLOWABLE FILL. THE OPENINGS AT THE INLETS SHALL BE FILLED WITH CONCRETE FINISHED FLUSH WITH THE INSIDE OF THE INLET STRUCTURE.
4. DEMOLITION: ALL EXISTING UNDERDRAINS SHOWN TO BE REPLACED WITH NEW ONES SHALL BE REMOVED FROM THE TRENCHES. THE TRENCHES SHALL BE GRADED AND THE NEW UNDERDRAINS SHALL BE INSTALLED ACCORDING TO THE PLAN AND ELEVATIONS SHOWN ON THE PLANS. SEE THE DEMOLITION SHEETS FOR NOTES AND ADDITIONAL DEMOLITION INFORMATION.
5. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF UNDERDRAINS, CLEANOUTS AND OUTFALL PIPES WITH THE EXISTING TAXIWAY SIGNS, LIGHTS AND UTILITIES. IF CONFLICTS ARISE THE UNDERDRAINS SHALL BE MOVED TO MAKE SPACE FOR ALL THE OTHERS.
6. THE CONTRACTOR SHOULD BE AWARE THAT DUE TO THE DEPTH OF THE UNDERDRAINS, CERTAIN PREPARATIONS WILL BE NECESSARY BEFORE ASPHALT IS PLACED, AS FOLLOWS
   A. THE CONNECTION SHOULD BE IN PLACE AND THE LOCATION SURVEYED.
   B. THE CLEANOUT RISER SHOULD EXTEND TO 6" (MAX) BELOW THE SURFACE LEVEL OF SOIL CEMENT AND TEMPORARILY CAPPED TO PREVENT DIRT AND DEBRIS FROM ENTERING THE UNDERDRAIN SYSTEM.
7. ALL PAVEMENT AND GROUND AREA DISTURBED DURING CONSTRUCTION SHALL BE RETURNED TO ORIGINAL CONDITION BY THE CONTRACTOR.
8. SEE JOINT FILLER SPECIFICATION SECTION FOR SEALANT.
9. THE WORDS "UNDERDRAIN C.O." SHALL BE WELDED IN 1" LETTERS ONTO THE PLATE BY THE CONTRACTOR. AFTER WELDING, PLATE SHALL BE HOT-DIPPED AND GALVANIZED.
10. CUT 9" DIAMETER HOLE IN BOTTOM OF CAN TO PROVIDE CLEAN OUT RISER CONNECTION
11. FOR INSTALLATION OF UNDERDRAIN CLEANOUT IN CONCRETE PAVEMENT REFER TO DETAILS OF TYPICAL INSTALLATION FOR TYPE L-868 BASE IN ELECTRICAL DETAILS.
   A. INSTALL L-868 BASE WITH ¼" STEEL MUD PLATE TEMPORARILY BOLTED ON IN PLACE OF THE ADAPTER PLATE.
   B. IMMEDIATELY AFTER PAVING MACHINE PAVES OVER BASE, CONTRACTOR SHALL REMOVE AND CLEAR OUT ALL LOOSE MATERIAL LEAVING STEEL COVER IN PLACE.
   C. DO NOT REUSE SHIPPING BOLTS FOR COVER INSTALLATION
   D. CONTRACTOR IS CAUTIONED TO OBSERVE THAT ALL SUBGRADE MATERIAL IS CEMENT STABILIZED. PROVISIONS MUST BE MADE FOR INSTALLING BASES IN CEMENT STABILIZED SUBBASE MATERIAL
   E. CONTRACTOR SHALL INSTALL AND FURNISH JOINT SEALER COMPOUND IN SPACE AROUND TOP OF L-868 BASE AFTER COVER INSTALLATION.
   F. THE FOLLOWING TYPES OF BOLTS SHALL BE FURNISHED AND INSTALLED WITH EACH BASE:
      a. SHIPPING BOLTS, ½" LONG DISPOSABLE.
      b. SETTING BOLTS, ⅜" MUD PLATE THICKNESS OF JIG (DETERMINED BY CONTRACTOR)
      c. STAINLESS STEEL FINISHING BOLTS, LENGTH AS REQUIRED TO HOLD IN COVER AND FINISH RING, AS REQUIRED.
12. ALL ITEMS SHOWN FOR THE TAXIWAY BASES SHALL BE PART OF THE INSTALLATION
13. ASSEMBLY, FINISHING RING SHALL BE FURNISHED AND INSTALLED TO BRING THE COVER FIXTURE UP TO THE SPECIFIED ELEVATION.
14. WHEN CONNECTING TO EXISTING UNDERDRAINS CONTRACTOR SHALL ENSURE THAT POSITIVE DRAINAGE TO AND FROM EXISTING SYSTEM IS MAINTAINED.
15. IF EXISTING SYSTEM TO REMAIN IS DAMAGED DURING CONSTRUCTION, IT SHALL BE REPLACED AT NO COST TO THE CITY.
16. CORE EXISTING MANHOLE AND INSERT UNDERDRAIN OUTLET PIPE AT PROPOSED CONNECTIONS TO STRUCTURE. SEAL SPACE BETWEEN PIPE AND STRUCTURE WITH CONCRETE GROUT.

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	PJJ
DRAWN BY	PJJ
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	-
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

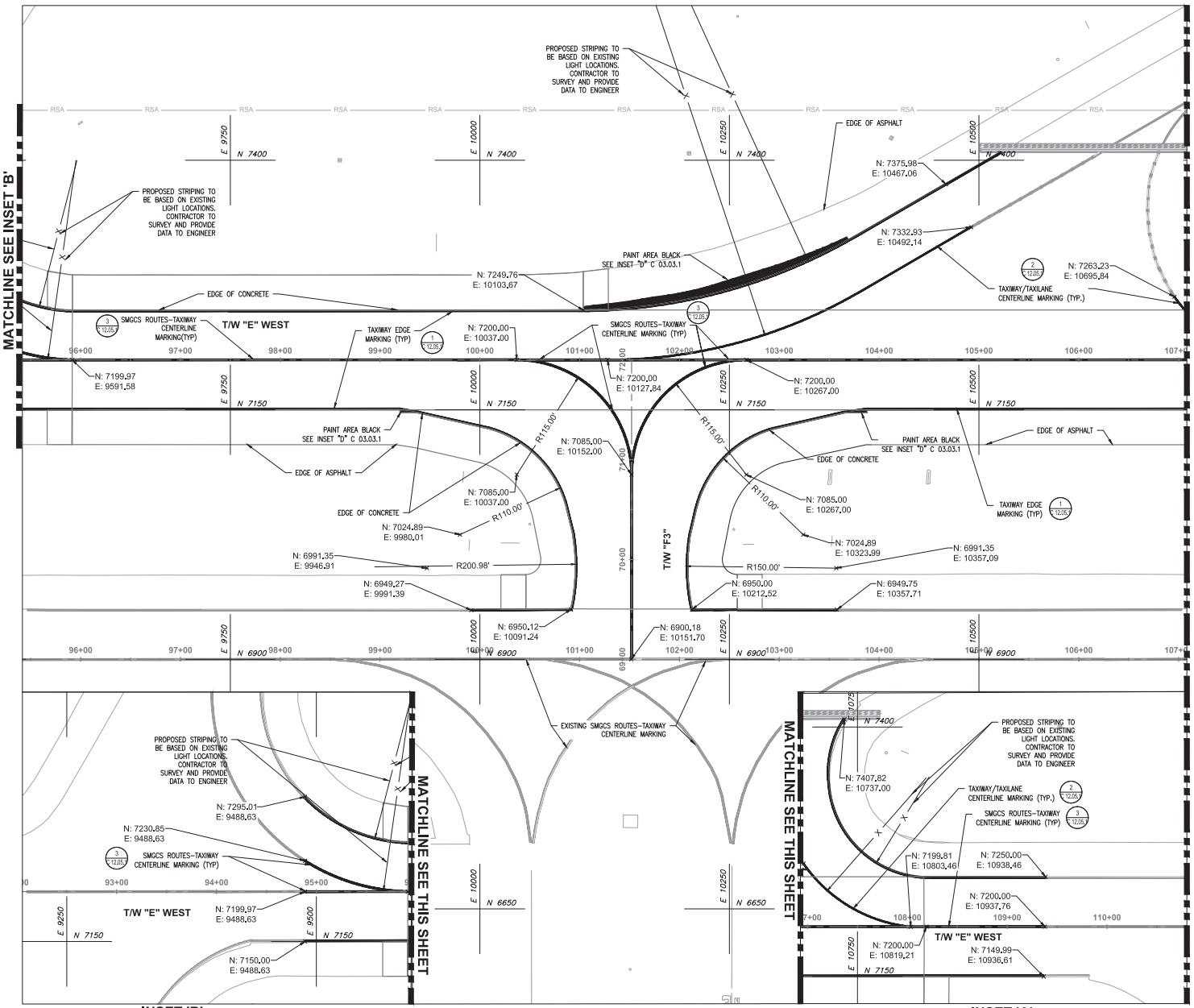
UNDERDRAIN DETAILS

SHEET No

C 11.05.1

NOT ISSUED FOR CONSTRUCTION

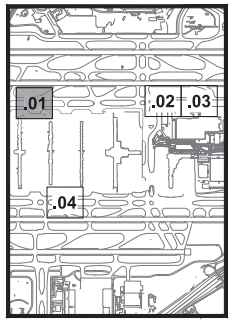
2/12/2016 12:30 PM
C:\PW_WORK\ATKINGA01\DANIEL.PAUL05\D0520452\A6586-C 11.05.1 UNDERDRAIN DETAILS.DWG



NOTES

1. CONTRACTOR SHALL TAKE ALL PRECAUTIONS POSSIBLE TO AVOID DAMAGING THERMOPLASTIC MARKINGS. ANY DAMAGE TO THERMOPLASTIC MARKINGS MUST BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY.
2. ALL CENTERLINE STRIPING DIMENSIONS ARE TO THE CENTER OF THE STRIPE UNLESS INDICATED OTHERWISE.
3. CONTRACTOR TO SURVEY EXISTING MARKINGS PRIOR TO CONCRETE REMOVAL AND SUBMIT TO ENGINEER BEFORE BEGINNING CONSTRUCTION OF THESE ITEMS.
4. CONTRACTOR SHALL SURVEY AND LAYOUT MARKINGS IN ADVANCE OF PAINTING.
5. ALL MARKINGS SHALL MEET THE REQUIREMENTS OF FAA AC 150/5340-1L.

KEY MAP



NORTH

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	CJS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	####
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

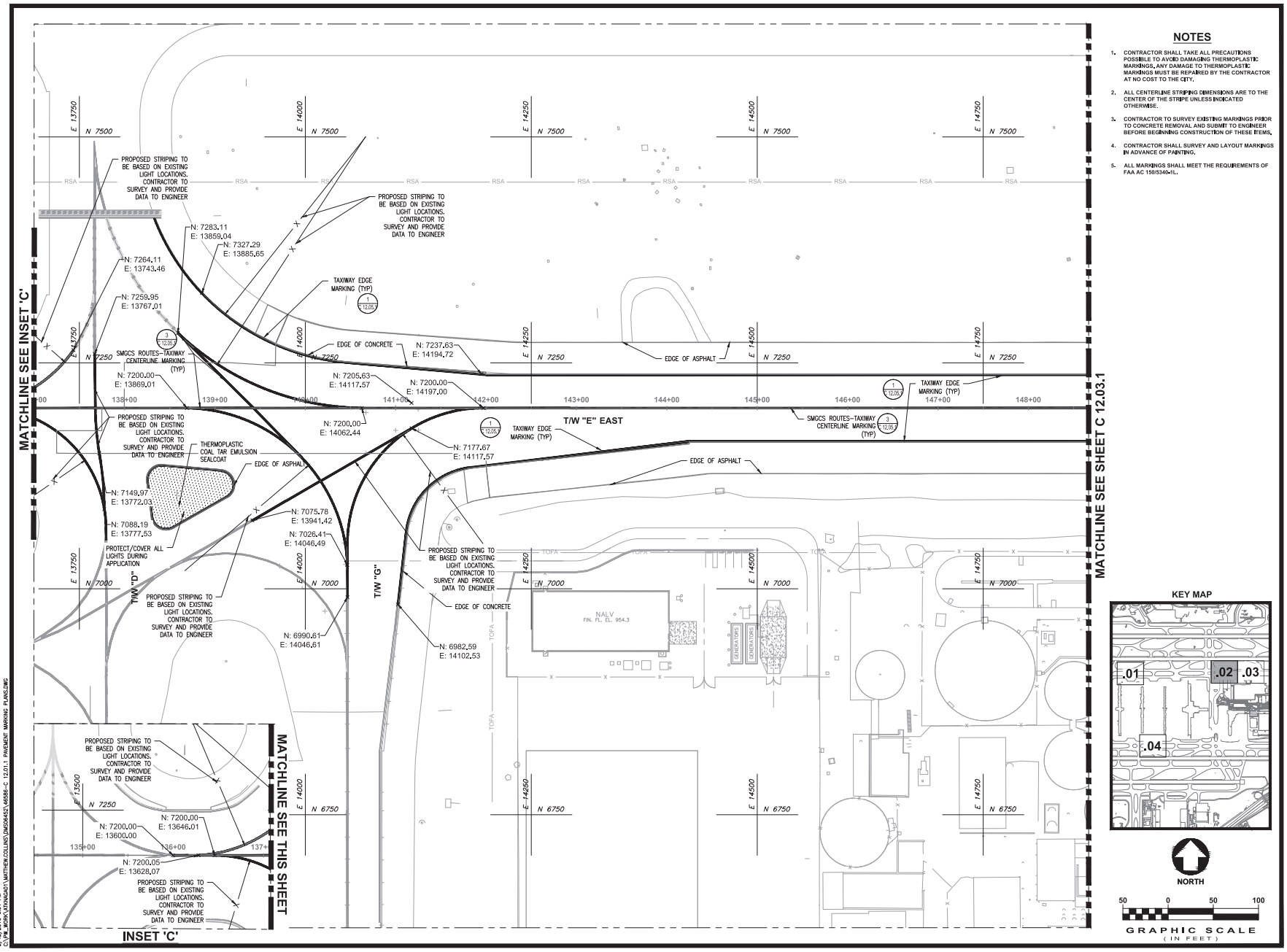
AIRFIELD MARKING PLAN

SHEET No

C 12.01.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 6:02 PM
C:\PW_WORK\ATANG01\MATTHEW.COLLINS\D60\6453\46586-C 12.01.1 PAVEMENT MARKING PLANS.DWG



NOTES

1. CONTRACTOR SHALL TAKE ALL PRECAUTIONS POSSIBLE TO AVOID DAMAGING THERMOPLASTIC MARKINGS. ANY DAMAGE TO THERMOPLASTIC MARKINGS MUST BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY.
2. ALL CENTERLINE STRIPING DIMENSIONS ARE TO THE CENTER OF THE STRIPE UNLESS INDICATED OTHERWISE.
3. CONTRACTOR TO SURVEY EXISTING MARKINGS PRIOR TO CONCRETE REMOVAL AND SUBMIT TO ENGINEER BEFORE BEGINNING CONSTRUCTION OF THESE ITEMS.
4. CONTRACTOR SHALL SURVEY AND LAYOUT MARKINGS IN ADVANCE OF PAINTING.
5. ALL MARKINGS SHALL MEET THE REQUIREMENTS OF FAA AC 150/5340-1L.

KEY MAP

NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	CJS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	####
HJDP WBS No	0.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

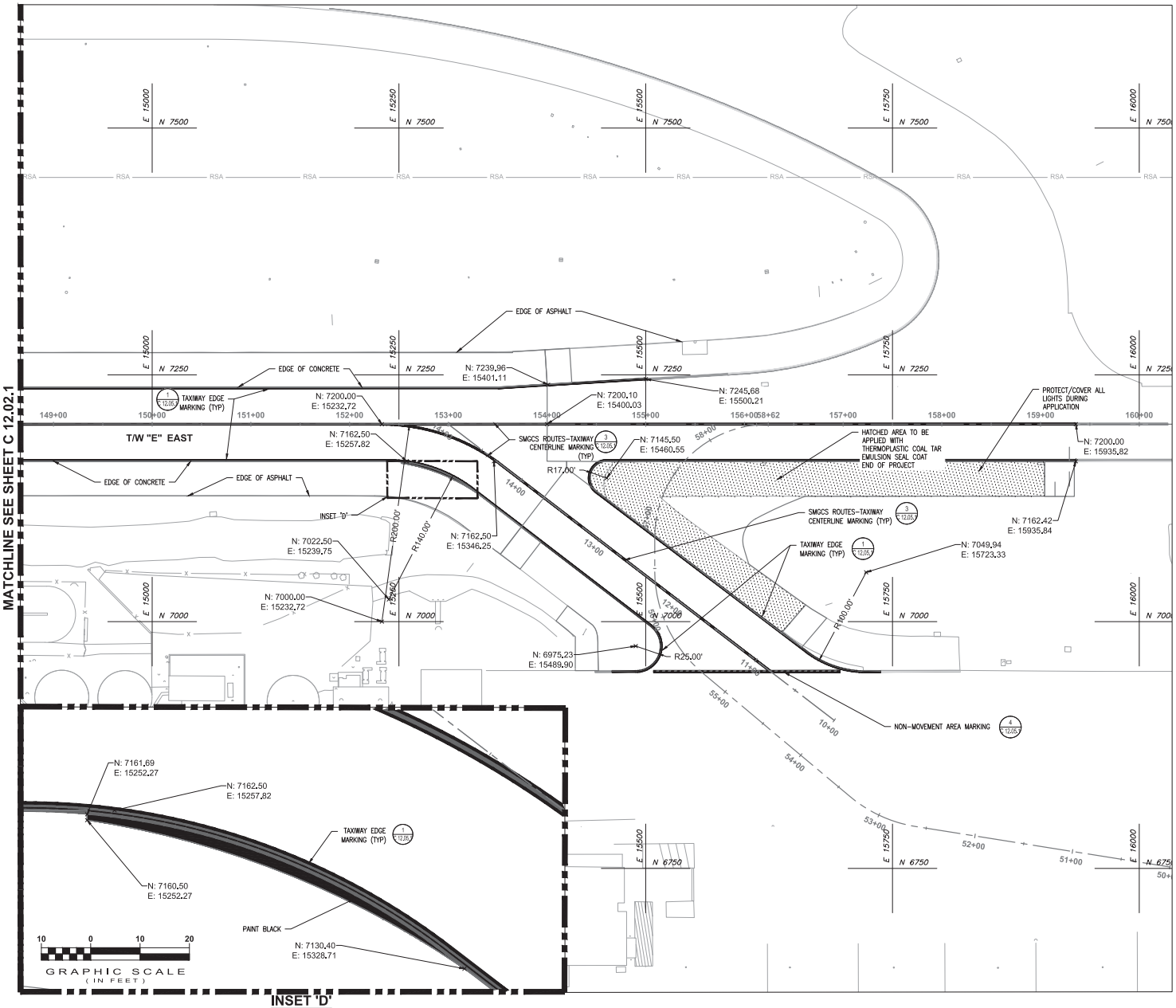
AIRFIELD MARKING PLAN

SHEET No

C 12.02.1

NOT ISSUED FOR CONSTRUCTION

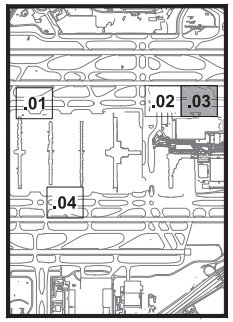
2/12/2016 6:04 PM
C:\PW_WORK\ATANG401\MATTHEW.COLLINS\D60806452\146586-C 12.01.1 PAVEMENT MARKING PLANS.DWG



NOTES

1. CONTRACTOR SHALL TAKE ALL PRECAUTIONS POSSIBLE TO AVOID DAMAGING THERMOPLASTIC MARKINGS, ANY DAMAGE TO THERMOPLASTIC MARKINGS MUST BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY.
2. ALL CENTERLINE STRIPING DIMENSIONS ARE TO THE CENTER OF THE STRIPE UNLESS INDICATED OTHERWISE.
3. CONTRACTOR TO SURVEY EXISTING MARKINGS PRIOR TO CONCRETE REMOVAL AND SUBMIT TO ENGINEER BEFORE BEGINNING CONSTRUCTION OF THESE ITEMS.
4. CONTRACTOR SHALL SURVEY AND LAYOUT MARKINGS IN ADVANCE OF PAINTING.
5. ALL MARKINGS SHALL MEET THE REQUIREMENTS OF FAA AC 150/5340-1L.

KEY MAP



NORTH

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	CJS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	####
ADP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

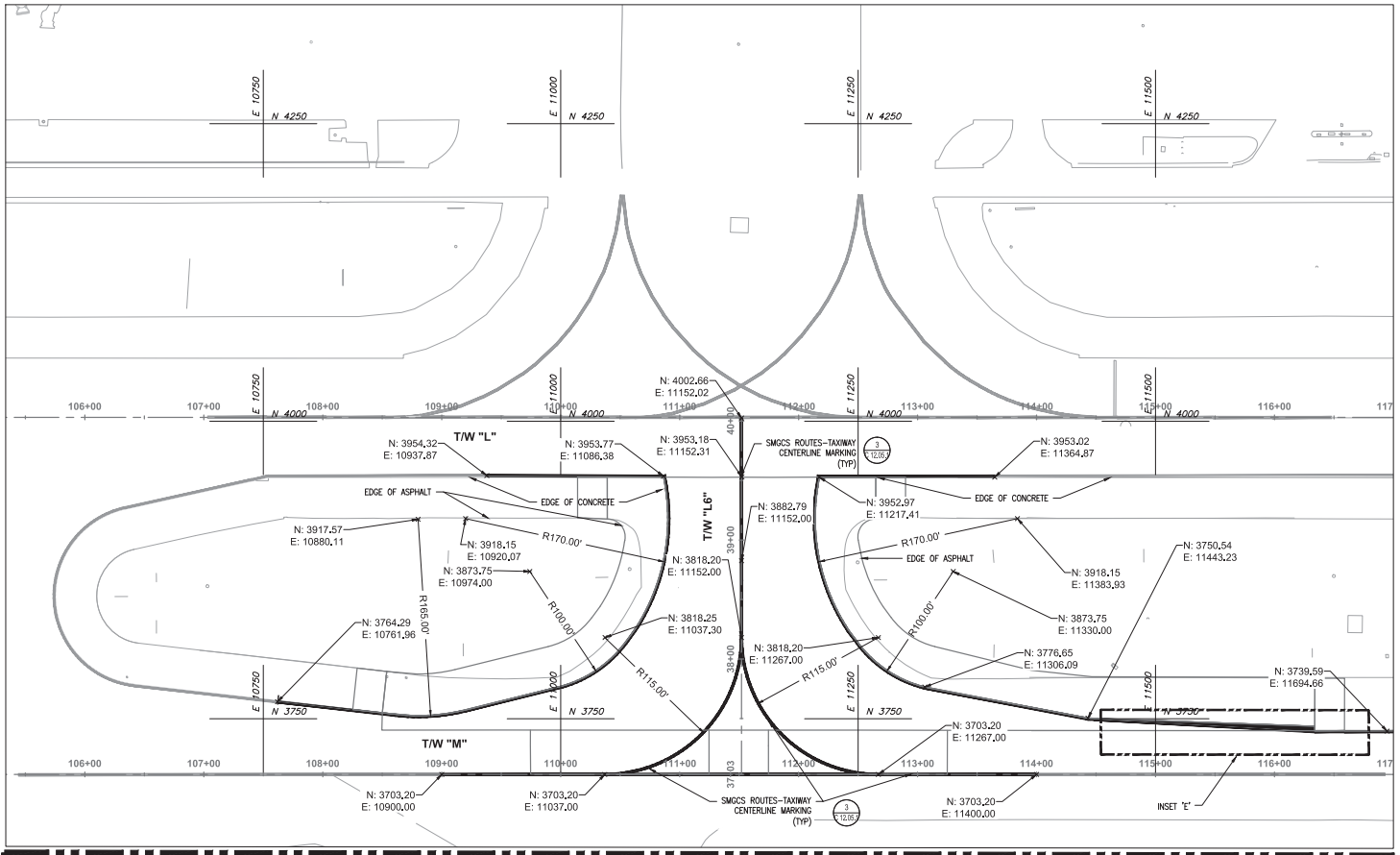
AIRFIELD MARKING PLAN

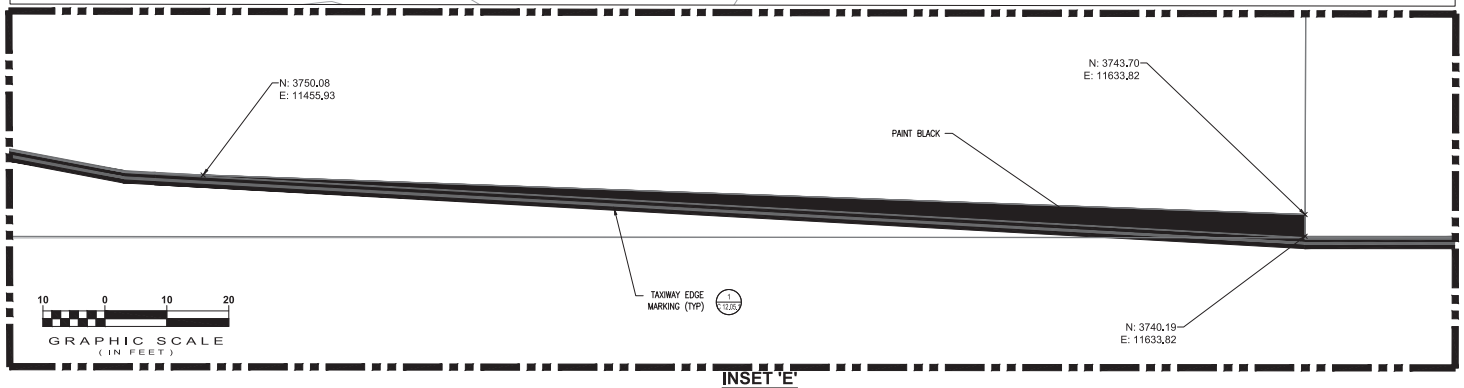
SHEET No

C 12.03.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 6:05 PM
C:\PW_WORK\ATWA0401\MATTHEW.COLLINS\D0506453\146586-C 12.01.1 PAVEMENT MARKING PLANS.DWG



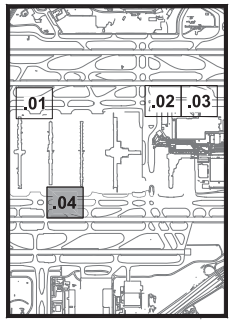


INSET 'E'

NOTES

1. CONTRACTOR SHALL TAKE ALL PRECAUTIONS POSSIBLE TO AVOID DAMAGING THERMOPLASTIC MARKINGS. ANY DAMAGE TO THERMOPLASTIC MARKINGS MUST BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE CITY.
2. ALL CENTERLINE STRIPING DIMENSIONS ARE TO THE CENTER OF THE STRIPE UNLESS INDICATED OTHERWISE.
3. CONTRACTOR TO SURVEY EXISTING MARKINGS PRIOR TO CONCRETE REMOVAL AND SUBMIT TO ENGINEER BEFORE BEGINNING CONSTRUCTION OF THESE ITEMS.
4. CONTRACTOR SHALL SURVEY AND LAYOUT MARKINGS IN ADVANCE OF PAINTING.
5. ALL MARKINGS SHALL MEET THE REQUIREMENTS OF FAA AC 150/5340-1L.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE
(IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	CJS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	####
H-JDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

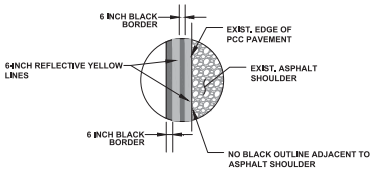
AIRFIELD MARKING PLAN

SHEET No

C 12.04.1

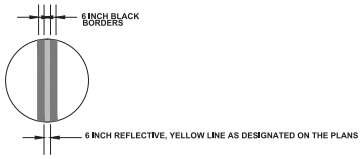
NOT ISSUED FOR CONSTRUCTION

2/12/2016 6:07 PM
C:\PW_WORK\ATWA0401\MATTHEW.COLLINS\DMS06452\146586-C 12.01.1 PAVEMENT MARKING PLANS.DWG



1 / C 12.05 **TAXIWAY EDGE MARKING DETAIL**

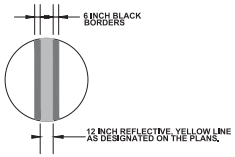
N.T.S.



2 / C 12.05 **TAXIWAY/TAXILANE CENTERLINE MARKING**

N.T.S.

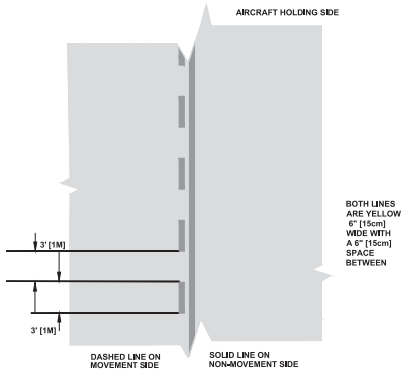
1. ALL TAXIWAY CENTERLINE MARKINGS SHALL BE OUTLINED WITH 6" WIDE BORDERS (BLACK, NON-REFLECTIVE).



3 / C 12.05 **SMGCS ROUTES-TAXIWAY CENTERLINE MARKING**

N.T.S.

1. ALL TAXIWAY CENTERLINE MARKINGS SHALL BE OUTLINED WITH 6" WIDE BORDERS (BLACK, NON-REFLECTIVE).



4 / C 12.05 **NON-MOVEMENT AREA MARKINGS**

N.T.S.

2/12/2016 5:33 PM
C:\PW_WORK\ATHAGA01\MATTHEW.COLLINS\D0506452\PAVEMENT MARKING DETAILS.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	CJS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
H-JDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

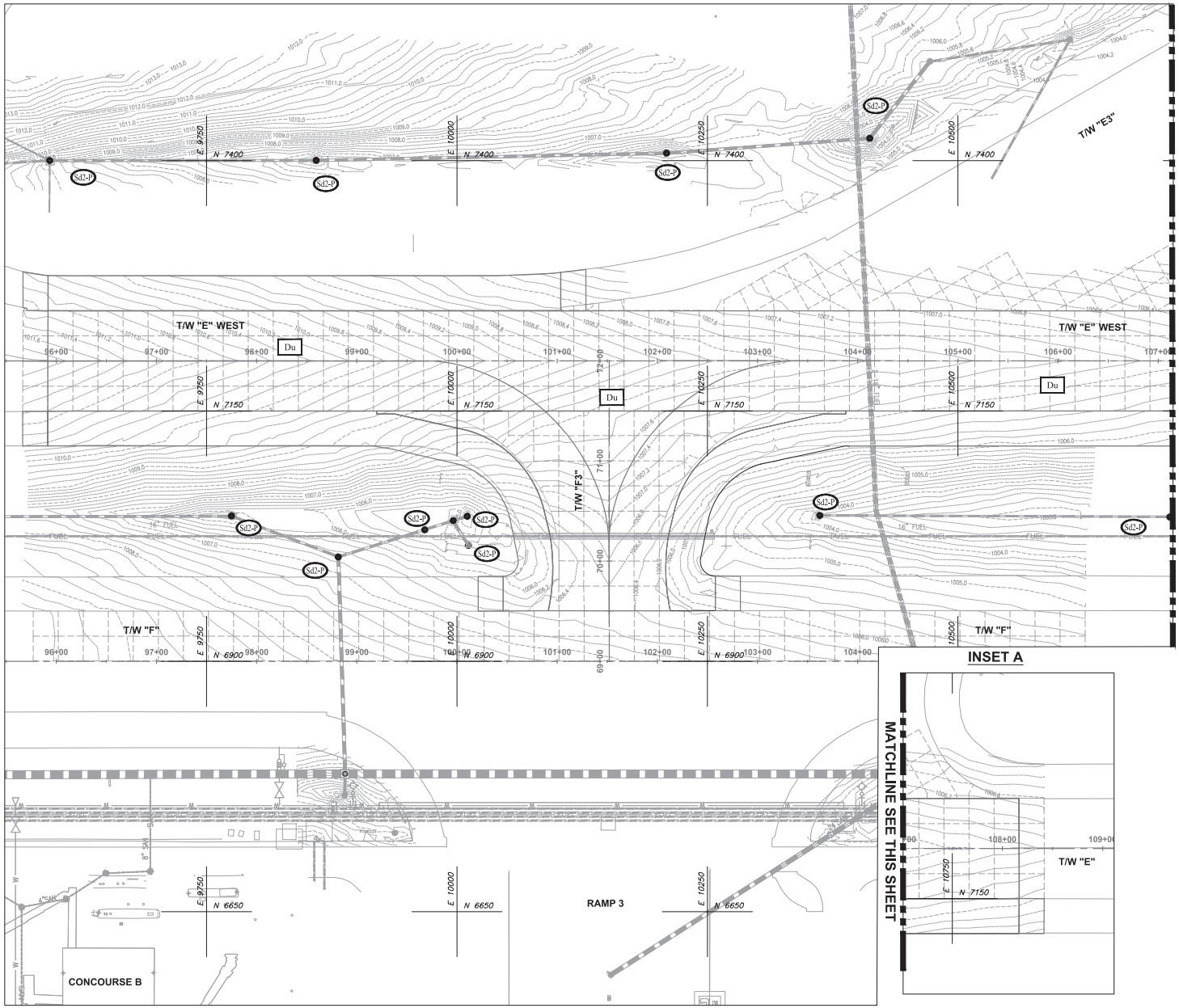
FEBRUARY 16, 2016

SHEET NAME

AIRFIELD MARKING DETAILS

SHEET No

C 12.05.1



LEGEND

Sd2-P INLET PROTECTION - GRAVEL FILTER BAGS

Du DUST CONTROL

SEE SHEET C13.05.1 FOR DETAILS

NOTES

1. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH LAND-DISTURBING ACTIVITIES.

2. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE, OR AS DIRECTED BY THE EROSION CONTROL INSPECTOR.

3. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING

4. EROSION CONTROL MEASURES WILL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RAIN, AND REPAIRED BY CONTRACTOR. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ONSITE INSPECTION.

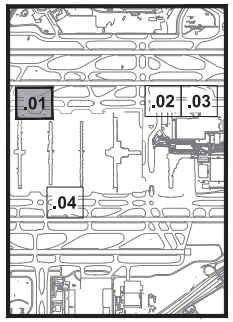
5. ALL SITE SOILS EXPOSED DURING DEMOLITION AND CONSTRUCTION, INCLUDING SOIL STOCKPILED/STORED ON SITE, MUST BE PROTECTED FROM WIND AND RAIN EROSION THROUGH THE USE OF APPROPRIATE TEMPORARY MEASURES.

6. CONTRACTOR TO EMPLOY SUFFICIENT MEASURES TO PREVENT:
   1. DUST AND PARTICULATE RELATED AIR POLLUTION LEAVING THE SITE SEDIMENTATION FROM ENTERING OFF-SITE AND/OR ON-SITE STORM SEWERS AND CATCHMENT BASINS

7. APPROPRIATE MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO: SITE WORK STAGED TO REDUCE THE DURATION OF EXPOSED SITE SOILS, USE OF GRAVEL AND/OR MULCH AS TEMPORARY COVER, SPRAYING OF SITE SOILS WITH WATER TO DAMPEN AND MITIGATE DUST DURING DRY CONDITIONS, COVERING STOCKPILED SOILS WITH A TARP, ETC.

8. CONTRACTOR SHALL NOT BE PERMITTED TO USE EXISTING UNDERDRAINS FOR STORM DRAINAGE PURPOSES DURING CONSTRUCTION.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JCS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

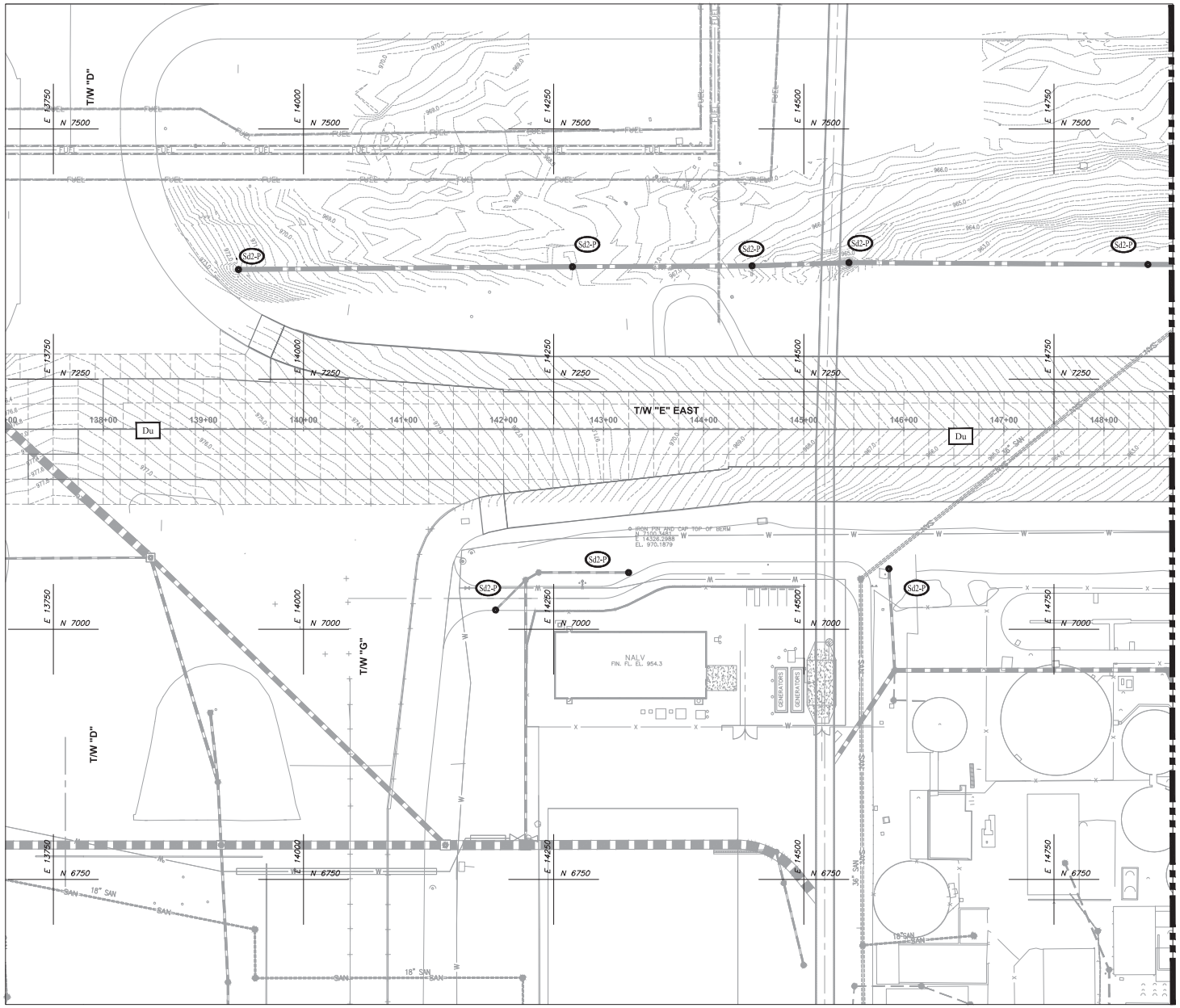
EROSION CONTROL PLAN

SHEET No

C 13.01.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 4:20 PM
C:\PW_WORK\ATLANG01\MATTHEW.COLLINS\D0G0E452\46586-C 13.01.1 EROSION CONTROL PLAN.DWG



LEGEND

Sd2-P INLET PROTECTION - GRAVEL FILTER BAGS

Du DUST CONTROL

SEE SHEET C13.05.1 FOR DETAILS

NOTES

1. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH LAND-DISTURBING ACTIVITIES.

2. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE, OR AS DIRECTED BY THE EROSION CONTROL INSPECTOR.

3. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING

4. EROSION CONTROL MEASURES WILL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RAIN, AND REPAIRED BY CONTRACTOR. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ONSITE INSPECTION.

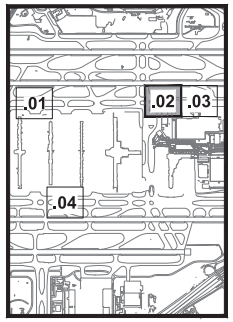
5. ALL SITE SOILS EXPOSED DURING DEMOLITION AND CONSTRUCTION, INCLUDING SOIL STOCKPILED/STORED ON SITE, MUST BE PROTECTED FROM WIND AND RAIN EROSION THROUGH THE USE OF APPROPRIATE TEMPORARY MEASURES.

6. CONTRACTOR TO EMPLOY SUFFICIENT MEASURES TO PREVENT:
   1. DUST AND PARTICULATE RELATED AIR POLLUTION LEAVING THE SITE SEDIMENTATION FROM ENTERING OFF-SITE AND/OR ON-SITE STORM SEWERS AND CATCHMENT BASINS

7. APPROPRIATE MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO: SITE WORK STAGED TO REDUCE THE DURATION OF EXPOSED SITE SOILS, USE OF GRAVEL AND/OR MULCH AS TEMPORARY COVER, SPRAYING OF SITE SOILS WITH WATER TO DAMPEN AND MITIGATE DUST DURING DRY CONDITIONS, COVERING STOCKPILED SOILS WITH A TARP, ETC.

8. CONTRACTOR SHALL NOT BE PERMITTED TO USE EXISTING UNDERDRAINS FOR STORM DRAINAGE PURPOSES DURING CONSTRUCTION.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JCS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
ADP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

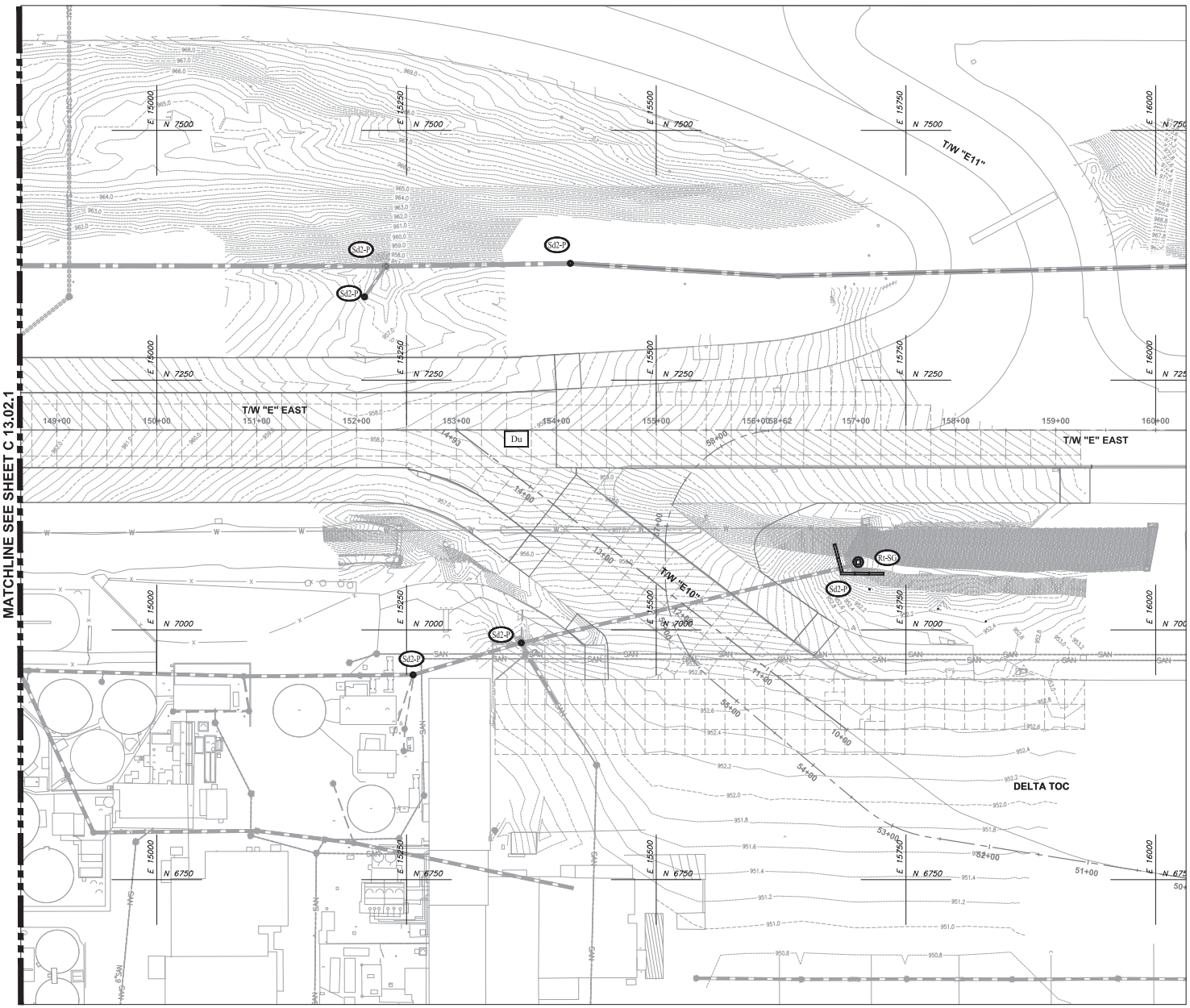
EROSION CONTROL PLAN

SHEET No

C 13.02.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 1:39 PM
C:\PW_WORK\ATWAG401\MATTHEW.COLLINS\D60R6452\46586-C 13.01.1 EROSION CONTROL PLAN.DWG



LEGEND

- Sd2-P — INLET PROTECTION - GRAVEL FILTER BAGS
- Sd2-P — 8" CONC. BLOCK WRAPPED IN FILTER FABRIC
- Du — DUST CONTROL
- Re-SO — SLOTTED BOARD DAM WITH STONE OR FILTER FABRIC

SEE SHEET C13.05.1 FOR DETAILS

NOTES

1. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH LAND-DISTURBING ACTIVITIES.

2. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE, OR AS DIRECTED BY THE EROSION CONTROL INSPECTOR.

3. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING

4. EROSION CONTROL MEASURES WILL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RAIN, AND REPAIRED BY CONTRACTOR. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ONSITE INSPECTION.

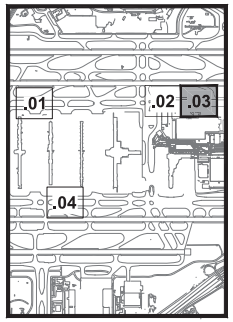
5. ALL SITE SOILS EXPOSED DURING DEMOLITION AND CONSTRUCTION, INCLUDING SOIL STOCKPILED/STORED ON SITE, MUST BE PROTECTED FROM WIND AND RAIN EROSION THROUGH THE USE OF APPROPRIATE TEMPORARY MEASURES.

6. CONTRACTOR TO EMPLOY SUFFICIENT MEASURES TO PREVENT:
   1. DUST AND PARTICULATE RELATED AIR POLLUTION LEAVING THE SITE SEDIMENTATION FROM ENTERING OFF-SITE AND/OR ON-SITE STORM SEWERS AND CATCHMENT BASINS

7. APPROPRIATE MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO: SITE WORK STAGED TO REDUCE THE DURATION OF EXPOSED SITE SOILS, USE OF GRAVEL AND/OR MULCH AS TEMPORARY COVER, SPRAYING OF SITE SOILS WITH WATER TO DAMPEN AND MITIGATE DUST DURING DRY CONDITIONS, COVERING STOCKPILED SOILS WITH A TARP, ETC.

8. CONTRACTOR SHALL NOT BE PERMITTED TO USE EXISTING UNDERDRAINS FOR STORM DRAINAGE PURPOSES DURING CONSTRUCTION.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JCS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

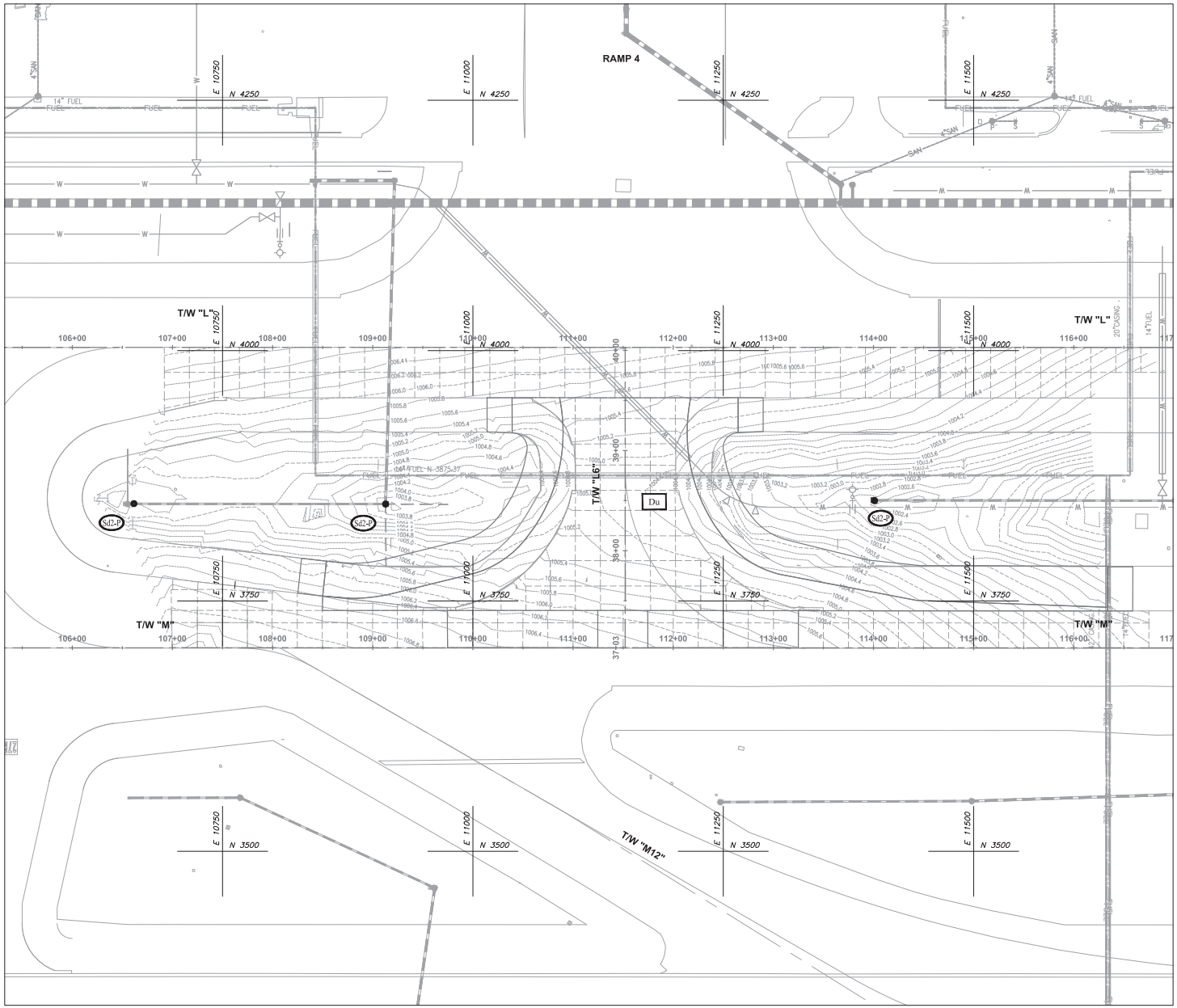
SHEET NAME

EROSION CONTROL PLAN

SHEET No

C 13.03.1

2/11/2016 4:33 PM
C:\PW_WORK\ATWA0001\MATTHEW.COLLINS\DMS06452\146586-C 13.01.1 EROSION CONTROL PLAN.DWG



LEGEND

Sd2-P INLET PROTECTION - GRAVEL FILTER BAGS

Du DUST CONTROL

SEE SHEET C13.05.1 FOR DETAILS

NOTES

1. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH LAND-DISTURBING ACTIVITIES.

2. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE, OR AS DIRECTED BY THE EROSION CONTROL INSPECTOR.

3. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING

4. EROSION CONTROL MEASURES WILL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RAIN, AND REPAIRED BY CONTRACTOR. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ONSITE INSPECTION.

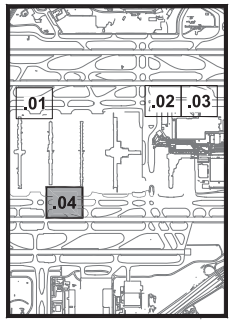
5. ALL SITE SOILS EXPOSED DURING DEMOLITION AND CONSTRUCTION, INCLUDING SOIL STOCKPILED/STORED ON SITE, MUST BE PROTECTED FROM WIND AND RAIN EROSION THROUGH THE USE OF APPROPRIATE TEMPORARY MEASURES.

6. CONTRACTOR TO EMPLOY SUFFICIENT MEASURES TO PREVENT:
   1. DUST AND PARTICULATE RELATED AIR POLLUTION LEAVING THE SITE SEDIMENTATION FROM ENTERING OFF-SITE AND/OR ON-SITE STORM SEWERS AND CATCHMENT BASINS

7. APPROPRIATE MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO: SITE WORK STAGED TO REDUCE THE DURATION OF EXPOSED SITE SOILS, USE OF GRAVEL AND/OR MULCH AS TEMPORARY COVER, SPRAYING OF SITE SOILS WITH WATER TO DAMPEN AND MITIGATE DUST DURING DRY CONDITIONS, COVERING STOCKPILED SOILS WITH A TARP, ETC.

8. CONTRACTOR SHALL NOT BE PERMITTED TO USE EXISTING UNDERDRAINS FOR STORM DRAINAGE PURPOSES DURING CONSTRUCTION.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JCS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

EROSION CONTROL PLAN

SHEET No

C 13.04.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 1:41 PM
C:\PW_WORK\ATWA0401\MATTHEW.COLLINS\DMS06452\146586-C 13.01.1 EROSION CONTROL PLAN.DWG

DEFINITION

CONTROLLING SURFACE AND AIR MOVEMENT OF DUST ON CONSTRUCTION SITES, ROADS, AND DEMOLITION SITES.

PURPOSE

-TO PREVENT SURFACE AND AIR MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES
-TO REDUCE THE PRESENCE OF AIRBORNE SUBSTANCES WHICH MAY BE HARMFUL OR INJURIOUS TO HUMAN HEALTH, WELFARE, OR SAFETY, OR TO ANIMALS OR PLANT LIFE.

CONDITIONS

THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO SURFACE AND AIR MOVEMENT OF DUST WHERE ON AND OFF-SITE DAMAGE MAY OCCUR WITHOUT TREATMENT.

METHODS AND MATERIALS

TEMPORARY METHODS:

MULCHES SEE STANDARD Ds1 - DISTURBED AREA STABILIZATION (WITH MULCHING ONLY). SYNTHETIC RESINS MAY BE USED INSTEAD OF ASPHALT TO BIND MULCH MATERIAL. REFER TO STANDARD Tb-TACKIFIERS AND BINDERS. RESINS SUCH AS CURASOL OR TERRATACK SHOULD BE USED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

VEGETATIVE COVER SEE STANDARD Ds2 - DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING).

SPRAY-ON ADHESIVES THESE ARE USED ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS. REFER TO STANDARD Tb-TACKIFIERS AND BINDERS.

TILLAGE THIS PRACTICE IS DESIGNED TO ROUGHEN AND BRING CLODS TO THE SURFACE. IT IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE WIND EROSION STARTS. BEGIN PLOWING ON WINDWARD SIDE OF THE SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART, SPRING TOOTHED HARROWS, AND SIMILAR PLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.

IRRIGATION THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS WET. REPEAT AS NEEDED.

BARRIERS SOLID BOARD FENCES, SNOWFENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 15 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING WIND EROSION CALCIUM CHLORIDE APPLY AT A RATE THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.

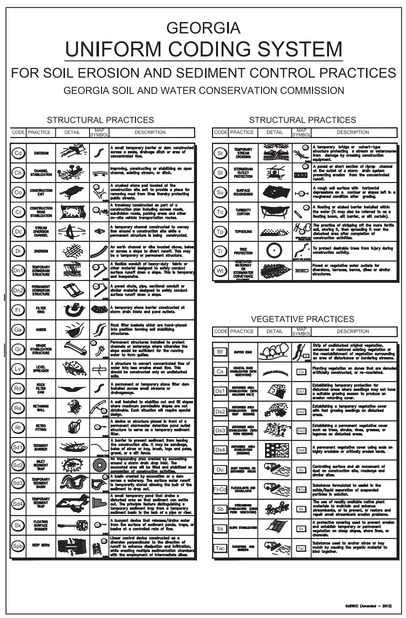
PERMANENT METHODS

PERMANENT VEGETATION SEE STANDARD Ds3 - DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION) EXISTING TREES AND LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.

TOPSOILING THIS ENTAILS COVERING THE SURFACE WITH LESS EROSIVE SOIL MATERIAL. SEE STANDARD Tp-TOPSOILING.

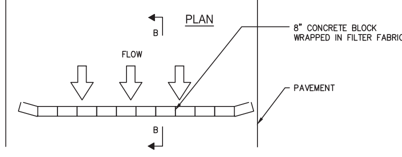
STONE COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL. SEE STANDARD Cr-CONSTRUCTION ROAD STABILIZATION.

Du — DUST CONTROL ON DISTURBED AREAS
N.T.S.

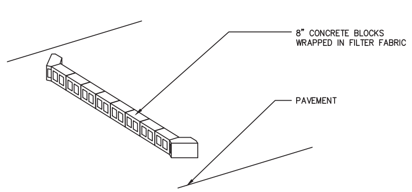


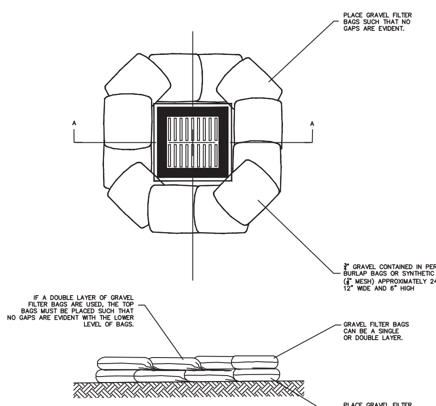
BLOCK FILTER "PIGS IN BLANKET"

Sd2-P



NOTES:
1. INSTALL FILTER AFTER ANY ASPHALT PAVEMENT INSTALLATION.
2. WRAP 8" CONCRETE BLOCKS IN FILTER FABRIC AND SPAN ACROSS TAXIWAY
3. FACE OPENINGS IN BLOCKS OUTWARD.





GRAVEL FILTER BAGS
N.T.S.

INLET PROTECTION

Sd2-P

NOTE:
FINAL EROSION CONTROL MEASURES TO BE PLACED AS DIRECTED BY THE ENGINEER.

NON-STORM WATER DISCHARGES

NON-STORM WATER DISCHARGES AS DEFINED IN PART III.A.2 OF NPDES PERMIT WILL BE IDENTIFIED AFTER CONSTRUCTION HAS COMMENCED AND SHALL BE SUBJECT TO THE SAME REQUIREMENTS AS STORM WATER DISCHARGES AS REQUIRED BY THE GEORGIA EROSION AND SEDIMENTATION CONTROL ACT, THE NPDES PERMIT, THE CLEAN WATER ACT, THE MANUAL FOR EROSION CONTROL IN GEORGIA, DEPARTMENT STANDARDS, AND CONTRACT DOCUMENTS.

PETROLEUM SPILLS & LEAKS

ANY LEAKS OR SPILLS OF PETROLEUM PRODUCTS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTAIN, CONTROL, AND REMEDIATE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL GUIDELINES, ORDINANCES, AND LAWS.

CONTROL OF POLLUTANTS: POLLUTANTS OR POTENTIALLY HAZARDOUS MATERIALS, SUCH AS FUELS, LUBRICANTS, LEAD PAINT, CHEMICALS OR BATTERIES, SHALL BE TRANSPORTED, STORED AND UTILIZED IN A MANNER TO PREVENT LEAKAGE OR SPILLAGE INTO THE ENVIRONMENT. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PROPER AND LEGAL DISPOSAL OF ALL SUCH MATERIALS. EQUIPMENT, ESPECIALLY CONCRETE OR ASPHALT TRUCKS, SHALL NOT BE WASHED OR CLEANED OUT ON THE PROJECT EXCEPT IN AREAS WHERE UNUSED PRODUCT CONTAMINANTS CAN BE PREVENTED FROM ENTERING WATERWAYS.

OTHER CONTROLS

THE CONTRACTOR SHALL FOLLOW THIS ESPCP AND ENSURE AND DEMONSTRATE COMPLIANCE WITH APPLICABLE STATE AND OR LOCAL WASTE DISPOSAL, SANITARY SEWER OR SEPTIC SYSTEM REGULATIONS.

WASTE DISPOSAL

SOLID MATERIALS, INCLUDING BUILDING MATERIALS, SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY SECTION 404 PERMIT.

INSPECTIONS

ALL INSPECTIONS SHALL BE DOCUMENTED ON FORM DOT-EC-1.

DAILY:

DAILY INSPECTIONS SHALL BE CONDUCTED BY THE WORKSITE EROSION CONTROL SUPERVISOR (WECS) OR QUALIFIED PERSONNEL ON THE FOLLOWING AREAS:

A. PETROLEUM PRODUCT STORAGE, USAGE AND HANDLING AREAS
B. ALL LOCATIONS WHERE VEHICLES ENTER/EXIT THE SITE
C. MEASURE RAINFALL ONCE EACH TWENTY FOUR HOUR PERIOD AT THE SITE

WEEKLY AND AFTER RAINFALL EVENTS:

THE FOLLOWING AREAS SHALL BE INSPECTED BY THE WECS OR QUALIFIED PERSONNEL EVERY SEVEN (7) CALENDAR DAYS AND WITHIN TWENTY-FOUR (24) HOURS OF THE END OF A RAINFALL EVENT THAT IS 0.5 INCHES GREATER:

A. DISTURBED AREAS NOT PERMANENTLY STABILIZED
B. MATERIAL STORAGE AREAS
C. STRUCTURAL CONTROL MEASURES (BMP'S)

WITHIN 7 CALENDAR DAYS AFTER THE INITIAL INSTALLATION OF THE EROSION CONTROL DEVICES REQUIRED BY THE EROSION CONTROL PLAN, THE CONTRACTOR'S ENGINEER SHALL INSPECT THE INSTALLATION AND CONDITION OF EACH DEVICE. THIS INSPECTION SHALL BE PERFORMED FOR EACH STAGE OF CONSTRUCTION WHEN NEW DEVICES ARE INSTALLED. ALL DEFICIENCIES SHALL BE REPORTED IN WRITING TO THE CONTRACTOR AND CONSTRUCTION MANAGER, AND CORRECTIONS SHALL BE MADE WITHIN TWO BUSINESS DAYS.

MONTHLY:

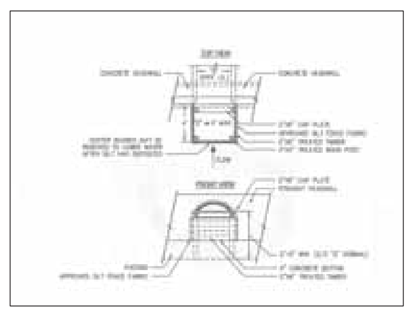
ONCE PER MONTH, THE WECS OR QUALIFIED PERSONNEL SHALL INSPECT ALL AREAS WHERE FINAL STABILIZATION HAS BEEN COMPLETED. THESE AREAS SHALL BE INSPECTED FOR EVIDENCE OF SEDIMENTS OR POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND OR RECEIVING WATERS. ANY EROSION CONTROL DEVICES THAT REMAIN IN PLACE SHALL BE INSPECTED TO VERIFY THE MAINTENANCE STATUS AND THAT THE DEVICES ARE FUNCTIONING PROPERLY.

THESE INSPECTIONS SHALL CONTINUE UNTIL THE NOTICE OF TERMINATION IS SUBMITTED.

FAILURE TO PERFORM INSPECTIONS AS REQUIRED BY THE CONTRACT DOCUMENTS AND THE NPDES PERMIT SHALL RESULT IN THE CESSATION OF ALL CONSTRUCTION ACTIVITIES WITH THE EXCEPTION OF TRAFFIC CONTROL AND EROSION CONTROL. CONTINUED FAILURE TO PERFORM INSPECTIONS SHALL RESULT IN NON-REFUNDABLE DEDUCTIONS AS SPECIFIED IN THE CONTRACT DOCUMENTS.

ANY DISTURBED AREAS REMAINING IDLE FOR 30 DAYS SHALL BE STABILIZED WITH PERMANENT VEGETATION. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IF DETERMINED NECESSARY BY ON-SITE INSPECTION.

WASHOUT OF DRUMS AND WASHDOWN OF TOOLS INCLUDING, BUT NOT LIMITED TO CONCRETE MIXER CHUTES, HOPPERS AND THE REAR OF VEHICLES IS PROHIBITED ON THE PROJECT SITE.



SLOTTED BOARD DAM WITH STONE OR FILTER FABRIC
N.T.S.

Rt-SG

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED. SILT FENCE SHALL BE CLEANED WHEN SILT REACHES HALF WAY TO THE TOP WHETHER FENCE "BULGES" OR NOT.
5. ALL SILT FENCE MATERIALS MUST BE LISTED ON THE CURRENT GA. D.O.T. QUALIFIED PRODUCTS LIST #36.

POSTS: STEEL T
FENCE: WOVEN WIRE, 14 GA.
6" MAX. MESH OPENING.
AS DIRECTED BY CITY OF ATLANTA

FILTER CLOTH: FILTER X, MIRAFI 100X'
STABILINKA T140N OR APPROVED EQUAL.

PREFABRICATED UNIT: GEOFAB
ENVIROFENCE OR APPROVED EQUAL

ESPCP GENERAL NOTES

THE EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN (ESPCP) IS PROVIDED BY THE CONTRACTOR'S ENGINEER. AT MINIMUM, CONTRACTOR SHALL INSTALL INLET PROTECTION AROUND NEARBY INLETS AS WELL AS CONSTRUCTION EXITS. IN ADDITION, SILT FENCE SHOULD BE INSTALLED WHERE APPROPRIATE. IF THE CONTRACTOR ELECTS TO ALTER THE STAGE CONSTRUCTION FROM THAT SHOWN IN THE PLANS, AND THE ENGINEER APPROVES THE REQUEST, IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REVISE THE ESPCP TO REFLECT ALL CHANGES IN STAGING. THIS WILL ALSO INCLUDE ANY REVISIONS TO EROSION AND SEDIMENTATION CONTROL ITEM QUANTITIES. MAJOR MODIFICATION OR DELETION OF SPECIFIED STRUCTURAL BMP'S THAT ARE SPECIFIED IN THE ESPCP WILL REQUIRE A FORMAL REVISION OF THE ESPCP AND THE SIGNATURE OF THE GSWCC LEVEL II DESIGN PROFESSIONAL. ADDITIONAL BMP'S MAY BE ADDED AS DIRECTED BY THE ENGINEER.

AMMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE SIGNIFICANT EFFECT ON BMP'S WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL. USE EROSION CONTROL MATTING ON ALL SLOPES STEEPER THAN 2.5H:1V ALL RIP RAP SHALL BE STONE DUMPED RIP RAP TYPE 3 AS PER THE GEORGIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS. ALL PADS SHALL BE PLACED AT 0% GRADE. ALL REMAINING DISTURBED AREAS SHALL BE GRASSED.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND DISTURBING ACTIVITIES.

SILT FENCE INSTALLATIONS WITH J-HOOKS & SPURS

SILT FENCE SHOULD NEVER RUN CONTINUOUS WITHOUT J-HOOKS OR SPURS. THE SILT FENCE SHOULD TURNBACK INTO THE FILL OR SLOPE TO CREATE SMALL POCKETS THAT TRAP SILT AND FORCE STORMWATER TO FLOW THROUGH THE SILT FENCE. THIS TECHNIQUE OR CONFIGURATION IS COMMONLY REFERRED TO AS J-HOOKS OR SPURS. THE J-HOOKS OR SPURS SHALL BE INSTALLED ON ALL SILT FENCES THAT ARE LOCATED AROUND THE PERIMETER OF THE PROJECT AND ALONG THE TOE OF EMBANKMENTS OF SLOPES. THE J-HOOKS AND SPURS SHALL BE SPACED IN ACCORDANCE WITH THE TYPICAL LOCATION DETAILS FOR SILT FENCES/BALED STRAW. SPACING FOR J-HOOKS OR SPURS SHALL NOT BE LESS THAN 50 FEET EXCEPT AS NOTED. SILT FENCES ARE NEAR THE OUTLET OF CULVERTS, CROSS DRAINS, AND STORM DRAINS SHALL HAVE A MINIMUM OF 3 J-HOOKS OR SPURS ON BOTH SIDES OF THE STRUCTURE AT SPACING NOT TO EXCEED 30 FEET. J-HOOKS OR SPURS SHALL BE PAID FOR AS SILT FENCE ITEMS PER FOOT. ALL COSTS AND OTHER INCIDENTAL ITEMS ARE INCLUDED IN COST OF INSTALLING AND MAINTAINING THE SILT FENCE.

SILT FENCE SHALL MEET THE REQUIREMENTS OF SECTION 171 - TYPE C TEMPORARY SILT FENCE, OF GEORGIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, 1993 EDITION, AND BE WIRE REINFORCED.

MAINTENANCE & STABILIZATION MEASURES

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

ALL STRUCTURAL BMP'S SHALL BE MAINTAINED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. ALL SEDIMENT CONTROL DEVICES (EXCEPT SEDIMENT BASINS) INSTALLED ON A PROJECT SHALL AS A MINIMUM BE CLEANED OF SEDIMENT WHEN ONE-HALF THE CAPACITY, BY HEIGHT, DEPTH, OR VOLUME HAS BEEN REACHED. SEDIMENT BASINS SHALL BE CLEANED OF SEDIMENT WHEN ONE-THIRD THE CAPACITY BY VOLUME HAS BEEN REACHED.

AS A MINIMUM THE CONTRACTOR SHALL COMPLETE THE PERMANENT GRASSING, OR TEMPORARY GRASSING, OR MULCHING, AS APPROPRIATE AND IN ACCORDANCE WITH CONTRACT DOCUMENTS ON ALL FILL SLOPES ON A WEEKLY BASIS DURING GRADING OPERATIONS. WHEN CONDITIONS WARRANT, THE ENGINEER MAY REQUIRE MORE FREQUENT INTERVALS FOR THIS WORK. IT IS EXTREMELY IMPORTANT TO GET A STABILIZING COVER IN PLACE, WHETHER IT IS MULCH, TEMPORARY GRASS OR PERMANENT GRASS. ADEQUATE MULCH IS A MUST.

WHEN GRADING OPERATIONS OR OTHER SOIL DISTURBING ACTIVITIES HAVE BEEN SUSPENDED, FOR WHATEVER REASON, THE CONTRACTOR SHALL PROMPTLY PERFORM NEEDED GRASSING WORK AND/OR EROSION CONTROL WORK AS SHOWN IN THE PLANS, SUBMITTED BY THE CONTRACTOR OR AS DIRECTED BY THE ENGINEER.

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

TEMPORARY GRASS SHALL BE USED WHEN REQUIRED BY THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE ENGINEER TO CONTROL EROSION IN AREAS WHERE PERMANENT GRASSING CANNOT BE PLANTED. TEMPORARY GRASS SHALL BE USED WHERE AN AREA MUST BE PROTECTED FOR LONGER THAN MULCH IS EXPECTED TO LAST WHICH IS 60 CALENDAR DAYS, AREAS WITH ONLY MULCH SHALL BE PLANTED WITH TEMPORARY GRASS AND MULCHED AGAIN.

TEMPORARY GRASS SHALL BE A QUICK GROWING SPECIES SUITABLE TO THE AREA AND SEASON. SEEDS SHALL CONFORM TO THE REQUIREMENTS OF CONTRACT DOCUMENTS. SEEDING SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. EXCEPT THAT GROUND PREPARATION SHALL BE THE MINIMUM REQUIRED TO PROVIDE A SEED BED WHERE FURTHER GRADING WILL BE REQUIRED. AREAS THAT REQUIRE NO FURTHER GRADING SHALL BE PREPARED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. LIME SHALL BE OMITTED UNLESS THE AREA WILL LATER BE PLANTED IN PERMANENT GRASS WITHOUT FURTHER GRADING; IN WHICH CASE, LIME WILL BE APPLIED AT THE RATE OF 400 POUNDS PER ACRE. NITROGEN SHALL BE OMITTED. ALL TEMPORARY GRASS SHALL BE MULCHED IN ACCORDANCE WITH CONTRACT DOCUMENTS.

WHERE STAGED CONSTRUCTION (OR OTHER CONDITIONS NOT CONTROLLED BY THE CONTRACTOR) PROHIBITS THE COMPLETION OF AN AREA, THE CONTRACTOR SHALL APPLY MULCH TO CONTROL EROSION FOR A PERIOD OF 60 CALENDAR DAYS, AREAS STABILIZED WITH ONLY MULCH SHALL BE PLANTED WITH TEMPORARY GRASS AND MULCHED AGAIN.

MULCH SHALL BE APPLIED AND UNIFORMLY SPREAD IN ACCORDANCE WITH CONTRACT DOCUMENTS.

WHEN GRASSING OPERATIONS BEGIN, MULCH SHALL BE LEFT IN PLACE AND PLOWED INTO THE SOIL DURING THE PROCESS OF SEEDBED PREPARATION, THEREBY BECOMING BENEFICIAL PLANT FOOD FOR THE NEWLY PLANTED GRASS. MULCH REQUIRED FOR PROTECTION OF NEWLY PLANTED GRASS SHALL BE IN ADDITION TO THE MULCH SPECIFIED HEREIN.

CITY OF ATLANTA, GEORGIA
HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT
PROGRAM TEAM
HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM
ABSolute joint venture

DESIGN TEAM

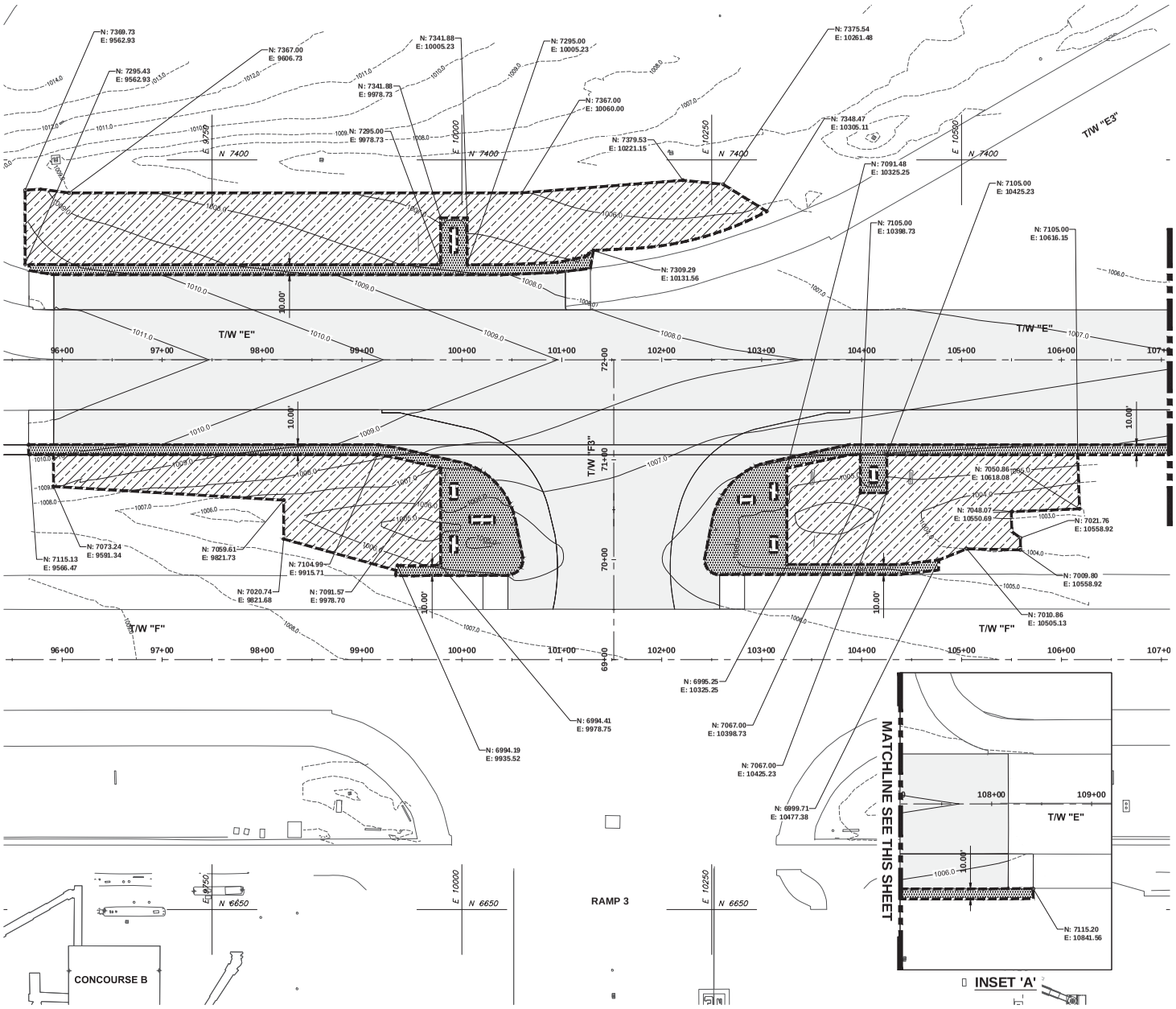
DESIGN BY	JCS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
H-JDP WBS No	D.02.90.017

PROJECT ELEMENT
AIRSIDE
PROJECT NAME
TAXIWAY PAVEMENT REPLACEMENT 2016
ISSUED FOR
BID
DATE
FEBRUARY 16, 2016
SHEET NAME
EROSION CONTROL DETAILS
SHEET No
C 13.05.1

NOT ISSUED FOR CONSTRUCTION



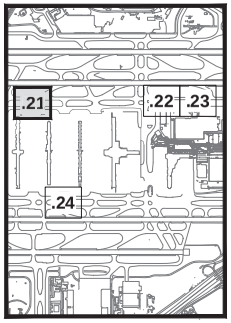
LEGEND

- PROPOSED PAVEMENT REPLACEMENT
- SODDING LIMITS
- SEEDING LIMITS

NOTES

1. ALL COORDINATES SHOWN ON THESE PLANS ARE BASED ON THE H-JAIA GRID SYSTEM.
2. CONTRACTOR SHALL SOD AND SEED AREAS SHOWN AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTRURBED AREAS AS DIRECTED BY THE ENGINEER.
3. SEE DETAIL 8, SHEET C 01.02.1 FOR SODDING DETAILS.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	AWW
H-JIP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

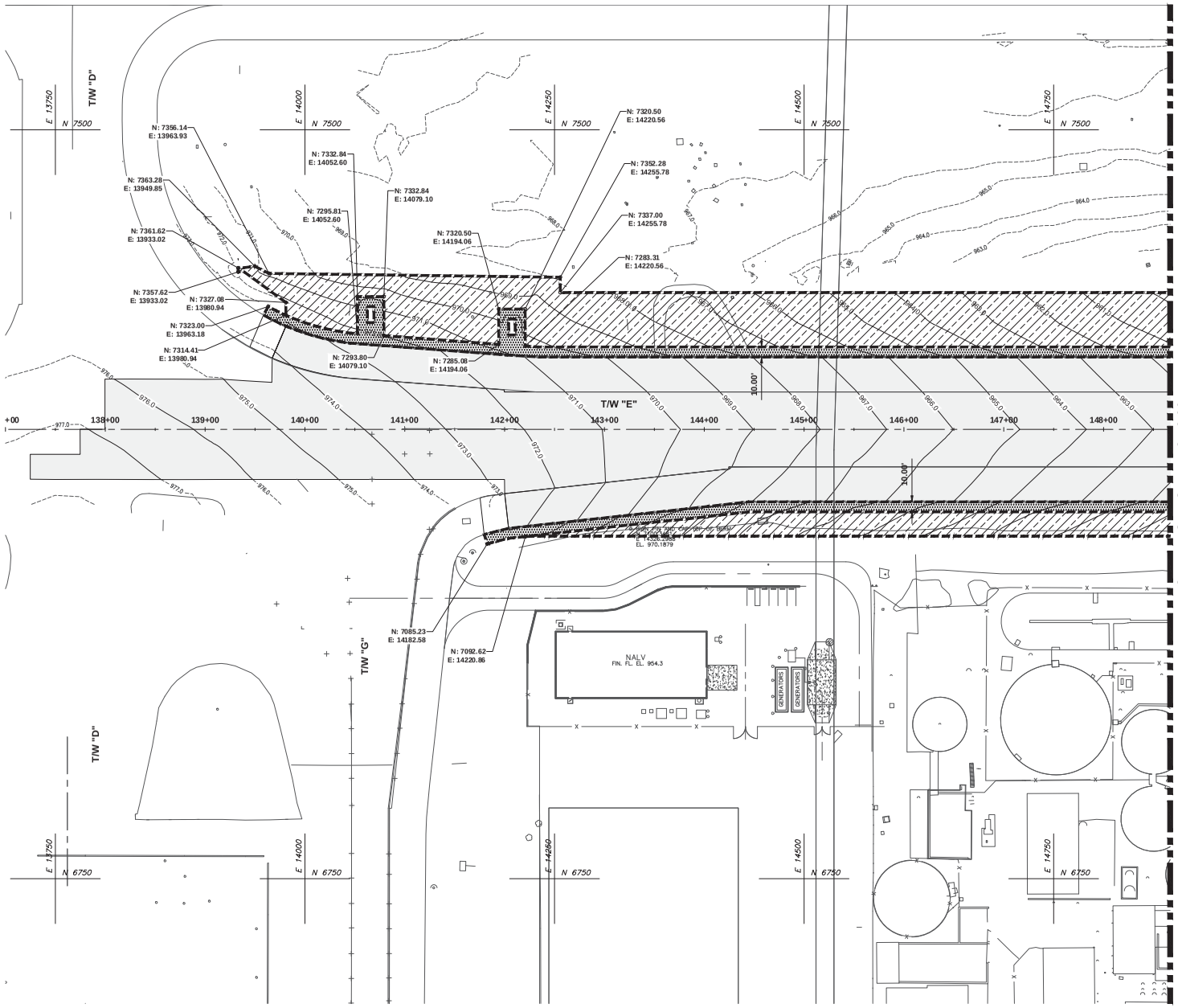
SHEET NAME

SOD AND SEEDING PLAN

SHEET No

C 13.21.1

2/12/2016 6:09 PM
C:\PW_WORK\ATRNAD01\GRA7517\D0450452\46586-C 13.21.1 SOD AND GRASSING PLAN.DWG



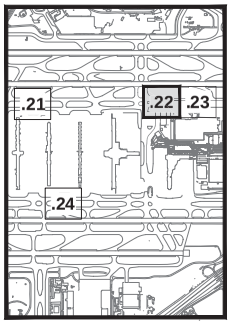
LEGEND

- PROPOSED PAVEMENT REPLACEMENT
- SODDING LIMITS
- SEEDING LIMITS

NOTES

1. ALL COORDINATES SHOWN ON THESE PLANS ARE BASED ON THE H-JAIA GRID SYSTEM.
2. CONTRACTOR SHALL SOD AND SEED AREAS SHOWN AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTRURBED AREAS AS DIRECTED BY THE ENGINEER.
3. SEE DETAIL 8, SHEET C 01.02.1 FOR SODDING DETAILS.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	WWW
H-ZIP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

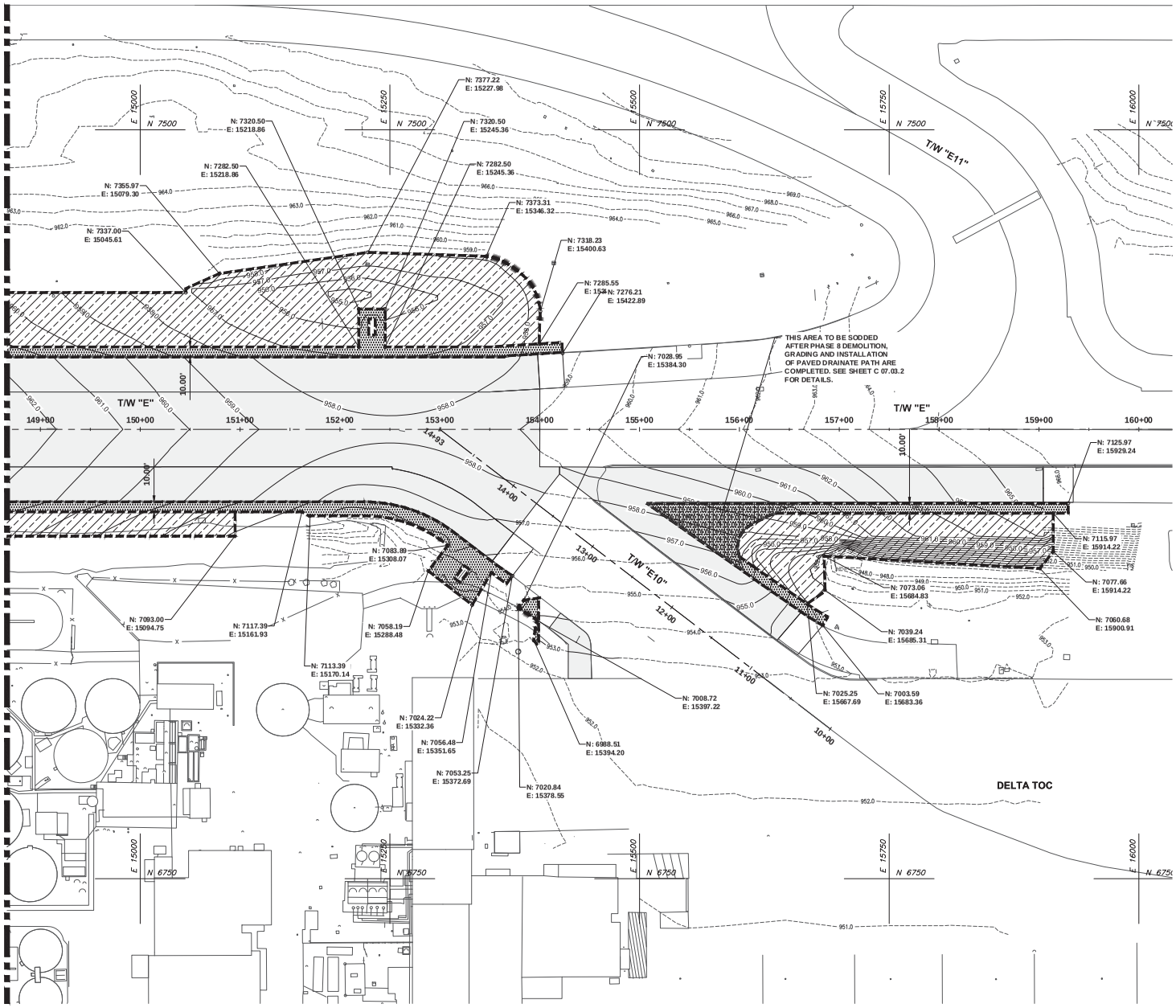
SOD AND SEEDING PLAN

SHEET No

C 13.22.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 6:10 PM
C:\PW_WORK\ATRNAD01\GRA7517\D0450452\46586~C 13.20.1 SOD AND GRASSING PLAN.DWG



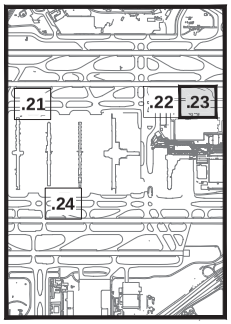
LEGEND

- PROPOSED PAVEMENT REPLACEMENT
- SODDING LIMITS
- SEEDING LIMITS

NOTES

1. ALL COORDINATES SHOWN ON THESE PLANS ARE BASED ON THE H-JAIA GRID SYSTEM.
2. CONTRACTOR SHALL SOD AND SEED AREAS SHOWN AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTRURBED AREAS AS DIRECTED BY THE ENGINEER.
3. SEE DETAIL 8, SHEET C 01.02.1 FOR SODDING DETAILS.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	WWW
HJDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

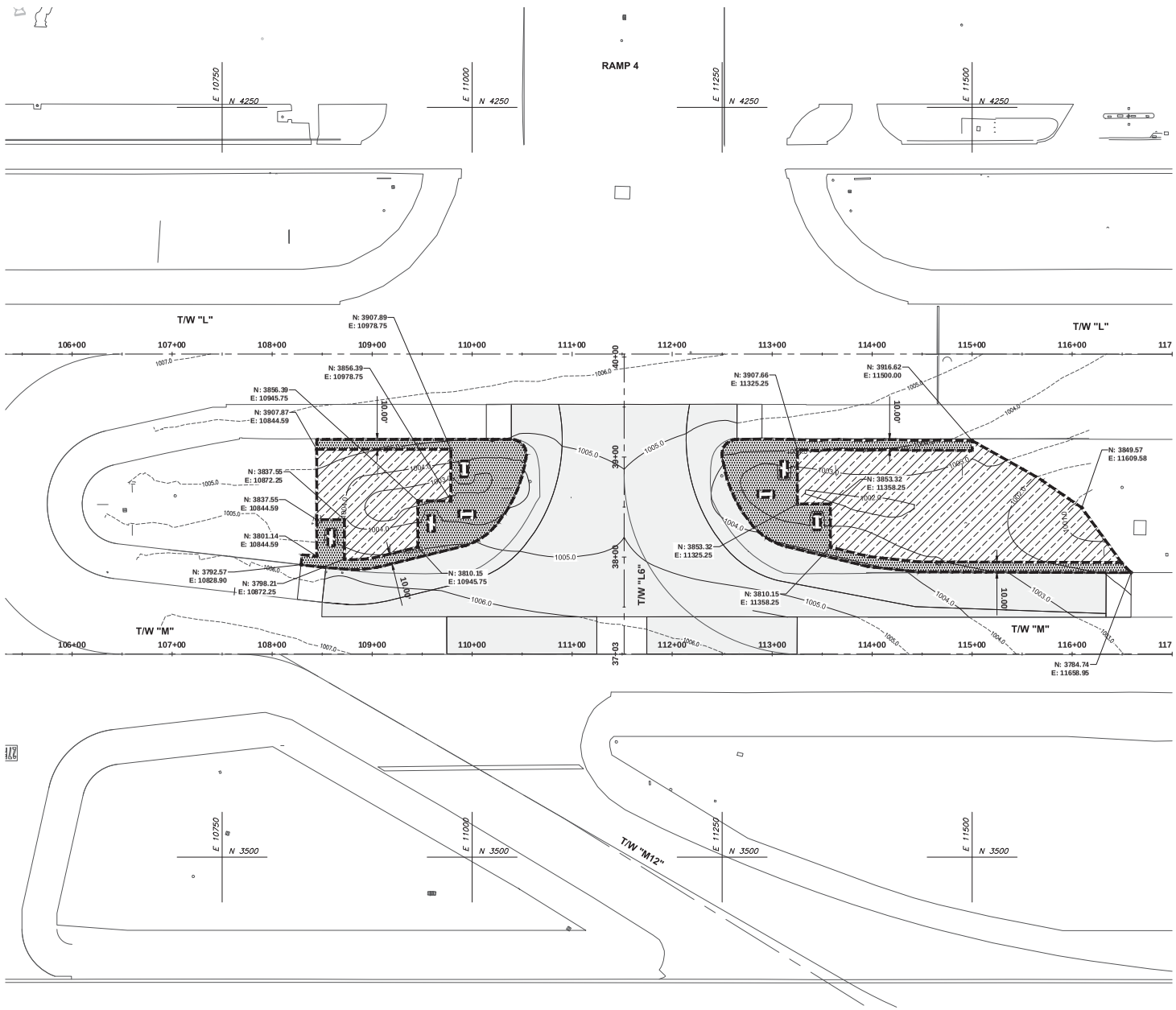
SOD AND SEEDING PLAN

SHEET No

C 13.23.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 6:11 PM
C:\PW_WORK\ATRNAD01\GRA7517\DMS0452\46586-C 13.20.1 SOD AND GRASSING PLAN.DWG



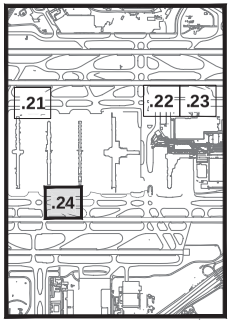
LEGEND

- PROPOSED PAVEMENT REPLACEMENT
- SODDING LIMITS
- SEEDING LIMITS

NOTES

1. ALL COORDINATES SHOWN ON THESE PLANS ARE BASED ON THE H-JAIA GRID SYSTEM.
2. CONTRACTOR SHALL SOD AND SEED AREAS SHOWN AS A MINIMUM. IN ADDITION CONTRACTOR SHALL SOD OR SEED ANY DISTRURBED AREAS AS DIRECTED BY THE ENGINEER.
3. SEE DETAIL 8, SHEET C 01.02.1 FOR SODDING DETAILS.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	MJI
DRAWN BY	MJI
CHECKED BY	WGS
APPROVED BY	SLK

PROJECT INFORMATION

COA CONTRACT No	PC-6684
DOA PROJECT No	###
H-JIP WBS No	D.02.00.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

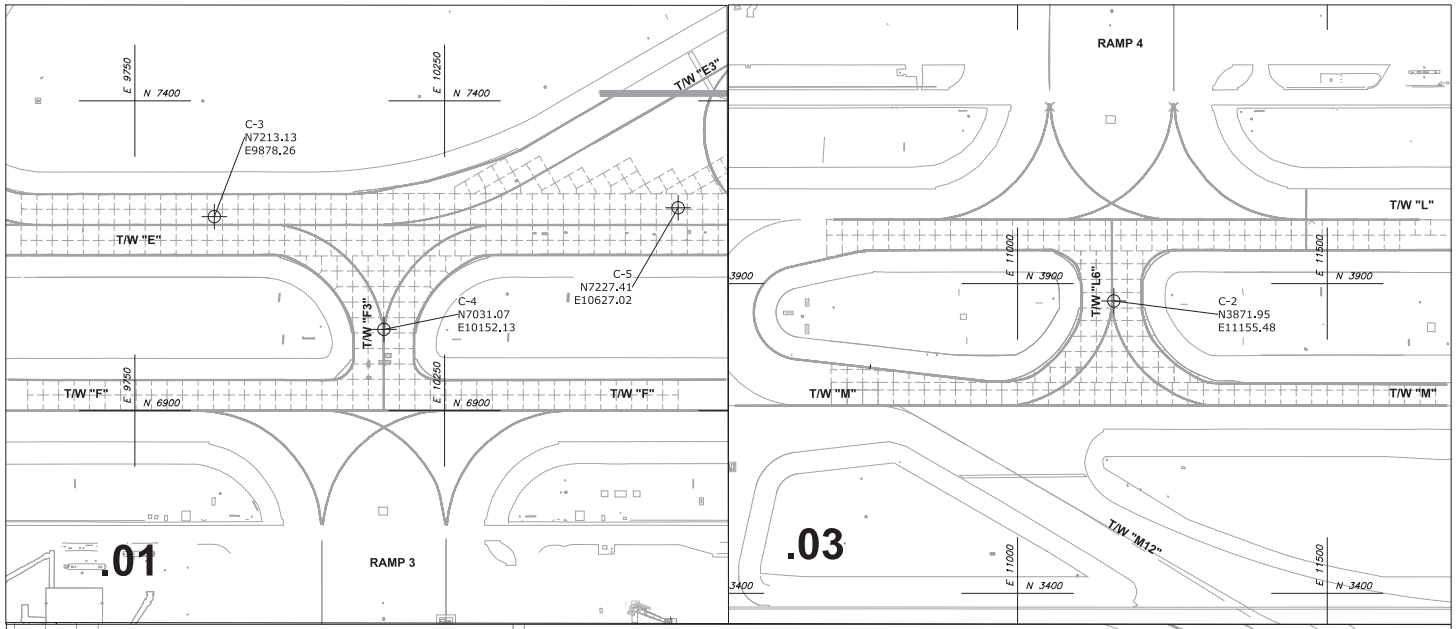
SOD AND SEEDING PLAN

SHEET No

C 13.24.1

NOT ISSUED FOR CONSTRUCTION

2/12/2016 6:12 PM
C:\PW_WORK\ATRNAGA01\GRA7517\DAS90452\46586-C 13.20.1 SOD AND GRASSING PLAN.DWG



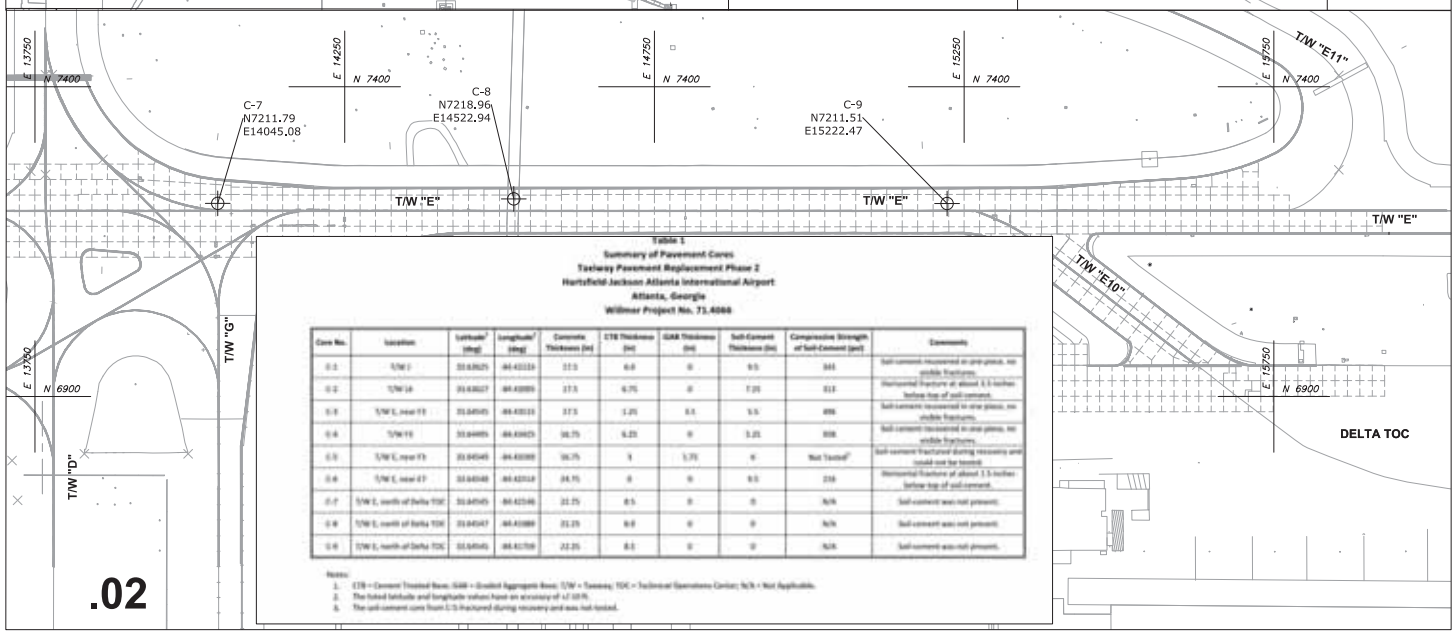


Table 1
Summary of Pavement Cores
Taxiway Pavement Replacement Phase 2
Hartsfield-Jackson Atlanta International Airport
Atlanta, Georgia
Wilbmer Project No. 71.4066

Core No.	Location	Latitude[1] (deg)	Longitude[1] (deg)	Concrete Thickness (in)	CTB Thickness (in)	GAB Thickness (in)	Soil-Cement Thickness (in)	Compressive Strength of Soil-Cement (psi)	Comments
C-1	T/W E	33.63625	-84.42133	17.5	6.0	0	9.5	341	Soil-cement recovered in one piece, no visible fractures.
C-2	T/W L6	33.63627	-84.43895	17.5	6.75	0	7.25	312	Horizontal fracture at about 1.5 inches below top of soil-cement.
C-3	T/W E, near F3	33.64545	-84.43213	17.5	1.25	5.5	5.5	496	Soil-cement recovered in one piece, no visible fractures.
C-4	T/W F3	33.64495	-84.43625	16.75	6.25	0	3.25	318	Soil-cement recovered in one piece, no visible fractures.
C-5	T/W E, near F3	33.64545	-84.43089	16.75	3	1.75	4	Not Tested[2]	Soil-cement fractured during recovery and could not be tested.
C-6	T/W E, near E7	33.64548	-84.42513	24.75	0	0	8.5	216	Horizontal fracture at about 1.5 inches below top of soil-cement.
C-7	T/W E, north of Delta TOC	33.64545	-84.42146	21.25	8.5	0	0	N/A	Soil-cement was not present.
C-8	T/W E, north of Delta TOC	33.64547	-84.41889	21.25	8.0	0	0	N/A	Soil-cement was not present.
C-9	T/W E, north of Delta TOC	33.64545	-84.41759	22.25	8.5	0	0	N/A	Soil-cement was not present.

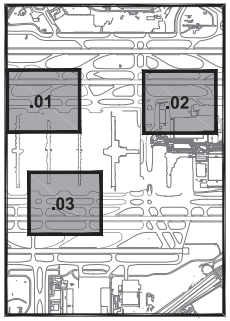
Notes:
1. CTB = Cement Treated Base; GAB = Graded Aggregate Base; T/W = Taxiway; TOC = Technical Operations Center; N/A = Not Applicable.
2. The listed latitude and longitude values have an accuracy of ±7.10 ft.
3. The soil-cement core from C-5 fractured during recovery and was not tested.

LEGEND

⊕ PAVEMENT CORE LOCATION

FOR FULL GEOTECHNICAL REPORT SEE:

EXISTING PAVEMENT EVALUATION
TAXIWAY PAVEMENT REPLACEMENT PHASE 2
HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT
ATLANTA, GEORGIA
WILMER ENGINEERING INC.
WILMER PROJECT NO. 71.4066



NORTH

100 0 100 200
GRAPHIC SCALE
(IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JCS
DRAWN BY	MPC
CHECKED BY	CWE
APPROVED BY	JAS

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
PADP WBS No.	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

PAVEMENT CORE LOCATION PLAN

SHEET No

C 19.01.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 4:42 PM
C:\PW_WORK\TRACO01\MATTHEW.COLLINS\D0SC6452\46586-C 19.01.1 PAVEMENT CORE LOCATION PLANLDWG

SYMBOL	EXISTING ITEM DESCRIPTION
	EXISTING TAXIWAY CENTERLINE LIGHT
	EXISTING TAXIWAY EDGE LIGHT
	EXISTING ELEVATED RUNWAY EDGE LIGHT. SHADED AREA = YELLOW LENS, BLANK AREA = WHITE LENS.
	EXISTING IN-PAVEMENT RUNWAY EDGE LIGHT. SHADED AREA = YELLOW LENS, BLANK AREA = WHITE LENS.
	EXISTING RUNWAY THRESHOLD LIGHT.
	EXISTING IN-PAVEMENT RUNWAY GUARD LIGHT
	EXISTING ELEVATED RUNWAY GUARD LIGHT
	EXISTING INTERMEDIATE HOLDING POSITION LIGHTS
	EXISTING AIRFIELD SIGN
M P	EXISTING ELECTRICAL MANHOLE/JUNCTION STRUCTURE
F H	EXISTING FAA MANHOLE/HANDHOLE STRUCTURE

CKT(#)

EXISTING DUCT OR CONDUIT. CKT= CIRCUIT NAME,
(#)= NUMBER OF CABLES IN CONDUIT

X-4" DOA

AIRFIELD LIGHTING DUCT BANK. 4" CONCRETE ENCASED SCHEDULE 80 PVC UNLESS NOTED OTHERWISE. NUMBER OF DUCTS AS SHOWN ON THE PLANS. X-4", X=NUMBER OF DUCTS.

SYMBOL	DEMOLITION ITEM DESCRIPTION
~~CKT~~	CIRCUIT TO BE REMOVED FROM CONDUIT OR DUCT BANK.
	CAP OR PLUG END OF CONDUIT. INCIDENTAL TO CONDUIT/DUCT WORK.
	DEMOLISH ITEM COMPLETELY INCLUDING ALL BASE CANS, CONDUIT, CABLE, CONCRETE, REBAR, CONNECTORS, GROUND RODS AND ALL OTHER INCIDENTALS. SALVAGE LIGHT FIXTURES AND SIGNS AND TURN OVER TO OWNER. BACKFILL AND LEVEL THE AREA AND RE-SOD AS NEEDED. DEMOLITION IN AREAS UNDER EXISTING PAVEMENT SHALL BE COORDINATED WITH CIVIL PLANS TO DETERMINE DEPTH OF NEW CONSTRUCTION.
	REMOVE FIXTURE, CABLE, CONNECTORS, AND TRANSFORMERS FROM BASE CAN. INSTALL STEEL PLATE COVER ON EXISTING L-868 BASE CAN, 1/2" THICK. SALVAGE LIGHT FIXTURE AND TURN OVER TO OWNER.
C	SURVEY AND RECORD EXISTING LIGHT LOCATION. REMOVE LIGHT FIXTURE, ISOLATION TRANSFORMER, AND CABLE TO NEAREST LIGHT TO REMAIN. OVER CORE EXISTING BASE CAN IN MILLED SHOULDER. CAP/PROTECT EXISTING CONDUIT CONNECTIONS. SEE DETAIL EA 04.04.1 FOR INSTALLATION SEQUENCE.
	REMOVE EXISTING CABLE ONLY FROM CONDUIT TO REMAIN.

SYMBOL	NEW ITEM DESCRIPTION
	NEW L-852C(L), BI-DIRECTIONAL, GREEN, LED TAXIWAY CENTERLINE LIGHT. MOUNTED ON A NEW L-868B DEEP BASE CAN WITH A 3/4" NOMINAL SPACER RING (W/ CONCRETE RING) AND PROPERLY SIZED L-830 TRANSFORMER AND L-823 CONNECTORS. SOLID AREAS DENOTE DIRECTION OF THE LIGHT BEAMS.
Y	NEW L-852C(L), UNI-DIRECTIONAL, YELLOW, LED TAXIWAY CLEARANCE BAR LIGHT. MOUNTED ON A NEW L-868B DEEP BASE CAN WITH A 3/4" NOMINAL SPACER RING (W/ CONCRETE RING) AND PROPERLY SIZED L-830 TRANSFORMER AND L-823 CONNECTORS. SOLID AREA DENOTES DIRECTION OF THE LIGHT BEAM.
	NEW L-852D(L), BI-DIRECTIONAL, GREEN, LED TAXIWAY CENTERLINE LIGHT. MOUNTED ON A NEW L-868B DEEP BASE CAN WITH A 3/4" NOMINAL SPACER RING (W/ CONCRETE RING) AND PROPERLY SIZED L-830 TRANSFORMER AND L-823 CONNECTORS. SOLID AREAS DENOTE DIRECTION OF THE LIGHT BEAMS.
	NEW L-852T(L), OMNI-DIRECTIONAL, BLUE, LED TAXIWAY EDGE LIGHT. MOUNTED ON A NEW L-867B OR L-868B DEEP BASE CAN WITH A 3/4" NOMINAL SPACER RING AND PROPERLY SIZED L-830 TRANSFORMER AND L-823 CONNECTORS.
	NEW L-852T(L), OMNI-DIRECTIONAL, BLUE, LED TAXIWAY EDGE LIGHT. MOUNTED ON A EXISTING L-867 BASE CAN WITH A 3/4" NOMINAL SPACER RING AND PROPERLY SIZED L-830 TRANSFORMER AND L-823 CONNECTORS.
SIGN UNIT CONCRETE BASE CAN	NEW L-858(L),Y,R,L LED AIRFIELD SIGN, INSTALLED ON A NEW CONCRETE BASE WITH L-867B 24" DEEP BASE CAN(S), PROPERLY SIZED L-830 TRANSFORMER(S) AND L-823 CONNECTORS.
X(Y)	2" SCHEDULE 40 PVC CONCRETE ENCASED CONDUIT. USE SCHEDULE 80 PVC WHEN INSTALLING UNDER FULL STRENGTH PAVEMENT. X=CIRCUIT NAME, Y=NUMBER OF CONDUCTORS. TICKS MAY ALSO REPRESENT NUMBER OF CONDUCTORS IN SOME CABLING DESCRIPTIONS (# TICKS EQUALS # CABLES).
	NEW ELECTRICAL MANHOLE, AIRCRAFT-RATED, COMPLETE AND INSTALLED WITH ALL APPURTENANCES
	L-868B (AIRCRAFT-RATED) BASE CAN, INSTALLED IN FULL STRENGTH PAVEMENT
	3/4" STEEL PLATE INSTALLED ON EXISTING L-868B (AIRCRAFT-RATED) BASE CAN. STEEL PLATE DIAMETER SHALL BE PROPERLY SIZED FOR EXISTING BASE CANS.
	TEMPORARY L-861T(L), OMNIDIRECTIONAL, BLUE ELEVATED TAXIWAY EDGE LIGHTS, MOUNTED ON A STEEL PLATE AND PROPERLY SIZED L-830 TRANSFORMER & L-823 CONNECTORS.
X WAY, Y INCH (C.E. OR D.D.)	AIRFIELD LIGHTING DUCT BANK. C.E. = CONCRETE ENCASED, D.D. = DIRECTIONAL DRILLING (HDPE CONDUIT, SDR 11). X= NUMBER OF CONDUITS, Y= DIAMETER OF CONDUITS (IN INCHES).

LIMIT OF DEMOLITION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
I-XDP WBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

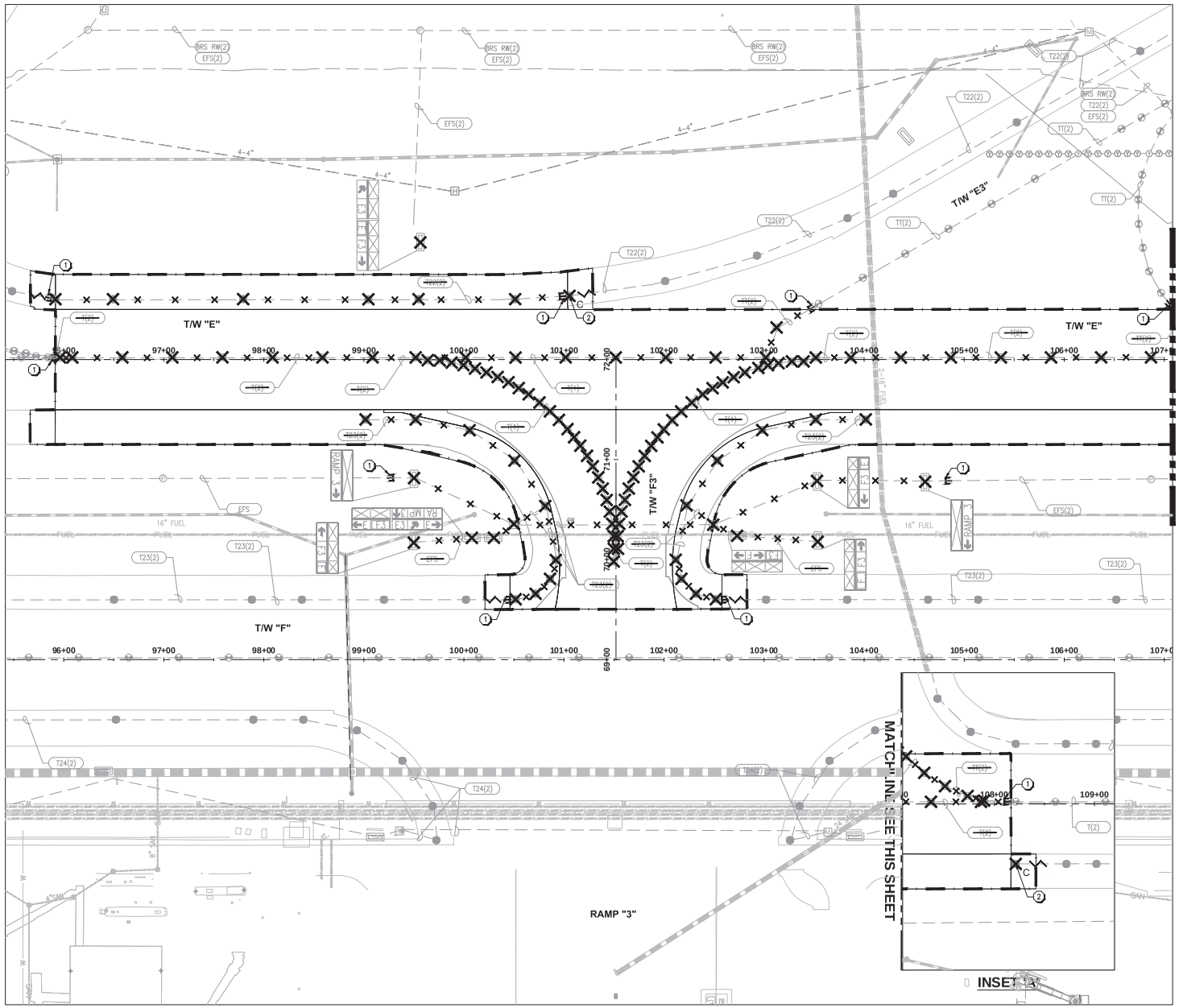
AIRFIELD ELECTRICAL LEGEND AND NOTES

SHEET No

EA 00.01.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 4:55 PM
C:\PW_WORK\ATRDMADA01\TUDO4783\DM596455\EA-00.01 - ELECTRICAL LEGEND.DWG



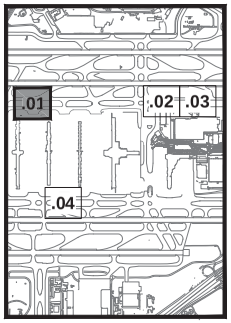
KEYED NOTES:

1. CAP EXISTING CONDUIT/DUCT BANK WITH APPROPRIATELY SIZED PVC CAP TO PREVENT DIRT AND DEBRIS FROM ENTERING CONDUIT. PULL CABLE BACK TO FIRST REMAINING LIGHT OR JUNCTION STRUCTURE.
2. CONTRACTOR SHALL SURVEY EXISTING LIGHT FIXTURE FOR LOCATION OF INSTALLATION OF LIGHT AS SHOWN IN EA 02.0X.1 SERIES. SEE DETAIL SHEET EA 04.04.1 FOR INSTALLATION SEQUENCE.
3. SURVEY & RECORD EXISTING SIGN LOCATION FOR NEW SIGN INSTALLATION.
4. REMOVE AND PROPERLY STORE FIXTURE. INSTALL STEEL PLATE ON EXISTING LIGHT BASE CAN.
5. CONTRACTOR SHALL FIELD VERIFY CIRCUITS "S" AND "U" IN THIS AREA AND REPLACE IN KIND.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDUIT AND DUCT BANK RUNS PRIOR TO START OF DEMOLITION. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER/OWNER OF ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND WHAT IS SHOWN ON THE PLANS.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CONTINUITY OF EXISTING CIRCUITS OUTSIDE THE LIMITS OF THE CURRENT CONSTRUCTION PHASE. NO PAY ITEM WILL BE PROVIDED FOR THIS WORK.
3. CABLE LOCATIONS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE. IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY BY ELECTRONIC DETECTION DEVICES THE LOCATIONS, SIZES, TYPE, ETC. OF ALL UNDERGROUND UTILITIES WITHIN THIS AREA PRIOR TO ANY CONSTRUCTION.
4. SEE TEMPORARY MARKING AND LIGHTING PLANS PHASING INFORMATION.
5. PRIOR TO DEMOLITION, CONTRACTOR SHALL RECORD CONDITION OF ALL LIGHTS AND SIGNS TO BE REMOVED. EXISTING CONDITION LOG SHALL BE TURNED OVER TO AIRPORT BEFORE THE START OF ELECTRICAL DEMOLITION WORK.
6. THE AIRPORT HAS THE RIGHT OF FIRST REFUSAL OF ALL MATERIALS REMOVED AS A PART OF THIS PROJECT. ITEMS SHALL BE PROVIDED TO THE AIRPORT OR PROPERLY DISPOSED OF AT THEIR DIRECTION. ANY ITEMS DAMAGED DURING REMOVAL WILL BE REPLACED AT CONTRACTORS EXPENSE.

KEY MAP



CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
AIP WBS No	D.0280.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

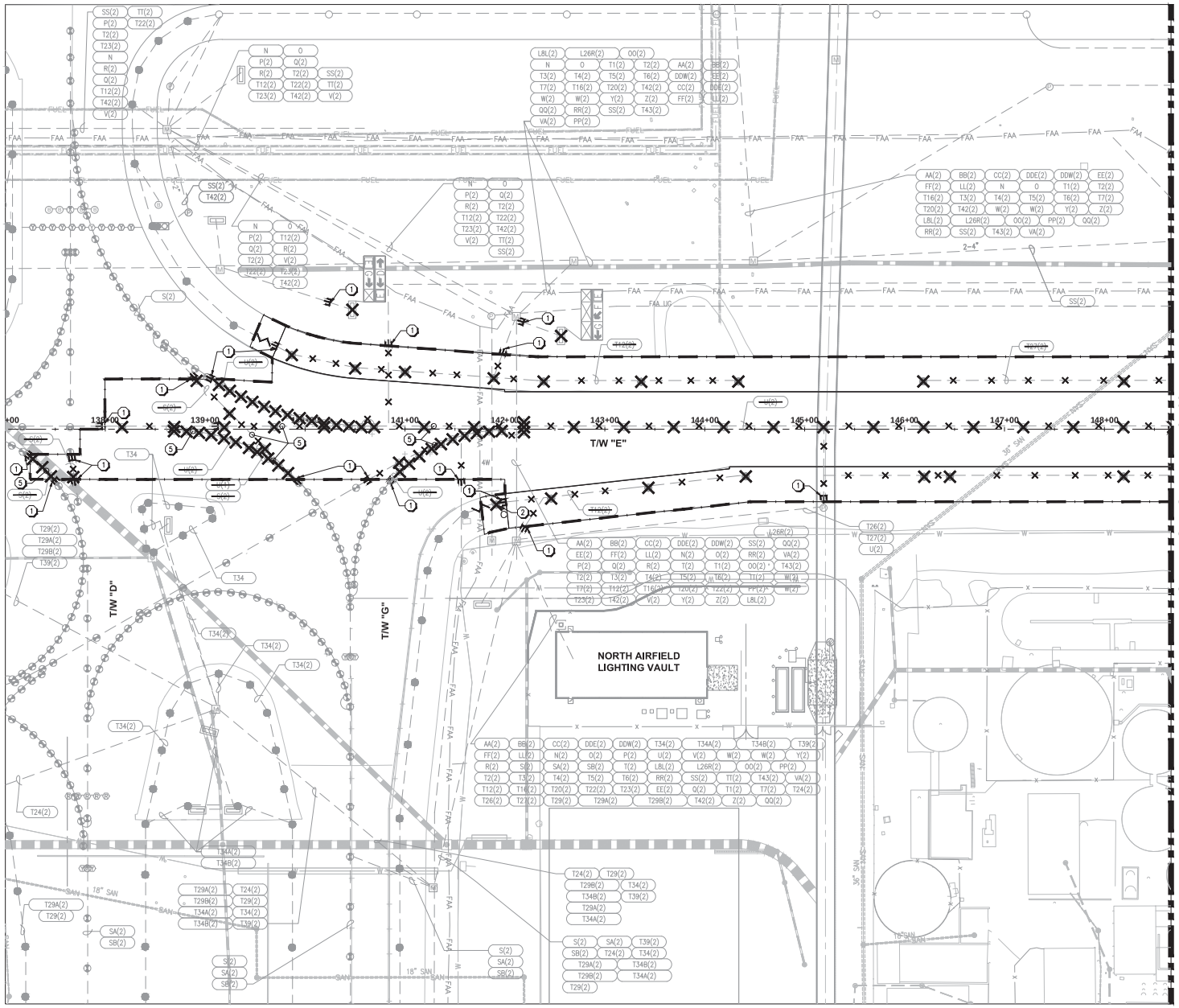
AIRFIELD ELECTRICAL DEMOLITION PLAN

SHEET No

EA 01.01.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 4:56 PM
C:\PW_WORK\ATIGAGA01\TUDO4783\D6586450\EA-01.01-ELECTRICAL DEMOLITION.DWG



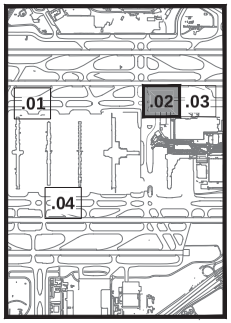
KEYED NOTES:

1. CAP EXISTING CONDUIT/DUCT BANK WITH APPROPRIATELY SIZED PVC CAP TO PREVENT DIRT AND DEBRIS FROM ENTERING CONDUIT. PULL CABLE BACK TO FIRST REMAINING LIGHT OR JUNCTION STRUCTURE.
2. CONTRACTOR SHALL SURVEY EXISTING LIGHT FIXTURE FOR LOCATION OF INSTALLATION OF LIGHT AS SHOWN IN EA 02.0X.1 SERIES. SEE DETAIL SHEET EA 04.04.1 FOR INSTALLATION SEQUENCE.
3. SURVEY & RECORD EXISTING SIGN LOCATION FOR NEW SIGN INSTALLATION.
4. REMOVE AND PROPERLY STORE FIXTURE. INSTALL STEEL PLATE ON EXISTING LIGHT BASE CAN.
5. CONTRACTOR SHALL FIELD VERIFY CIRCUITS "S" AND "U" IN THIS AREA AND REPLACE IN KIND.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDUIT AND DUCT BANK RUNS PRIOR TO START OF DEMOLITION. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER/OWNER OF ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND WHAT IS SHOWN ON THE PLANS.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CONTINUITY OF EXISTING CIRCUITS OUTSIDE THE LIMITS OF THE CURRENT CONSTRUCTION PHASE. NO PAY ITEM WILL BE PROVIDED FOR THIS WORK.
3. CABLE LOCATIONS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE. IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY BY ELECTRONIC DETECTION DEVICES THE LOCATIONS, SIZES, TYPE, ETC. OF ALL UNDERGROUND UTILITIES WITHIN THIS AREA PRIOR TO ANY CONSTRUCTION.
4. SEE TEMPORARY MARKING AND LIGHTING PLANS PHASING INFORMATION.
5. PRIOR TO DEMOLITION, CONTRACTOR SHALL RECORD CONDITION OF ALL LIGHTS AND SIGNS TO BE REMOVED. EXISTING CONDITION LOG SHALL BE TURNED OVER TO AIRPORT BEFORE THE START OF ELECTRICAL DEMOLITION WORK.
6. THE AIRPORT HAS THE RIGHT OF FIRST REFUSAL OF ALL MATERIALS REMOVED AS A PART OF THIS PROJECT. ITEMS SHALL BE PROVIDED TO THE AIRPORT OR PROPERLY DISPOSED OF AT THEIR DIRECTION. ANY ITEMS DAMAGED DURING REMOVAL WILL BE REPLACED AT CONTRACTORS EXPENSE.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
AIP/ PROJECT No	D.0280.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

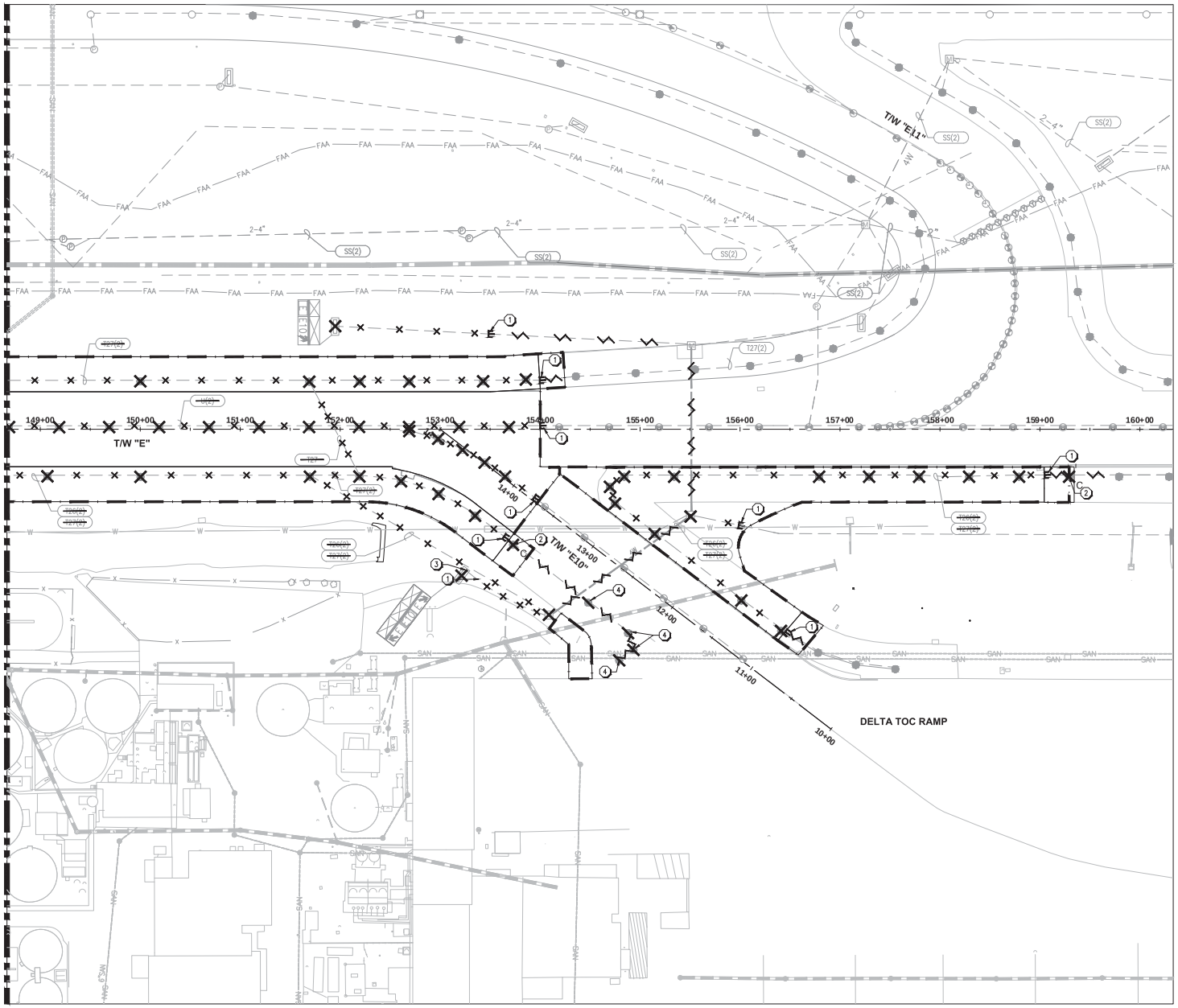
AIRFIELD ELECTRICAL DEMOLITION PLAN

SHEET No

EA 01.02.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 4:58 PM
C:\PW_WORK\ATKINGAD01\TUDO4783\{M5R64S5}\EA-01.01-ELECTRICAL DEMOLITION.DWG



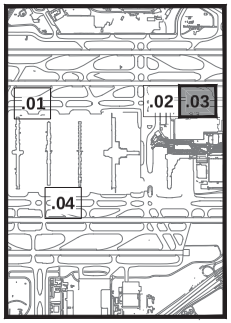
KEYED NOTES:

1. CAP EXISTING CONDUIT/DUCT BANK WITH APPROPRIATELY SIZED PVC CAP TO PREVENT DIRT AND DEBRIS FROM ENTERING CONDUIT. PULL CABLE BACK TO FIRST REMAINING LIGHT OR JUNCTION STRUCTURE.
2. CONTRACTOR SHALL SURVEY EXISTING LIGHT FIXTURE FOR LOCATION OF INSTALLATION OF LIGHT AS SHOWN IN EA 02.0X.1 SERIES. SEE DETAIL SHEET EA 04.04.1 FOR INSTALLATION SEQUENCE.
3. SURVEY & RECORD EXISTING SIGN LOCATION FOR NEW SIGN INSTALLATION.
4. REMOVE AND PROPERLY STORE FIXTURE. INSTALL STEEL PLATE ON EXISTING LIGHT BASE CAN.
5. CONTRACTOR SHALL FIELD VERIFY CIRCUITS "S" AND "U" IN THIS AREA AND REPLACE IN KIND.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDUIT AND DUCT BANK RUNS PRIOR TO START OF DEMOLITION. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER/OWNER OF ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND WHAT IS SHOWN ON THE PLANS.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CONTINUITY OF EXISTING CIRCUITS OUTSIDE THE LIMITS OF THE CURRENT CONSTRUCTION PHASE. NO PAY ITEM WILL BE PROVIDED FOR THIS WORK.
3. CABLE LOCATIONS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE. IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY BY ELECTRONIC DETECTION DEVICES THE LOCATIONS, SIZES, TYPE, ETC. OF ALL UNDERGROUND UTILITIES WITHIN THIS AREA PRIOR TO ANY CONSTRUCTION.
4. SEE TEMPORARY MARKING AND LIGHTING PLANS PHASING INFORMATION.
5. PRIOR TO DEMOLITION, CONTRACTOR SHALL RECORD CONDITION OF ALL LIGHTS AND SIGNS TO BE REMOVED. EXISTING CONDITION LOG SHALL BE TURNED OVER TO AIRPORT BEFORE THE START OF ELECTRICAL DEMOLITION WORK.
6. THE AIRPORT HAS THE RIGHT OF FIRST REFUSAL OF ALL MATERIALS REMOVED AS A PART OF THIS PROJECT. ITEMS SHALL BE PROVIDED TO THE AIRPORT OR PROPERLY DISPOSED OF AT THEIR DIRECTION. ANY ITEMS DAMAGED DURING REMOVAL WILL BE REPLACED AT CONTRACTORS EXPENSE.

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
AIP/ DOP W65 No	D.0280.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

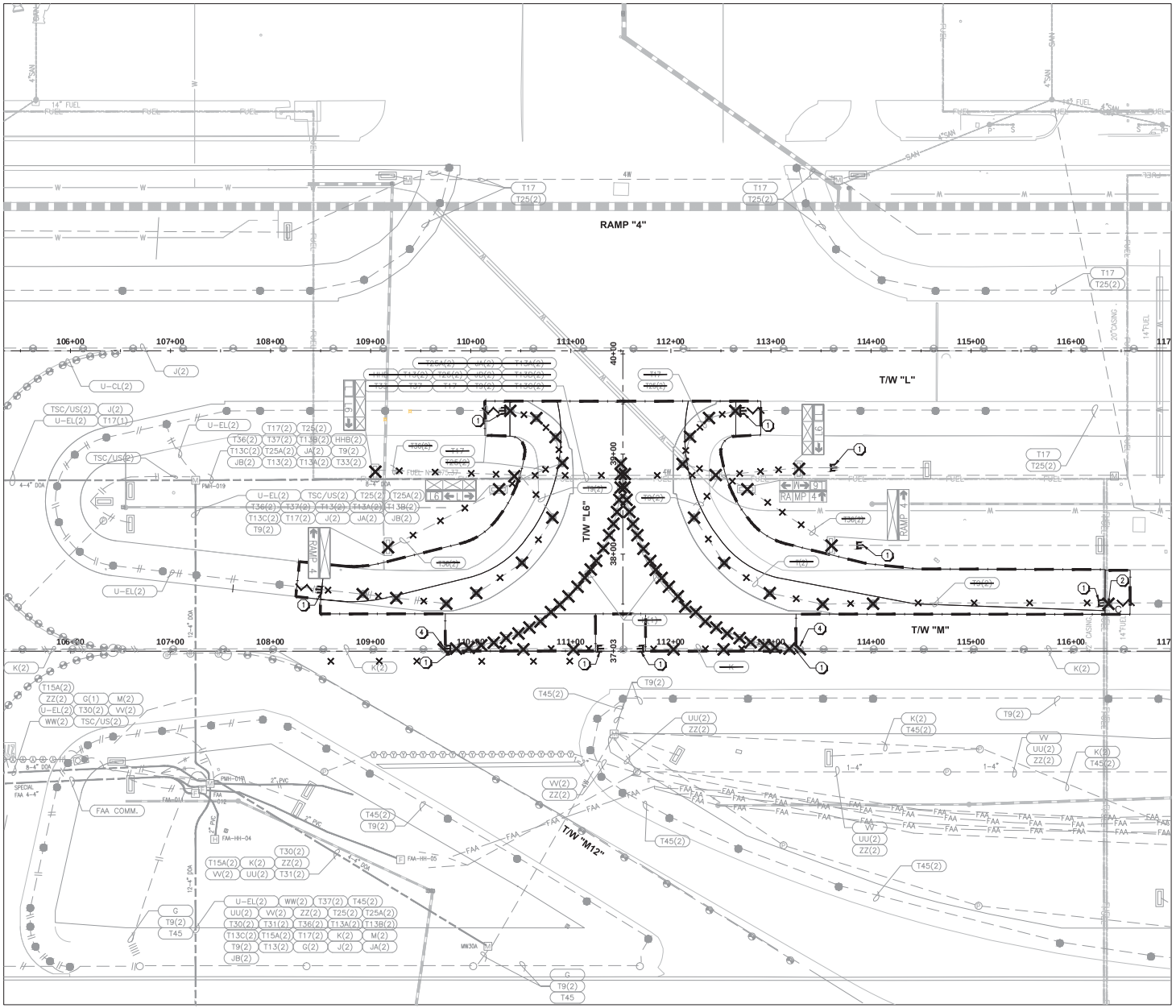
SHEET NAME

AIRFIELD ELECTRICAL DEMOLITION PLAN

SHEET No

EA 01.03.1

2/11/2016 5:00 PM
C:\PW_WORK\ATKINGAD01\TUDO4783\(M65R45)\EA-01.01-ELECTRICAL DEMOLITION .DWG



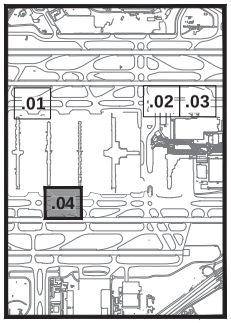
KEYED NOTES:

1. CAP EXISTING CONDUIT/DUCT BANK WITH APPROPRIATELY SIZED PVC CAP TO PREVENT DIRT AND DEBRIS FROM ENTERING CONDUIT. PULL CABLE BACK TO FIRST REMAINING LIGHT OR JUNCTION STRUCTURE.
2. CONTRACTOR SHALL SURVEY EXISTING LIGHT FIXTURE FOR LOCATION OF INSTALLATION OF LIGHT AS SHOWN IN EA 02.0X.1 SERIES. SEE DETAIL SHEET EA 04.04.1 FOR INSTALLATION SEQUENCE.
3. SURVEY & RECORD EXISTING SIGN LOCATION FOR NEW SIGN INSTALLATION.
4. REMOVE AND PROPERLY STORE FIXTURE. INSTALL STEEL PLATE ON EXISTING LIGHT BASE CAN.
5. CONTRACTOR SHALL FIELD VERIFY CIRCUITS "S" AND "U" IN THIS AREA AND REPLACE IN KIND.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDUIT AND DUCT BANK RUNS PRIOR TO START OF DEMOLITION. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER/OWNER OF ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND WHAT IS SHOWN ON THE PLANS.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CONTINUITY OF EXISTING CIRCUITS OUTSIDE THE LIMITS OF THE CURRENT CONSTRUCTION PHASE. NO PAY ITEM WILL BE PROVIDED FOR THIS WORK.
3. CABLE LOCATIONS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE. IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY BY ELECTRONIC DETECTION DEVICES THE LOCATIONS, SIZES, TYPE, ETC. OF ALL UNDERGROUND UTILITIES WITHIN THIS AREA PRIOR TO ANY CONSTRUCTION.
4. SEE TEMPORARY MARKING AND LIGHTING PLANS PHASING INFORMATION.
5. PRIOR TO DEMOLITION, CONTRACTOR SHALL RECORD CONDITION OF ALL LIGHTS AND SIGNS TO BE REMOVED. EXISTING CONDITION LOG SHALL BE TURNED OVER TO AIRPORT BEFORE THE START OF ELECTRICAL DEMOLITION WORK.
6. THE AIRPORT HAS THE RIGHT OF FIRST REFUSAL OF ALL MATERIALS REMOVED AS A PART OF THIS PROJECT. ITEMS SHALL BE PROVIDED TO THE AIRPORT OR PROPERLY DISPOSED OF AT THEIR DIRECTION. ANY ITEMS DAMAGED DURING REMOVAL WILL BE REPLACED AT CONTRACTORS EXPENSE.

KEY MAP



CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
FAA-AIP NRS No	D.0280.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

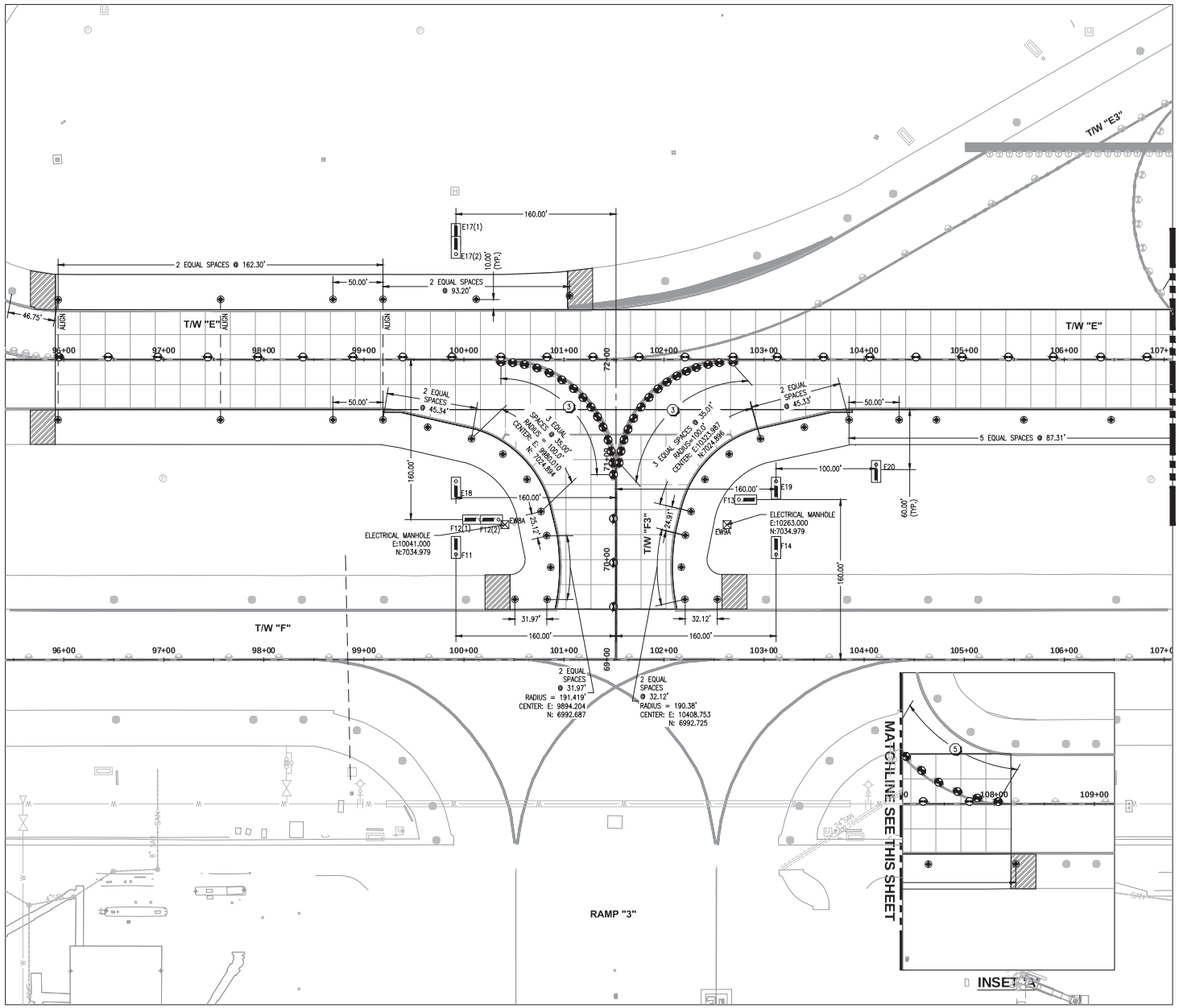
AIRFIELD ELECTRICAL DEMOLITION PLAN

SHEET No

EA 01.04.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:01 PM
C:\PW_WORK\ATRDAG01\TUDO4783\DM5964551\EA-01.01-ELECTRICAL DEMOLITION .DWG



KEYED NOTES

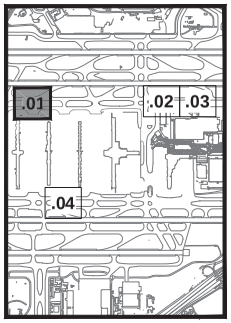
1. INSTALL NEW 3/4" THICK BLANK LID ON NEW L-868B BASE CAN DURING TEMPORARY OPERATIONS. AFTER TEMPORARY OPERATIONS ARE COMPLETE, REMOVE BLANK COVER AND INSTALL NEW L-852T(L) TAXIWAY EDGE LIGHT.
2. INSTALL NEW 3/4" THICK BLANK LID ON EXISTING BASE CAN DURING TEMPORARY OPERATIONS. AFTER TEMPORARY OPERATIONS ARE COMPLETE, REMOVE BLANK COVER AND INSTALL NEW L-852T(L) TAXIWAY EDGE LIGHT.
3. SEE FIXTURE ID TABLE FOR LIGHT LOCATION. SPACING SHALL NOT EXCEED 12.50' (±2.0' TO REDUCE JOINT CONFLICTS).
4. SURVEY EXISTING SIGN LOCATION. INSTALL NEW SIGN IN SAME LOCATION. ENSURE THE SIGN IS INSTALLED PERPENDICULAR TO THE TAXIWAY CENTERLINE AND IS 60' FROM THE DELINEATED EDGE OF THE TAXIWAY.
5. SEE FIXTURE ID TABLE FOR LIGHT LOCATION. SPACING SHALL NOT EXCEED 25' (±2.5' TO REDUCE JOINT CONFLICTS).

GENERAL NOTES:

1. SEE EXISTING CONDITION SHEETS FOR EXISTING UNDERGROUND UTILITY LOCATIONS.
2. CONTRACTOR SHALL STAKE OUT LIGHT FIXTURE AND SIGN LOCATIONS PRIOR TO INSTALLATION. IN LOCATIONS WHERE FIELD CONDITIONS DIFFER FROM LAYOUT INFORMATION PROVIDED, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR DIRECTION AND ENSURE APPROVAL PRIOR TO PROCEEDING.
3. CENTER OF LIGHT SHALL BE NO LESS THAN 2.50' FROM ANY CONSTRUCTION JOINT.
4. SEE FIXTURE AND SIGN ID PLANS FOR SIGN LEGENDS.
5. SEE TAXIWAY E10 PHASE 3 AND 4 TEMPORARY MARKING AND LIGHTING PLANS FOR TEMPORARY LIGHT INSTALLATION.
6. THE CONTRACTOR AND SURVEYOR ARE CAUTIONED THAT THE PLANS SHALL SUPERCEDE THE CAD DRAWINGS IN THE EVENT OF A CONFLICT BETWEEN THE TWO.

TAXIWAY EDGE LIGHTS TO BE INSTALLED IN SHOULDER PAVEMENT MILLING LIMITS

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
AIP/ADP WBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

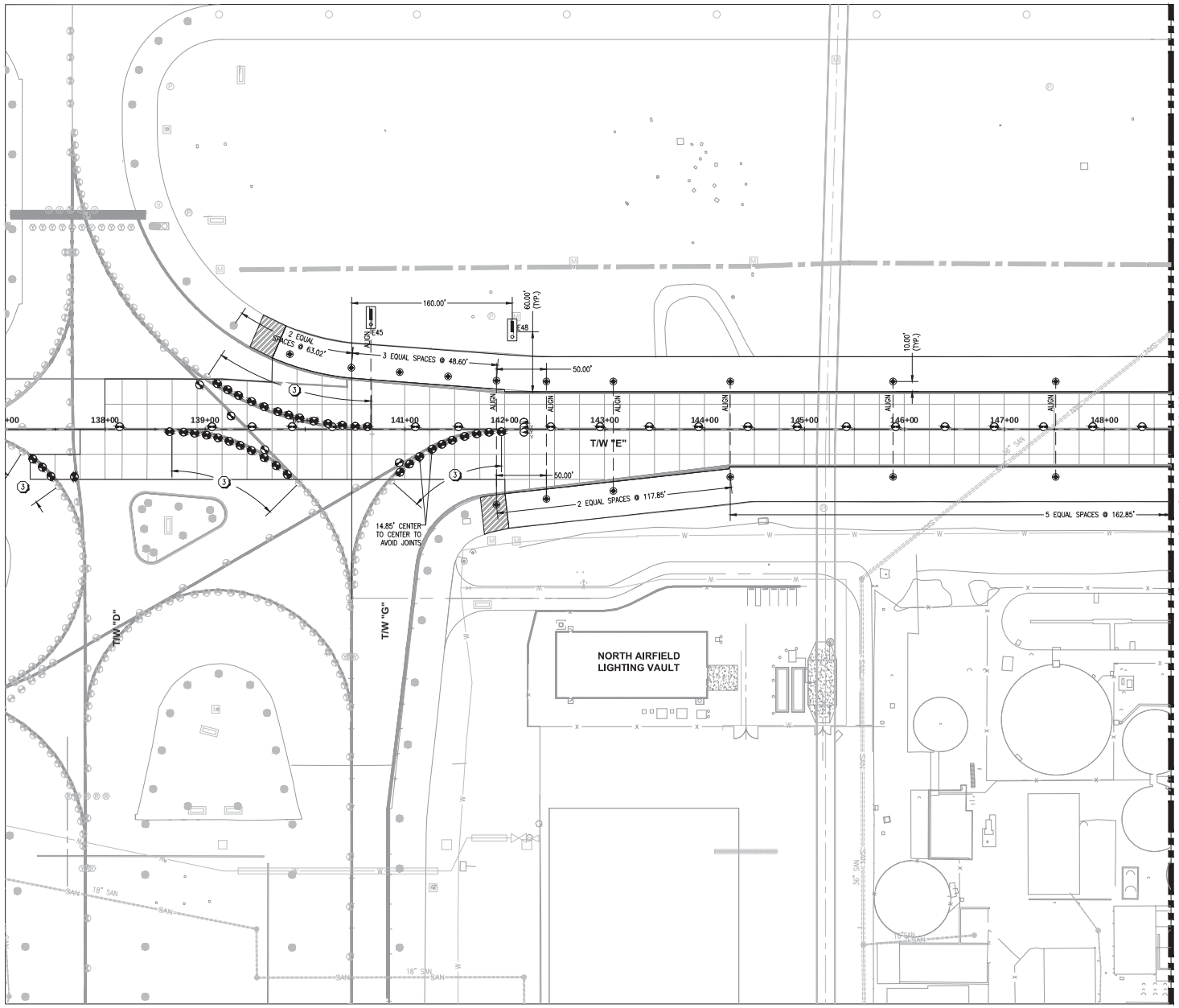
AIRFIELD ELECTRICAL LIGHTING LAYOUT PLAN

SHEET No

EA 02.01.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:04 PM
C:\PW_WORK\ATIDAG01\TUDO4783\{M5R64S5\}EA-02.01-ELECTRICAL LAYOUT.DWG



KEYED NOTES

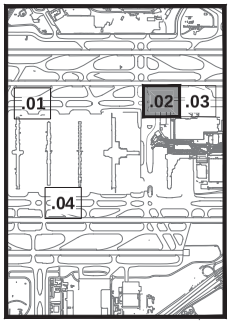
1. INSTALL NEW 3/4" THICK BLANK LID ON NEW L-868B BASE CAN DURING TEMPORARY OPERATIONS. AFTER TEMPORARY OPERATIONS ARE COMPLETE, REMOVE BLANK COVER AND INSTALL NEW L-852T(L) TAXIWAY EDGE LIGHT.
2. INSTALL NEW 3/4" THICK BLANK LID ON EXISTING BASE CAN DURING TEMPORARY OPERATIONS. AFTER TEMPORARY OPERATIONS ARE COMPLETE, REMOVE BLANK COVER AND INSTALL NEW L-852T(L) TAXIWAY EDGE LIGHT.
3. SEE FIXTURE ID TABLE FOR LIGHT LOCATION. SPACING SHALL NOT EXCEED 12.50' (±2.0' TO REDUCE JOINT CONFLICTS).
4. SURVEY EXISTING SIGN LOCATION. INSTALL NEW SIGN IN SAME LOCATION. ENSURE THE SIGN IS INSTALLED PERPENDICULAR TO THE TAXIWAY CENTERLINE AND IS 60' FROM THE DELINEATED EDGE OF THE TAXIWAY.
5. SEE FIXTURE ID TABLE FOR LIGHT LOCATION. SPACING SHALL NOT EXCEED 25' (±2.5' TO REDUCE JOINT CONFLICTS).

GENERAL NOTES:

1. SEE EXISTING CONDITION SHEETS FOR EXISTING UNDERGROUND UTILITY LOCATIONS.
2. CONTRACTOR SHALL STAKE OUT LIGHT FIXTURE AND SIGN LOCATIONS PRIOR TO INSTALLATION. IN LOCATIONS WHERE FIELD CONDITIONS DIFFER FROM LAYOUT INFORMATION PROVIDED, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR DIRECTION AND ENSURE APPROVAL PRIOR TO PROCEEDING.
3. CENTER OF LIGHT SHALL BE NO LESS THAN 2.50' FROM ANY CONSTRUCTION JOINT.
4. SEE FIXTURE AND SIGN ID PLANS FOR SIGN LEGENDS.
5. SEE TAXIWAY E10 PHASE 3 AND 4 TEMPORARY MARKING AND LIGHTING PLANS FOR TEMPORARY LIGHT INSTALLATION.
6. THE CONTRACTOR AND SURVEYOR ARE CAUTIONED THAT THE PLANS SHALL SUPERCEDE THE CAD DRAWINGS IN THE EVENT OF A CONFLICT BETWEEN THE TWO.

TAXIWAY EDGE LIGHTS TO BE INSTALLED IN SHOULDER PAVEMENT MILLING LIMITS

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
FAA-XDP W65 No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

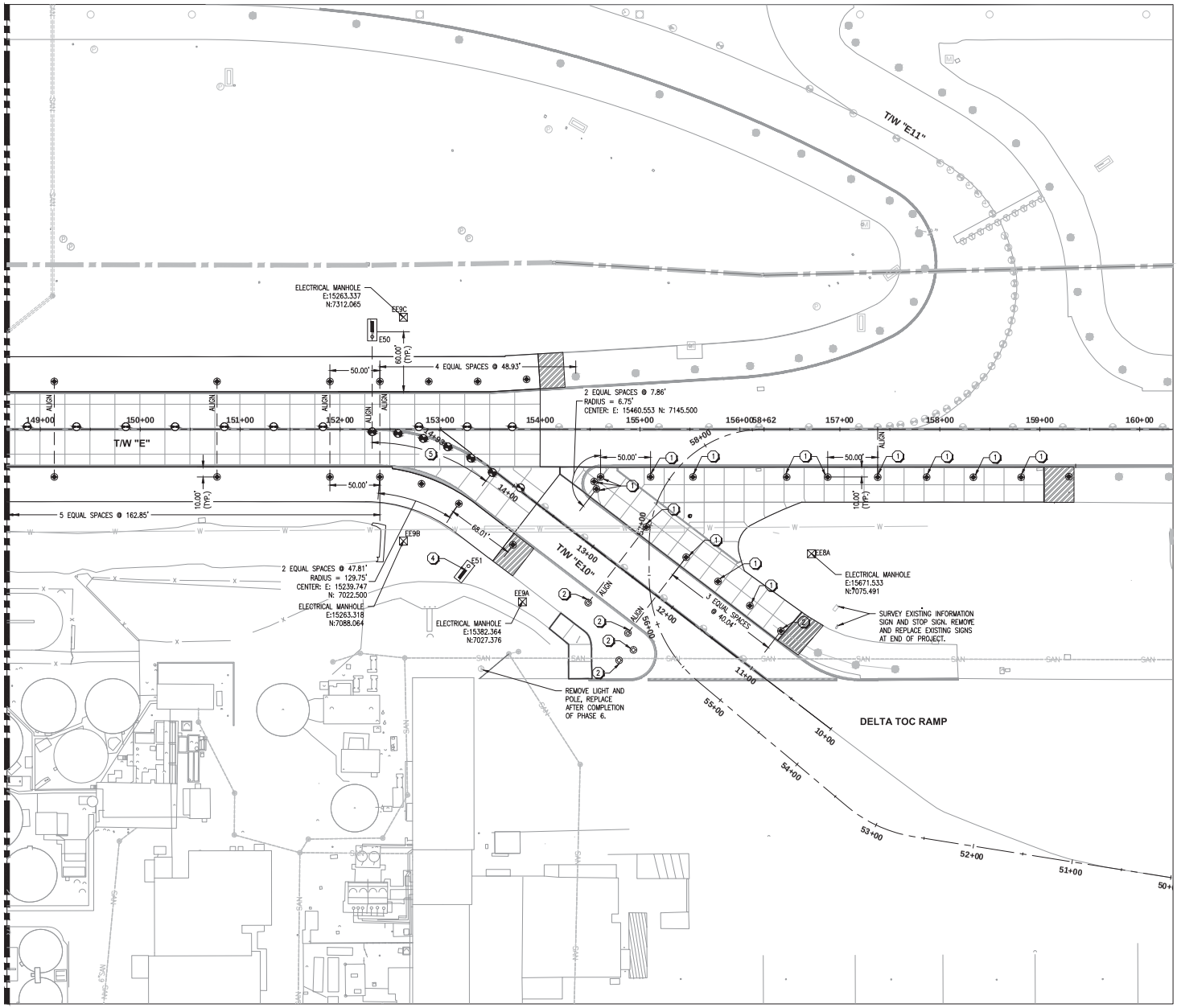
AIRFIELD ELECTRICAL LIGHTING LAYOUT PLAN

SHEET No

EA 02.02.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:07 PM
C:\PW_WORK\ATKINGAD01\TUDO4783\{M5R64S5\}EA-02.01-ELECTRICAL LAYOUT.DWG



KEYED NOTES

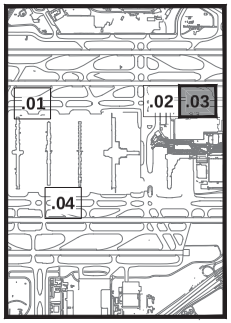
1. INSTALL NEW 3/4" THICK BLANK LID ON NEW L-868B BASE CAN DURING TEMPORARY OPERATIONS. AFTER TEMPORARY OPERATIONS ARE COMPLETE, REMOVE BLANK COVER AND INSTALL NEW L-852T(L) TAXIWAY EDGE LIGHT.
2. INSTALL NEW 3/4" THICK BLANK LID ON EXISTING BASE CAN DURING TEMPORARY OPERATIONS. AFTER TEMPORARY OPERATIONS ARE COMPLETE, REMOVE BLANK COVER AND INSTALL NEW L-852T(L) TAXIWAY EDGE LIGHT.
3. SEE FIXTURE ID TABLE FOR LIGHT LOCATION. SPACING SHALL NOT EXCEED 12.50' (±2.0' TO REDUCE JOINT CONFLICTS).
4. SURVEY EXISTING SIGN LOCATION. INSTALL NEW SIGN IN SAME LOCATION. ENSURE THE SIGN IS INSTALLED PERPENDICULAR TO THE TAXIWAY CENTERLINE AND IS 60' FROM THE DELINEATED EDGE OF THE TAXIWAY.
5. SEE FIXTURE ID TABLE FOR LIGHT LOCATION. SPACING SHALL NOT EXCEED 25' (±2.5' TO REDUCE JOINT CONFLICTS).

GENERAL NOTES:

1. SEE EXISTING CONDITION SHEETS FOR EXISTING UNDERGROUND UTILITY LOCATIONS.
2. CONTRACTOR SHALL STAKE OUT LIGHT FIXTURE AND SIGN LOCATIONS PRIOR TO INSTALLATION. IN LOCATIONS WHERE FIELD CONDITIONS DIFFER FROM LAYOUT INFORMATION PROVIDED, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR DIRECTION AND ENSURE APPROVAL PRIOR TO PROCEEDING.
3. CENTER OF LIGHT SHALL BE NO LESS THAN 2.50' FROM ANY CONSTRUCTION JOINT.
4. SEE FIXTURE AND SIGN ID PLANS FOR SIGN LEGENDS.
5. SEE TAXIWAY E10 PHASE 3 AND 4 TEMPORARY MARKING AND LIGHTING PLANS FOR TEMPORARY LIGHT INSTALLATION.
6. THE CONTRACTOR AND SURVEYOR ARE CAUTIONED THAT THE PLANS SHALL SUPERCEDE THE CAD DRAWINGS IN THE EVENT OF A CONFLICT BETWEEN THE TWO.

TAXIWAY EDGE LIGHTS TO BE INSTALLED IN SHOULDER PAVEMENT MILLING LIMITS

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE (IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
FAA-AIP NPIS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

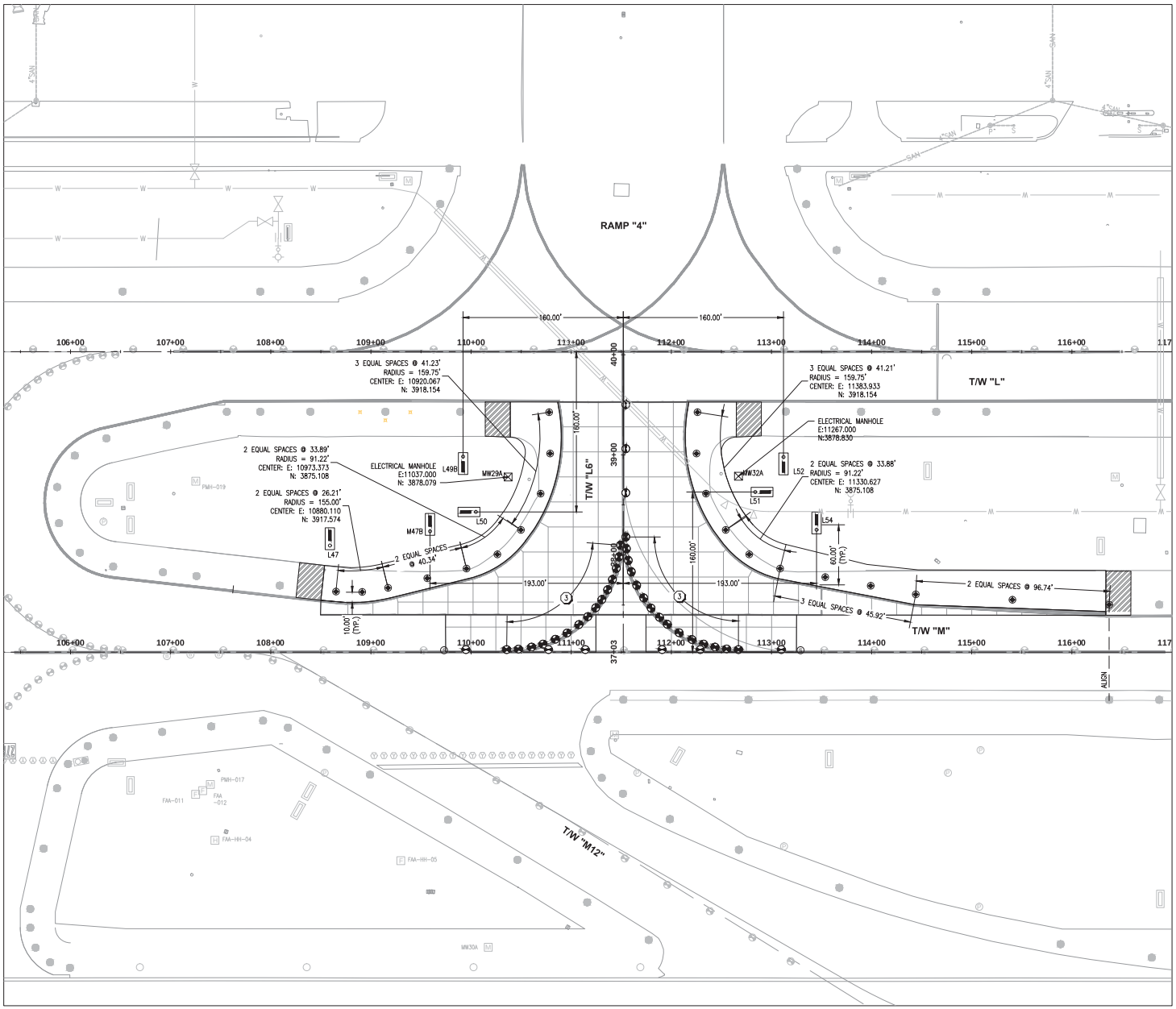
SHEET NAME

AIRFIELD ELECTRICAL LIGHTING LAYOUT PLAN

SHEET No

EA 02.03.1

2/11/2016 5:10 PM
C:\PW_WORK\ATRDAG01\TUDO4783\DM5964551\EA-02.01-ELECTRICAL LAYOUT.DWG



KEYED NOTES

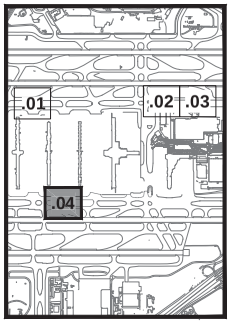
1. INSTALL NEW 3/4" THICK BLANK LID ON NEW L-868B BASE CAN DURING TEMPORARY OPERATIONS. AFTER TEMPORARY OPERATIONS ARE COMPLETE, REMOVE BLANK COVER AND INSTALL NEW L-852T(L) TAXIWAY EDGE LIGHT.
2. INSTALL NEW 3/4" THICK BLANK LID ON EXISTING BASE CAN DURING TEMPORARY OPERATIONS. AFTER TEMPORARY OPERATIONS ARE COMPLETE, REMOVE BLANK COVER AND INSTALL NEW L-852T(L) TAXIWAY EDGE LIGHT.
3. SEE FIXTURE ID TABLE FOR LIGHT LOCATION. SPACING SHALL NOT EXCEED 12.50' (±2.0' TO REDUCE JOINT CONFLICTS).
4. SURVEY EXISTING SIGN LOCATION. INSTALL NEW SIGN IN SAME LOCATION. ENSURE THE SIGN IS INSTALLED PERPENDICULAR TO THE TAXIWAY CENTERLINE AND IS 60' FROM THE DELINEATED EDGE OF THE TAXIWAY.
5. SEE FIXTURE ID TABLE FOR LIGHT LOCATION. SPACING SHALL NOT EXCEED 25' (±2.5' TO REDUCE JOINT CONFLICTS).

GENERAL NOTES:

1. SEE EXISTING CONDITION SHEETS FOR EXISTING UNDERGROUND UTILITY LOCATIONS.
2. CONTRACTOR SHALL STAKE OUT LIGHT FIXTURE AND SIGN LOCATIONS PRIOR TO INSTALLATION. IN LOCATIONS WHERE FIELD CONDITIONS DIFFER FROM LAYOUT INFORMATION PROVIDED, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR DIRECTION AND ENSURE APPROVAL PRIOR TO PROCEEDING.
3. CENTER OF LIGHT SHALL BE NO LESS THAN 2.50' FROM ANY CONSTRUCTION JOINT.
4. SEE FIXTURE AND SIGN ID PLANS FOR SIGN LEGENDS.
5. SEE TAXIWAY E10 PHASE 3 AND 4 TEMPORARY MARKING AND LIGHTING PLANS FOR TEMPORARY LIGHT INSTALLATION.
6. THE CONTRACTOR AND SURVEYOR ARE CAUTIONED THAT THE PLANS SHALL SUPERCEDE THE CAD DRAWINGS IN THE EVENT OF A CONFLICT BETWEEN THE TWO.

TAXIWAY EDGE LIGHTS TO BE INSTALLED IN SHOULDER PAVEMENT MILLING LIMITS

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE
(IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
AIP/ADP WBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

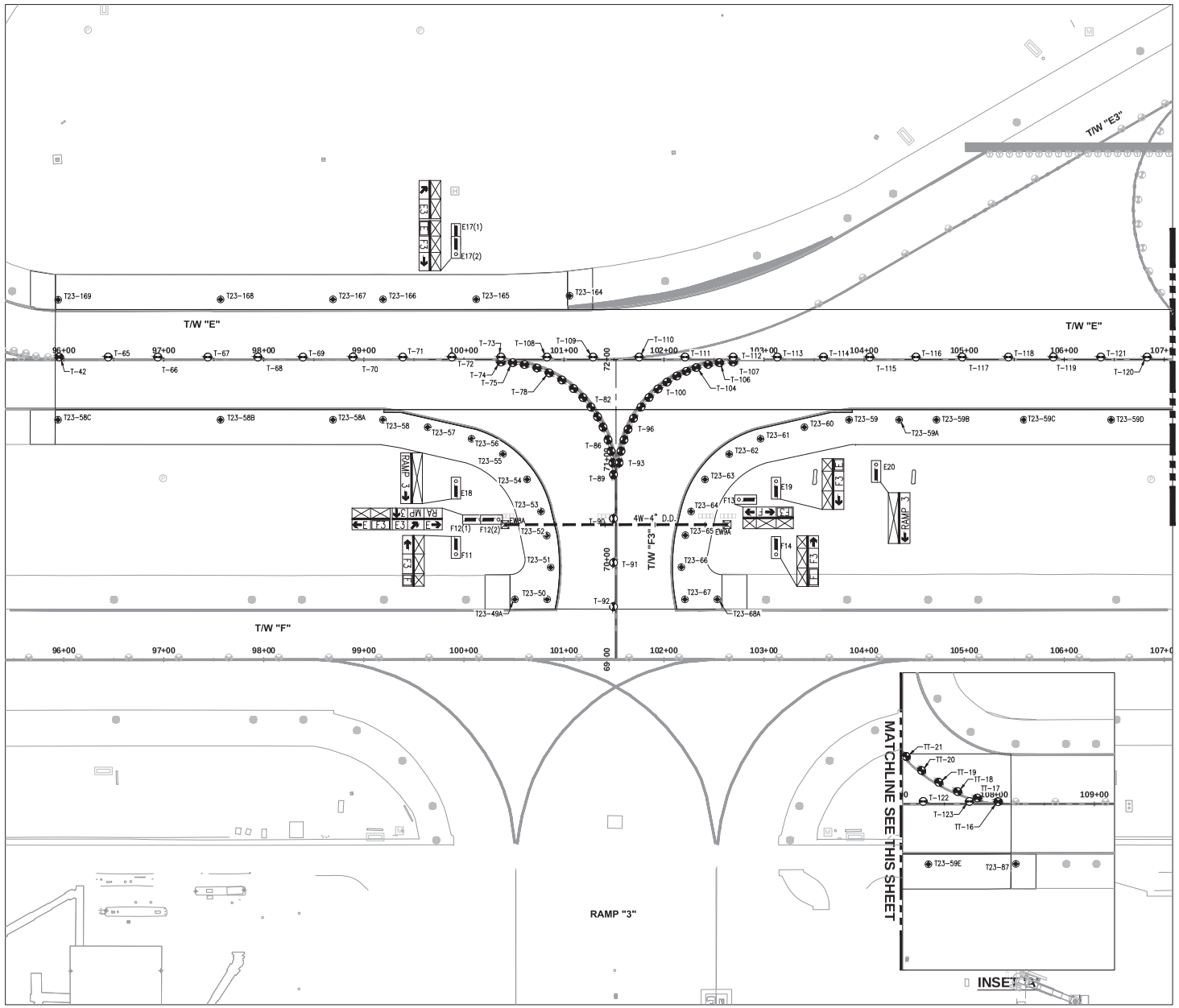
AIRFIELD ELECTRICAL LIGHTING LAYOUT PLAN

SHEET No

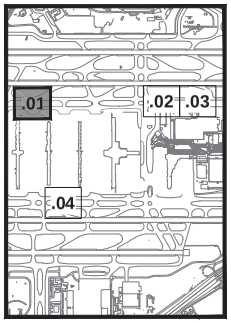
EA 02.04.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:12 PM
C:\PW_WORK\ATRONAGA01\TUDO4783\D0595455\EA-02.01-ELECTRICAL LAYOUT.DWG



KEY MAP



CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
FAA-XDP 9853 No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

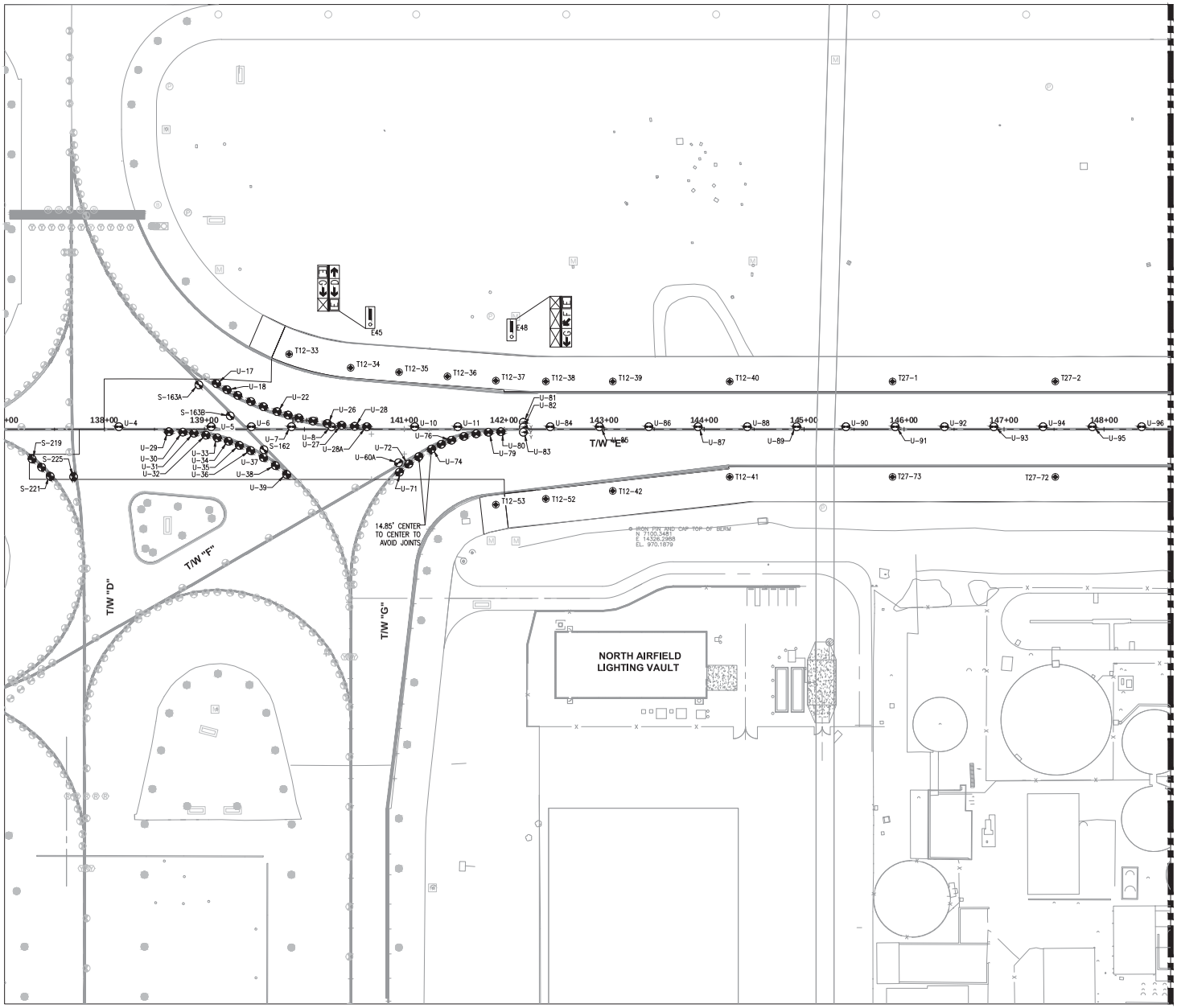
AIRFIELD ELECTRICAL FIXTURE AND SIGN ID PLAN

SHEET No

EA 02.21.1

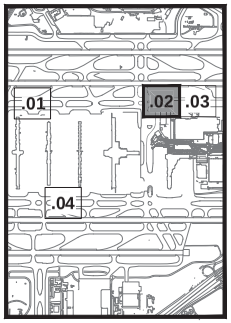
NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:16 PM
C:\PW_WORK\ATKINGA01\TUDO4783\{M5R64S5\}EA-02.11- FIXTURE ID LAYOUT.DWG



MATCHLINE SEE SHEET EA 02.23.1

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE
(IN FEET)

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
AIP WBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

AIRFIELD ELECTRICAL FIXTURE AND SIGN ID PLAN

SHEET No

EA 02.22.1

2/11/2016 5:20 PM
C:\PW_WORK\ATKINGAD01\TUDO4783\(M6596450)\EA-02.11- FIXTURE ID LAYOUT.DWG

MATCHLINE SEE SHEET EA 02.22.1

T/W "E11"

T/W "E"

T/W "E10"

DELTA TOC RAMP

2W-4" D.D.

2W-4" C.E.

149+00 150+00 151+00 152+00 153+00 154+00 155+00 156+00 157+00 158+00 159+00 160+00

58+62

58+00 57+00 56+00 55+00 54+00 53+00 52+00 51+00 50+

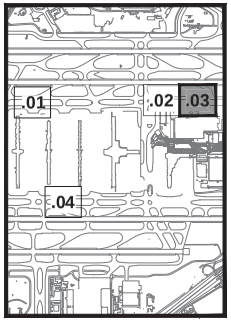
14+00 13+00 12+00 11+00 10+00

T27-3 T27-4 T27-5 T27-7 T27-8 T27-8A T27-45 T27-46 T27-47 T27-48 T27-49 T27-50 T27-50A T27-51 T27-51A T27-52 T27-53 T27-54 T27-55 T27-55A T27-56 T27-56A T27-57 T27-61 T27-62 T27-63 T27-64 T27-65 T27-66 T27-67 T27-68 T27-69 T27-70 T27-71

U-97 U-98 U-99 U-100 U-101 U-102 U-103 U-104 U-105 U-106 U-107 U-108 U-109 U-116 U-117 U-118 U-59

EE9C EE9B EE9A EE8A E50 E51

KEY MAP



NORTH

50 0 50 100

GRAPHIC SCALE
(IN FEET)

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
FAA-XDP W65 No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

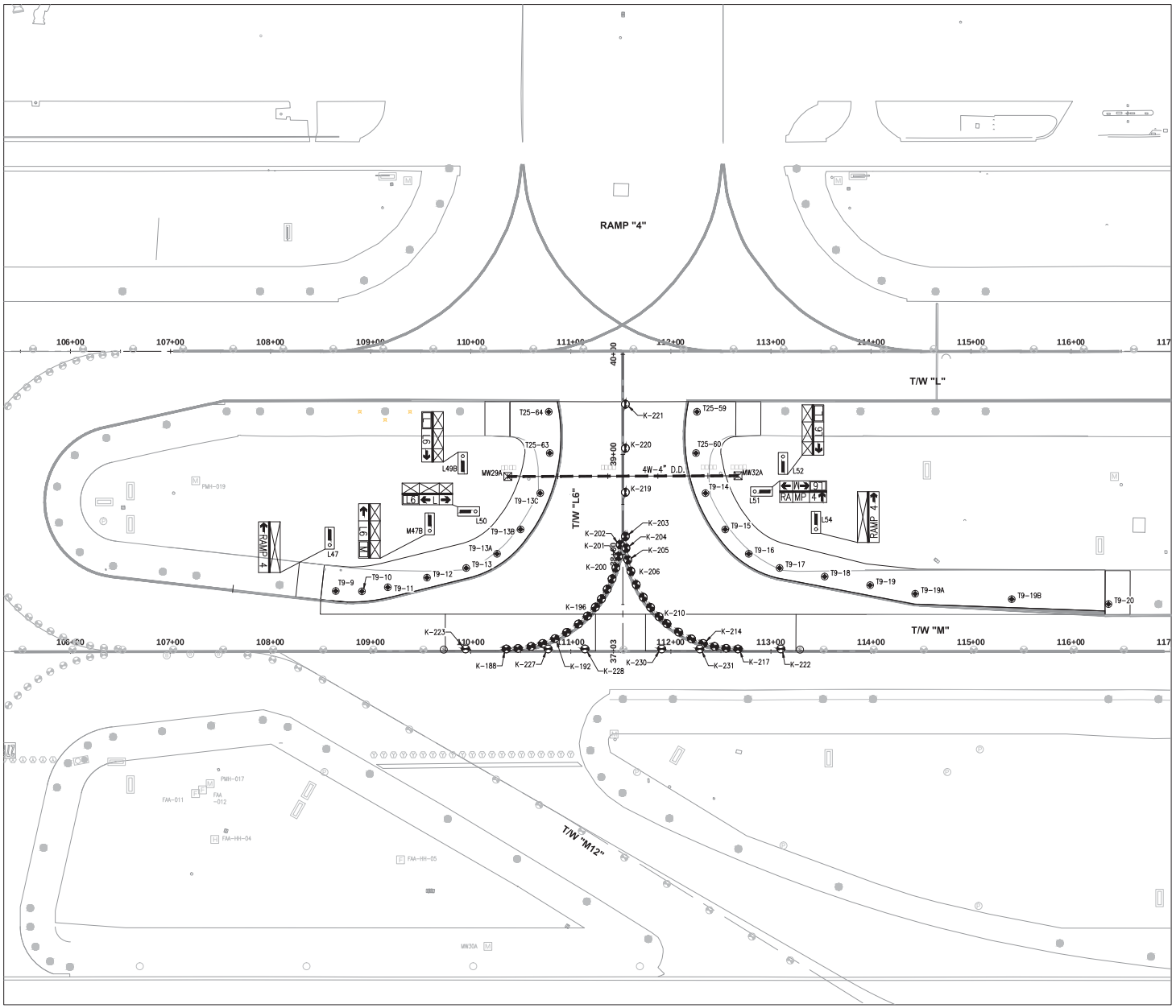
AIRFIELD ELECTRICAL FIXTURE AND SIGN ID PLAN

SHEET No

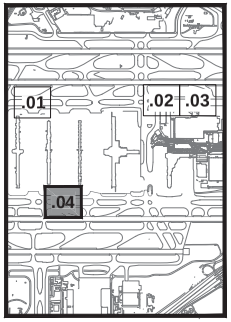
EA 02.23.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:22 PM
C:\PW_WORK\ATKINAD01\TUDO4783\DM5964S5\EA-02.11- FIXTURE ID LAYOUT.DWG



KEY MAP



NORTH

GRAPHIC SCALE (IN FEET)

50 0 50 100

2/11/2016 5:24 PM
C:\PW_WORK\ATKINAGA01\TUDO4783\(M65R45)\EA-02.11- FIXTURE ID LAYOUT.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
A-JOP W65 No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

AIRFIELD ELECTRICAL FIXTURE AND SIGN ID PLAN

SHEET No

EA 02.24.1

CKT T – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
T-42	N:7202.500 E:9595.354	LED	GREEN-GREEN	
T-65	N:7202.500 E:9644.426	LED	GREEN-GREEN	
T-66	N:7202.500 E:9694.028	LED	GREEN-GREEN	
T-67	N:7202.500 E:9744.028	LED	GREEN-GREEN	
T-68	N:7202.500 E:9794.028	LED	GREEN-GREEN	
T-69	N:7202.500 E:9839.028	LED	GREEN-GREEN	
T-70	N:7202.500 E:9889.028	LED	GREEN-GREEN	
T-71	N:7202.500 E:9938.857	LED	GREEN-GREEN	
T-72	N:7202.500 E:9987.928	LED	GREEN-GREEN	
T-73	N:7202.500 E:10037.000	LED	GREEN-GREEN	
T-74	N:7197.500 E:10037.000	LED	GREEN-GREEN	
T-75	N:7196.884 E:10048.759	LED	GREEN-GREEN	
T-76	N:7195.042 E:10060.390	LED	GREEN-GREEN	
T-77	N:7191.566 E:10073.055	LED	GREEN-GREEN	
T-78	N:7186.638 E:10085.228	LED	GREEN-GREEN	
T-79	N:7179.596 E:10097.892	LED	GREEN-GREEN	
T-80	N:7170.985 E:10109.546	LED	GREEN-GREEN	
T-81	N:7161.991 E:10119.028	LED	GREEN-GREEN	
T-82	N:7152.500 E:10127.000	LED	GREEN-GREEN	
T-84	N:7142.763 E:10133.539	LED	GREEN-GREEN	
T-85	N:7132.398 E:10139.028	LED	GREEN-GREEN	
T-86	N:7119.764 E:10143.994	LED	GREEN-GREEN	
T-87	N:7108.390 E:10147.042	LED	GREEN-GREEN	
T-88	N:7096.759 E:10148.884	LED	GREEN-GREEN	
T-89	N:7085.000 E:10149.500	LED	GREEN-GREEN	
T-90	N:7040.975 E:10149.500	LED	GREEN-GREEN	
T-91	N:6996.950 E:10149.500	LED	GREEN-GREEN	
T-92	N:6952.926 E:10149.500	LED	GREEN-GREEN	
T-93	N:7096.759 E:10155.116	LED	GREEN-GREEN	
T-94	N:7108.390 E:10156.958	LED	GREEN-GREEN	
T-95	N:7119.764 E:10160.006	LED	GREEN-GREEN	
T-96	N:7130.310 E:10164.028	LED	GREEN-GREEN	
T-97	N:7141.250 E:10169.572	LED	GREEN-GREEN	
T-98	N:7152.500 E:10177.000	LED	GREEN-GREEN	
T-99	N:7162.034 E:10185.012	LED	GREEN-GREEN	
T-100	N:7170.623 E:10194.028	LED	GREEN-GREEN	
T-101	N:7177.500 E:10202.969	LED	GREEN-GREEN	
T-102	N:7183.551 E:10212.742	LED	GREEN-GREEN	

CKT T – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
T-103	N:7188.234 E:10222.289	LED	GREEN-GREEN	
T-104	N:7191.994 E:10232.236	LED	GREEN-GREEN	
T-105	N:7195.130 E:10244.028	LED	GREEN-GREEN	
T-106	N:7196.884 E:10255.241	LED	GREEN-GREEN	
T-107	N:7197.500 E:10269.028	LED	GREEN-GREEN	
T-108	N:7202.500 E:10083.000	LED	GREEN-GREEN	
T-109	N:7202.500 E:10129.000	LED	GREEN-GREEN	
T-110	N:7202.500 E:10175.000	LED	GREEN-GREEN	
T-111	N:7202.500 E:10221.000	LED	GREEN-GREEN	
T-112	N:7202.500 E:10269.028	LED	GREEN-GREEN	
T-113	N:7202.500 E:10313.190	LED	GREEN-GREEN	
T-114	N:7202.500 E:10359.381	LED	GREEN-GREEN	
T-115	N:7202.500 E:10405.572	LED	GREEN-GREEN	
T-116	N:7202.500 E:10451.762	LED	GREEN-GREEN	
T-117	N:7202.500 E:10497.952	LED	GREEN-GREEN	
T-118	N:7202.500 E:10544.143	LED	GREEN-GREEN	
T-119	N:7202.500 E:10589.028	LED	GREEN-GREEN	
T-120	N:7202.500 E:10682.714	LED	GREEN-GREEN	
T-121	N:7202.500 E:10636.524	LED	GREEN-GREEN	
T-122	N:7202.500 E:10728.905	LED	GREEN-GREEN	
T-123	N:7202.500 E:10775.096	LED	GREEN-GREEN	

CKT T9 – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
T9-9	N:3763.556 E:10865.081	LED	OMNI-BLUE	
T9-10	N:3763.226 E:10891.253	LED	OMNI-BLUE	
T9-11	N:3767.312 E:10917.107	LED	OMNI-BLUE	
T9-12	N:3776.957 E:10956.282	LED	OMNI-BLUE	
T9-13	N:3786.602 E:10995.456	LED	OMNI-BLUE	
T9-13A	N:3800.765 E:11026.232	LED	OMNI-BLUE	
T9-13B	N:3825.206 E:11049.733	LED	OMNI-BLUE	
T9-13C	N:3861.418 E:11069.403	LED	OMNI-BLUE	
T9-14	N:3861.407 E:11234.601	LED	OMNI-BLUE	
T9-15	N:3825.206 E:11254.267	LED	OMNI-BLUE	

CKT T25 – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
T25-59	N:3942.721 E:11226.083	LED	OMNI-BLUE	
T25-60	N:3901.510 E:11225.052	LED	OMNI-BLUE	
T25-63	N:3901.533 E:11078.950	LED	OMNI-BLUE	
T25-64	N:3942.756 E:11077.912	LED	OMNI-BLUE	

CKT TT – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
TT-16	N:7202.299 E:10803.719	LED	GREEN-GREEN	
TT-17	N:7205.912 E:10783.144	LED	GREEN-GREEN	
TT-18	N:7212.397 E:10763.285	LED	GREEN-GREEN	
TT-19	N:7221.621 E:10744.542	LED	GREEN-GREEN	
TT-20	N:7233.401 E:10727.290	LED	GREEN-GREEN	
TT-21	N:7247.500 E:10711.875	LED	GREEN-GREEN	

CKT S – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
S-162	N:7179.517 E:13959.559	LED	GREEN-GREEN	
S-163A	N:7244.416 E:13894.437	LED	GREEN-GREEN	
S-163B	N:7213.363 E:13925.828	LED	GREEN-GREEN	
S-219	N:7170.189 E:13727.586	LED	GREEN-GREEN	
S-220	N:7162.027 E:13737.112	LED	GREEN-GREEN	
S-221	N:7152.870 E:13745.687	LED	GREEN-GREEN	
S-225	N:7152.399 E:13769.115	LED	GREEN-GREEN	

CKT T9 – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
T9-16	N:3800.765 E:11277.768	LED	OMNI-BLUE	
T9-17	N:3786.616 E:11308.547	LED	OMNI-BLUE	
T9-18	N:3778.028 E:11353.653	LED	OMNI-BLUE	
T9-19	N:3769.388 E:11399.027	LED	OMNI-BLUE	
T9-19A	N:3760.816 E:11444.043	LED	OMNI-BLUE	
T9-19B	N:3755.390 E:11540.586	LED	OMNI-BLUE	
T9-20	N:3750.510 E:11637.200	LED	OMNI-BLUE	

GENERAL NOTES:

1. ALL LIGHT LOCATIONS SHALL CONFORM TO BOTH THE INFORMATION IN THESE TABLES OR THE DIMENSIONS AND NOTES DISPLAYED ON LAYOUT SHEETS. IF THERE IS A DISCREPANCY BETWEEN THE DIMENSIONS ON THE PLANS AND THE LOCATIONS IN THE TABLES, THE ENGINEER SHOULD BE IMMEDIATELY NOTIFIED. WORK ON THAT ITEM SHALL NOT BE PERFORMED UNTIL A RESPONSE FROM THE ENGINEER IS MADE. WORK PERFORMED WITHOUT THE ENGINEER'S CONSENT WILL BE AT THE CONTRACTOR'S RISK.

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
A-JOP WBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

AIRFIELD ELECTRICAL FIXTURE LOCATION TABLES

SHEET No

EA 02.31.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:28 PM
C:\PW_WORK\ATKINAD01\TUDO4783\{M5R645\}\EA-02.11-FIXTURE LOCATION TABLES.DWG

CKT U – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
U-4	N:7202.500 E:13814.437	LED	GREEN-GREEN	
U-5	N:7202.500 E:13906.796	LED	GREEN-GREEN	
U-6	N:7202.500 E:13946.913	LED	GREEN-GREEN	
U-7	N:7202.500 E:13987.029	LED	GREEN-GREEN	
U-8	N:7202.500 E:14027.146	LED	GREEN-GREEN	
U-10	N:7202.500 E:14110.365	LED	GREEN-GREEN	
U-11	N:7202.500 E:14153.467	LED	GREEN-GREEN	
U-17	N:7245.637 E:13912.002	LED	GREEN-GREEN	
U-18	N:7239.531 E:13922.545	LED	GREEN-GREEN	
U-19	N:7233.862 E:13933.329	LED	GREEN-GREEN	
U-20	N:7227.698 E:13946.452	LED	GREEN-GREEN	
U-21	N:7222.500 E:13959.032	LED	GREEN-GREEN	
U-22	N:7217.602 E:13972.678	LED	GREEN-GREEN	
U-23	N:7214.193 E:13983.660	LED	GREEN-GREEN	
U-24	N:7211.293 E:13994.437	LED	GREEN-GREEN	
U-25	N:7208.133 E:14008.587	LED	GREEN-GREEN	
U-26	N:7205.666 E:14022.874	LED	GREEN-GREEN	
U-27	N:7203.898 E:14037.265	LED	GREEN-GREEN	
U-28	N:7202.907 E:14050.296	LED	GREEN-GREEN	
U-28A	N:7202.500 E:14062.473	LED	GREEN-GREEN	
U-29	N:7197.500 E:13864.437	LED	GREEN-GREEN	
U-30	N:7197.116 E:13878.344	LED	GREEN-GREEN	
U-31	N:7196.035 E:13889.437	LED	GREEN-GREEN	
U-32	N:7194.057 E:13901.473	LED	GREEN-GREEN	
U-33	N:7191.394 E:13912.836	LED	GREEN-GREEN	
U-34	N:7187.990 E:13924.000	LED	GREEN-GREEN	
U-35	N:7183.860 E:13934.916	LED	GREEN-GREEN	
U-36	N:7178.652 E:13946.277	LED	GREEN-GREEN	
U-37	N:7171.628 E:13958.957	LED	GREEN-GREEN	
U-38	N:7163.593 E:13971.022	LED	GREEN-GREEN	
U-39	N:7154.754 E:13982.211	LED	GREEN-GREEN	
U-59	N:7141.435 E:15380.434	LED	GREEN-GREEN	
U-60A	N:7166.453 E:14094.147	LED	GREEN-GREEN	
U-71	N:7156.989 E:14095.033	LED	GREEN-GREEN	
U-72	N:7165.164 E:14104.409	LED	GREEN-GREEN	
U-73	N:7172.500 E:14114.411	LED	GREEN-GREEN	
U-74	N:7180.157 E:14127.177	LED	GREEN-GREEN	
U-75	N:7184.942 E:14137.013	LED	GREEN-GREEN	

CKT U – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
U-76	N:7188.984 E:14147.177	LED	GREEN-GREEN	
U-77	N:7192.801 E:14159.637	LED	GREEN-GREEN	
U-78	N:7195.406 E:14171.801	LED	GREEN-GREEN	
U-79	N:7196.975 E:14184.141	LED	GREEN-GREEN	
U-80	N:7197.500 E:14196.569	LED	GREEN-GREEN	
U-81	N:7207.000 E:14219.000	LED	UNI-YELLOW	CLEARANCE BAR; UNI-DIRECTIONAL YELLOW LENS
U-82	N:7202.084 E:14219.067	LED	UNI-YELLOW	CLEARANCE BAR; UNI-DIRECTIONAL YELLOW LENS
U-83	N:7197.000 E:14219.000	LED	UNI-YELLOW	CLEARANCE BAR; UNI-DIRECTIONAL YELLOW LENS
U-84	N:7202.500 E:14245.881	LED	GREEN-GREEN	
U-85	N:7202.500 E:14295.192	LED	GREEN-GREEN	
U-86	N:7202.500 E:14344.504	LED	GREEN-GREEN	
U-87	N:7202.500 E:14393.815	LED	GREEN-GREEN	
U-88	N:7202.500 E:14443.127	LED	GREEN-GREEN	
U-89	N:7202.500 E:14492.438	LED	GREEN-GREEN	
U-90	N:7202.500 E:14541.749	LED	GREEN-GREEN	
U-91	N:7202.500 E:14591.061	LED	GREEN-GREEN	
U-92	N:7202.500 E:14640.372	LED	GREEN-GREEN	
U-93	N:7202.500 E:14689.684	LED	GREEN-GREEN	
U-94	N:7202.500 E:14738.995	LED	GREEN-GREEN	
U-95	N:7202.500 E:14788.307	LED	GREEN-GREEN	
U-96	N:7202.500 E:14837.618	LED	GREEN-GREEN	
U-97	N:7202.500 E:14886.930	LED	GREEN-GREEN	
U-98	N:7202.500 E:14936.241	LED	GREEN-GREEN	
U-99	N:7202.500 E:14985.552	LED	GREEN-GREEN	
U-100	N:7202.500 E:15034.864	LED	GREEN-GREEN	
U-101	N:7202.500 E:15084.175	LED	GREEN-GREEN	
U-102	N:7202.500 E:15133.487	LED	GREEN-GREEN	
U-103	N:7202.500 E:15182.798	LED	GREEN-GREEN	
U-104	N:7202.500 E:15278.632	LED	GREEN-GREEN	
U-105	N:7197.500 E:15232.110	LED	GREEN-GREEN	
U-106	N:7195.810 E:15257.888	LED	GREEN-GREEN	
U-107	N:7190.770 E:15283.226	LED	GREEN-GREEN	
U-108	N:7182.466 E:15307.689	LED	GREEN-GREEN	
U-109	N:7156.688 E:15352.339	LED	GREEN-GREEN	
U-116	N:7202.500 E:15327.177	LED	GREEN-GREEN	
U-117	N:7202.500 E:15372.177	LED	GREEN-GREEN	
U-118	N:7171.040 E:15330.859	LED	GREEN-GREEN	

CKT T12 – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
T12-33	N:7275.059 E:13984.722	LED	OMNI-BLUE	
T12-34	N:7261.399 E:14046.243	LED	OMNI-BLUE	
T12-35	N:7257.113 E:14094.654	LED	OMNI-BLUE	
T12-36	N:7252.827 E:14143.066	LED	OMNI-BLUE	
T12-37	N:7248.541 E:14191.478	LED	OMNI-BLUE	
T12-38	N:7247.750 E:14241.478	LED	OMNI-BLUE	
T12-39	N:7247.750 E:14308.497	LED	OMNI-BLUE	
T12-40	N:7247.750 E:14425.515	LED	OMNI-BLUE	
T12-41	N:7152.250 E:14425.515	LED	OMNI-BLUE	
T12-42	N:7138.242 E:14308.497	LED	OMNI-BLUE	
T12-52	N:7130.219 E:14241.478	LED	OMNI-BLUE	
T12-53	N:7124.493 E:14191.478	LED	OMNI-BLUE	

CKT K – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
K-231	N:3705.700 E:11228.877	LED	GREEN-GREEN	

GENERAL NOTES:

1. ALL LIGHT LOCATIONS SHALL CONFORM TO BOTH THE INFORMATION IN THESE TABLES OR THE DIMENSIONS AND NOTES DISPLAYED ON LAYOUT SHEETS. IF THERE IS A DISCREPANCY BETWEEN THE DIMENSIONS ON THE PLANS AND THE LOCATIONS IN THE TABLES, THE ENGINEER SHOULD BE IMMEDIATELY NOTIFIED. WORK ON THAT ITEM SHALL NOT BE PERFORMED UNTIL A RESPONSE FROM THE ENGINEER IS MADE. WORK PERFORMED WITHOUT THE ENGINEER'S CONSENT WILL BE AT THE CONTRACTOR'S RISK.

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
FAA-XDP W65 No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

AIRFIELD ELECTRICAL FIXTURE LOCATION TABLES

SHEET No

EA 02.32.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:30 PM
C:\PW_WORK\ATKINAD01\TUDO4783\D6596450\EA-02.11-FIXTURE LOCATION TABLES.DWG

CKT K – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
K–188	N:3705.700 E:11035.541	LED	GREEN–GREEN	
K–189	N:3706.173 E:11047.308	LED	GREEN–GREEN	
K–190	N:3708.158 E:11060.390	LED	GREEN–GREEN	
K–191	N:3711.206 E:11071.764	LED	GREEN–GREEN	
K–192	N:3716.043 E:11084.119	LED	GREEN–GREEN	
K–193	N:3722.301 E:11095.818	LED	GREEN–GREEN	
K–194	N:3730.656 E:11107.657	LED	GREEN–GREEN	
K–195	N:3738.626 E:11116.525	LED	GREEN–GREEN	
K–196	N:3747.489 E:11124.500	LED	GREEN–GREEN	
K–197	N:3755.700 E:11130.541	LED	GREEN–GREEN	
K–198	N:3765.432 E:11136.357	LED	GREEN–GREEN	
K–199	N:3775.700 E:11141.163	LED	GREEN–GREEN	
K–200	N:3786.821 E:11145.035	LED	GREEN–GREEN	
K–201	N:3798.286 E:11147.723	LED	GREEN–GREEN	
K–202	N:3809.968 E:11149.198	LED	GREEN–GREEN	
K–203	N:3818.200 E:11154.500	LED	GREEN–GREEN	
K–204	N:3806.441 E:11155.116	LED	GREEN–GREEN	
K–205	N:3794.810 E:11156.958	LED	GREEN–GREEN	
K–206	N:3783.436 E:11160.006	LED	GREEN–GREEN	
K–207	N:3769.972 E:11165.362	LED	GREEN–GREEN	
K–208	N:3757.308 E:11172.404	LED	GREEN–GREEN	
K–209	N:3747.194 E:11179.739	LED	GREEN–GREEN	
K–210	N:3737.957 E:11188.150	LED	GREEN–GREEN	
K–211	N:3730.957 E:11195.972	LED	GREEN–GREEN	
K–212	N:3722.552 E:11207.775	LED	GREEN–GREEN	
K–213	N:3715.733 E:11220.560	LED	GREEN–GREEN	
K–214	N:3711.206 E:11232.236	LED	GREEN–GREEN	
K–215	N:3708.158 E:11243.610	LED	GREEN–GREEN	
K–216	N:3706.316 E:11255.241	LED	GREEN–GREEN	
K–217	N:3705.700 E:11267.000	LED	GREEN–GREEN	
K–219	N:3862.260 E:11154.500	LED	GREEN–GREEN	
K–220	N:3906.320 E:11154.500	LED	GREEN–GREEN	
K–221	N:3950.380 E:11154.500	LED	GREEN–GREEN	
K–222	N:3705.700 E:11309.815	LED	GREEN–GREEN	
K–223	N:3705.700 E:10994.815	LED	GREEN–GREEN	
K–227	N:3705.700 E:11077.322	LED	GREEN–GREEN	
K–228	N:3705.700 E:11114.087	LED	GREEN–GREEN	
K–230	N:3705.700 E:11190.753	LED	GREEN–GREEN	

T27 – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
T27–1	N:7247.750 E:14588.362	LED	OMNI–BLUE	
T27–2	N:7247.750 E:14751.208	LED	OMNI–BLUE	
T27–3	N:7247.750 E:14914.054	LED	OMNI–BLUE	
T27–4	N:7247.750 E:15076.901	LED	OMNI–BLUE	
T27–5	N:7247.750 E:15189.747	LED	OMNI–BLUE	
T27–6	N:7247.750 E:15239.747	LED	OMNI–BLUE	
T27–7	N:7247.750 E:15288.676	LED	OMNI–BLUE	
T27–8	N:7247.750 E:15337.604	LED	OMNI–BLUE	
T27–8A	N:7249.947 E:15386.533	LED	OMNI–BLUE	
T27–45	N:7152.500 E:15929.100	LED	OMNI–BLUE	
T27–46	N:7151.884 E:15881.275	LED	OMNI–BLUE	
T27–47	N:7151.925 E:15833.450	LED	OMNI–BLUE	
T27–48	N:7151.966 E:15786.721	LED	OMNI–BLUE	
T27–49	N:7152.009 E:15737.800	LED	OMNI–BLUE	
T27–50	N:7152.052 E:15687.800	LED	OMNI–BLUE	
T27–50A	N:7152.088 E:15646.721	LED	OMNI–BLUE	
T27–51	N:7152.170 E:15552.969	LED	OMNI–BLUE	
T27–51A	N:7152.206 E:15510.553	LED	OMNI–BLUE	
T27–52	N:7152.250 E:15460.553	LED	OMNI–BLUE	
T27–53	N:7147.678 E:15454.164	LED	OMNI–BLUE	
T27–54	N:7140.155 E:15456.431	LED	OMNI–BLUE	
T27–55	N:7102.189 E:15506.354	LED	OMNI–BLUE	
T27–55A	N:7071.921 E:15546.156	LED	OMNI–BLUE	
T27–56	N:7047.684 E:15578.027	LED	OMNI–BLUE	
T27–56A	N:7023.447 E:15609.897	LED	OMNI–BLUE	
T27–57	N:6998.200 E:15641.000	LED	OMNI–BLUE	CYLINDRICAL LIGHTING FIXTURE
T27–61	N:6968.800 E:15479.100	LED	OMNI–BLUE	
T27–62	N:6979.200 E:15493.400	LED	OMNI–BLUE	
T27–63	N:6996.000 E:15487.900	LED	OMNI–BLUE	
T27–64	N:7026.400 E:15448.200	LED	OMNI–BLUE	
T27–65	N:7084.300 E:15372.900	LED	OMNI–BLUE	CYLINDRICAL LIGHTING FIXTURE
T27–66	N:7125.438 E:15318.734	LED	OMNI–BLUE	
T27–67	N:7145.364 E:15281.454	LED	OMNI–BLUE	
T27–68	N:7152.250 E:15239.747	LED	OMNI–BLUE	
T27–69	N:7152.250 E:15189.747	LED	OMNI–BLUE	
T27–70	N:7152.250 E:15076.901	LED	OMNI–BLUE	
T27–71	N:7152.250 E:14914.054	LED	OMNI–BLUE	
T27–72	N:7152.250 E:14751.208	LED	OMNI–BLUE	

CKT–T23 – Fixture Schedule

Fixture Name	Northing/ Easting	Lamp Type	Lens Color	Comments
T23–49A	N:6960.299 E:10050.908	LED	OMNI–BLUE	
T23–50	N:6960.260 E:10083.176	LED	OMNI–BLUE	
T23–51	N:6992.234 E:10086.658	LED	OMNI–BLUE	
T23–52	N:7024.033 E:10082.786	LED	OMNI–BLUE	
T23–53	N:7048.122 E:10077.017	LED	OMNI–BLUE	
T23–54	N:7080.134 E:10063.067	LED	OMNI–BLUE	
T23–55	N:7105.376 E:10038.939	LED	OMNI–BLUE	
T23–56	N:7120.755 E:10007.589	LED	OMNI–BLUE	
T23–57	N:7132.350 E:9963.796	LED	OMNI–BLUE	
T23–58	N:7139.750 E:9919.075	LED	OMNI–BLUE	
T23–58A	N:7139.750 E:9869.095	LED	OMNI–BLUE	
T23–58B	N:7139.750 E:9756.703	LED	OMNI–BLUE	
T23–58C	N:7139.750 E:9594.311	LED	OMNI–BLUE	
T23–59	N:7139.750 E:10384.898	LED	OMNI–BLUE	
T23–59A	N:7139.749 E:10434.925	LED	OMNI–BLUE	
T23–59B	N:7139.748 E:10472.207	LED	OMNI–BLUE	
T23–59C	N:7139.745 E:10559.516	LED	OMNI–BLUE	
T23–59D	N:7139.743 E:10646.825	LED	OMNI–BLUE	
T23–59E	N:7139.741 E:10734.135	LED	OMNI–BLUE	
T23–60	N:7132.350 E:10340.203	LED	OMNI–BLUE	
T23–61	N:7120.755 E:10296.411	LED	OMNI–BLUE	
T23–62	N:7105.376 E:10265.061	LED	OMNI–BLUE	
T23–63	N:7080.134 E:10240.932	LED	OMNI–BLUE	
T23–64	N:7048.122 E:10226.982	LED	OMNI–BLUE	
T23–65	N:7024.355 E:10221.291	LED	OMNI–BLUE	
T23–66	N:6992.420 E:10217.343	LED	OMNI–BLUE	
T23–67	N:6960.250 E:10220.825	LED	OMNI–BLUE	
T23–68A	N:6960.250 E:10253.246	LED	OMNI–BLUE	
T23–87	N:7140.039 E:10821.393	LED	OMNI–BLUE	
T23–164	N:7263.691 E:10105.494	LED	OMNI–BLUE	
T23–165	N:7260.205 E:10012.295	LED	OMNI–BLUE	
T23–166	N:7260.157 E:9919.095	LED	OMNI–BLUE	
T23–167	N:7260.132 E:9869.095	LED	OMNI–BLUE	
T23–168	N:7260.074 E:9756.791	LED	OMNI–BLUE	
T23–169	N:7259.756 E:9594.487	LED	OMNI–BLUE	

GENERAL NOTES:

1. ALL LIGHT LOCATIONS SHALL CONFORM TO BOTH THE INFORMATION IN THESE TABLES OR THE DIMENSIONS AND NOTES DISPLAYED ON LAYOUT SHEETS. IF THERE IS A DISCREPANCY BETWEEN THE DIMENSIONS ON THE PLANS AND THE LOCATIONS IN THE TABLES, THE ENGINEER SHOULD BE IMMEDIATELY NOTIFIED. WORK ON THAT ITEM SHALL NOT BE PERFORMED UNTIL A RESPONSE FROM THE ENGINEER IS MADE. WORK PERFORMED WITHOUT THE ENGINEER'S CONSENT WILL BE AT THE CONTRACTOR'S RISK.

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
T-3OP WBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

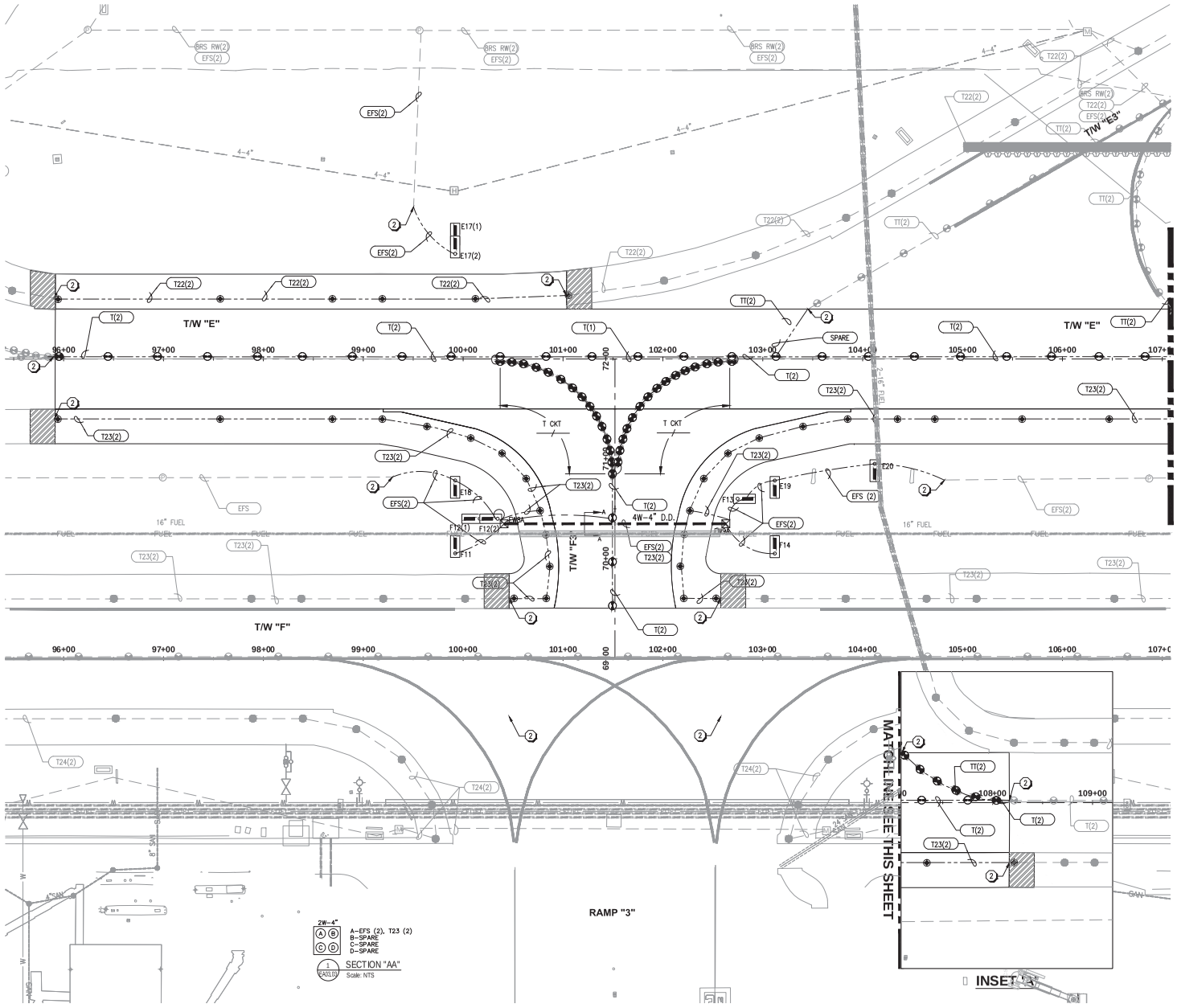
AIRFIELD ELECTRICAL FIXTURE LOCATION TABLES

SHEET No

EA 02.33.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:33 PM
G:\PW_WORK\ATIA\MAD01\TUD04783\(M59645)\EA-02.11-FIXTURE LOCATION TABLES.DWG



KEYED NOTES:

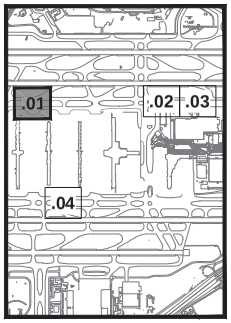
1. CONNECT NEW CONDUIT TO EXISTING BLANK BASE CAN TO CONNECT TO EXISTING CONDUIT SYSTEM. CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS FOR A COMPLETE WORKING SYSTEM IN PLACE.
2. CONTRACTOR SHALL INTERCEPT EXISTING CONDUIT/DUCT AND CONNECT TO NEW CONDUIT/DUCT AND EXTEND TO NEW/EXISTING MANHOLE/HANDHOLE/ SIGN/ BASE CAN/CONDUIT SYSTEM. CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS FOR A COMPLETE WORKING SYSTEM IN PLACE.
3. INSTALL STEEL PLATE ON EXISTING BASE CANS TO REMAIN. CONDUIT BETWEEN CANS SHALL BE ABANDONED IN PLACE.
4. REFERENCE DEMOLITION PLANS FOR CIRCUIT AND NUMBER OF CONDUCTORS IN THIS AREA.

GENERAL NOTES:

1. INSTALL PULL STRING IN ANY UNUSED CONDUIT.

TAXIWAY EDGE LIGHTS INSTALLED IN MILLED SHOULDER. SAW CUT TRENCH FOR NEW CONDUIT INSTALLATION.

KEY MAP



NORTH

GRAPHIC SCALE (IN FEET)
50 0 50 100

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
AIP/ VIBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

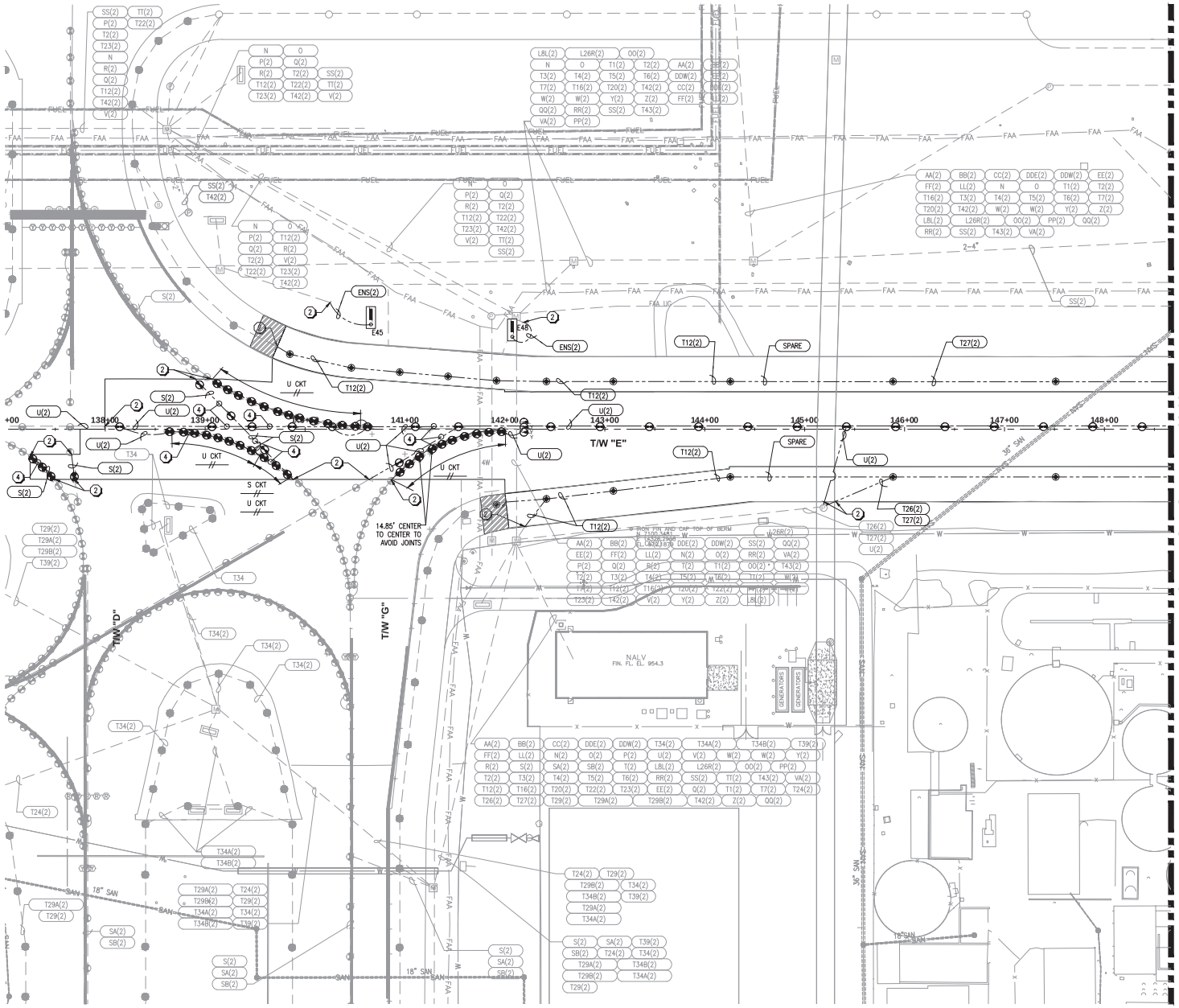
AIRFIELD ELECTRICAL LIGHTING CIRCUITING PLAN

SHEET No

EA 03.01.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:36 PM
C:\PW_WORK\ATKIAGA01\TUDO478\3\(M5R64S)\EA-03.01-ELECTRICAL CIRCUITING.DWG



KEYED NOTES:

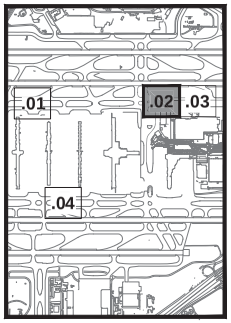
1. CONNECT NEW CONDUIT TO EXISTING BLANK BASE CAN TO CONNECT TO EXISTING CONDUIT SYSTEM. CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS FOR A COMPLETE WORKING SYSTEM IN PLACE.
2. CONTRACTOR SHALL INTERCEPT EXISTING CONDUIT/DUCT AND CONNECT TO NEW CONDUIT/DUCT AND EXTEND TO NEW/EXISTING MANHOLE/HANDHOLE/ SIGN/ BASE CAN/CONDUIT SYSTEM. CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS FOR A COMPLETE WORKING SYSTEM IN PLACE.
3. INSTALL STEEL PLATE ON EXISTING BASE CANS TO REMAIN. CONDUIT BETWEEN CANS SHALL BE ABANDONED IN PLACE.
4. REFERENCE DEMOLITION PLANS FOR CIRCUIT AND NUMBER OF CONDUCTORS IN THIS AREA.

GENERAL NOTES:

1. INSTALL PULL STRING IN ANY UNUSED CONDUIT.

TAXIWAY EDGE LIGHTS INSTALLED IN MILLED SHOULDER. SAW CUT TRENCH FOR NEW CONDUIT INSTALLATION.

KEY MAP



NORTH

GRAPHIC SCALE (IN FEET)
50 0 50 100

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
FAA-XDP 9855 No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

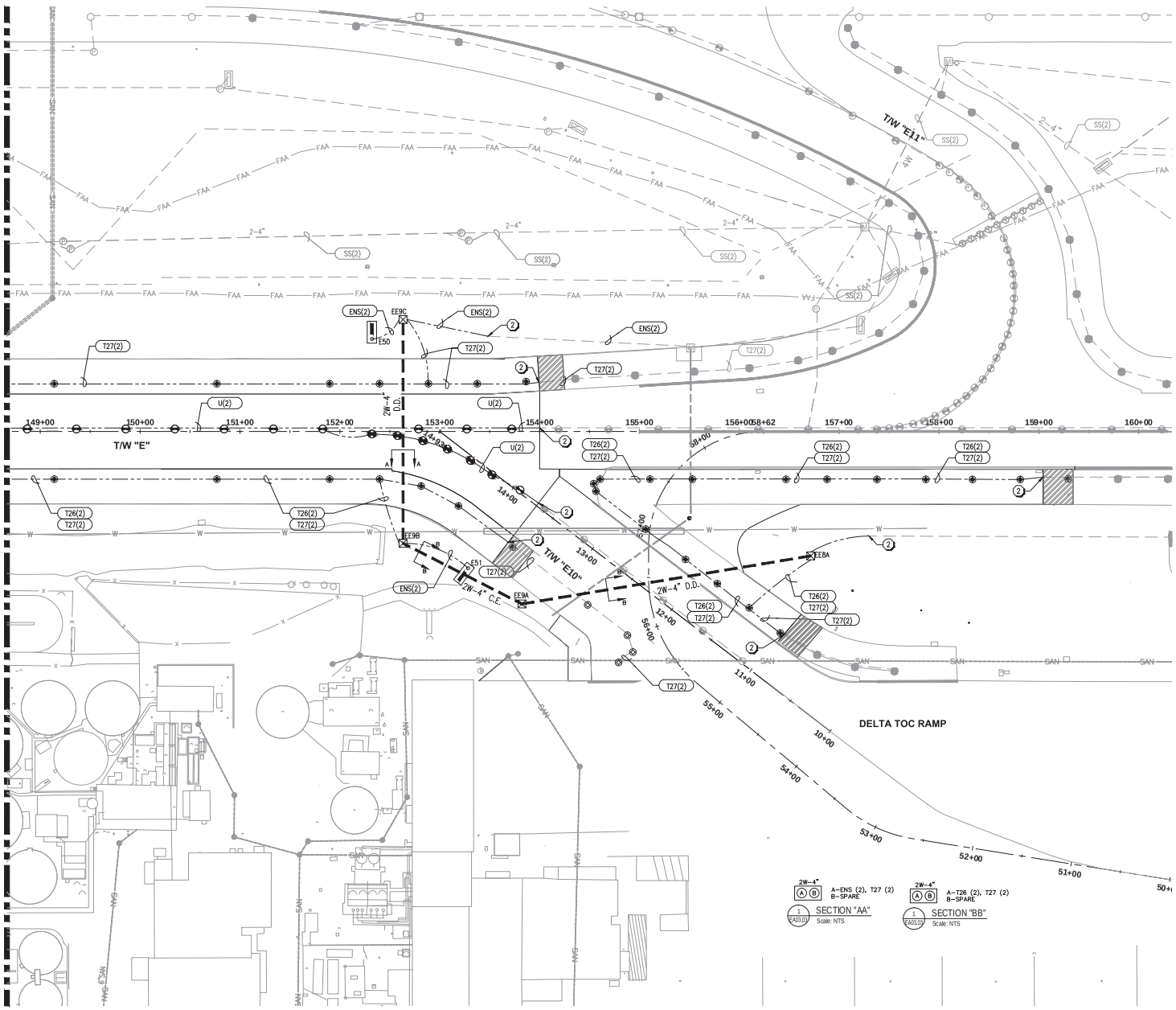
AIRFIELD ELECTRICAL LIGHTING CIRCUITING PLAN

SHEET No

EA 03.02.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:40 PM
C:\PW_WORK\ATRDAG001\TUDO4793\DM5964551\EA-03.01-ELECTRICAL CIRCUITING.DWG



KEYED NOTES:

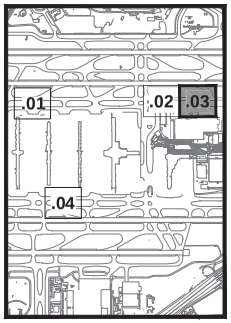
1. CONNECT NEW CONDUIT TO EXISTING BLANK BASE CAN TO CONNECT TO EXISTING CONDUIT SYSTEM. CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS FOR A COMPLETE WORKING SYSTEM IN PLACE.
2. CONTRACTOR SHALL INTERCEPT EXISTING CONDUIT/DUCT AND CONNECT TO NEW CONDUIT/DUCT AND EXTEND TO NEW/EXISTING MANHOLE/HANDHOLE/ SIGN/ BASE CAN/CONDUIT SYSTEM. CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS FOR A COMPLETE WORKING SYSTEM IN PLACE.
3. INSTALL STEEL PLATE ON EXISTING BASE CANS TO REMAIN. CONDUIT BETWEEN CANS SHALL BE ABANDONED IN PLACE.
4. REFERENCE DEMOLITION PLANS FOR CIRCUIT AND NUMBER OF CONDUCTORS IN THIS AREA.

GENERAL NOTES:

1. INSTALL PULL STRING IN ANY UNUSED CONDUIT.

TAXIWAY EDGE LIGHTS INSTALLED IN MILLED SHOULDER. SAW CUT TRENCH FOR NEW CONDUIT INSTALLATION.

KEY MAP



NORTH

GRAPHIC SCALE (IN FEET)
50 0 50 100

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
FAA-AIP NRS No	D-0290-017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

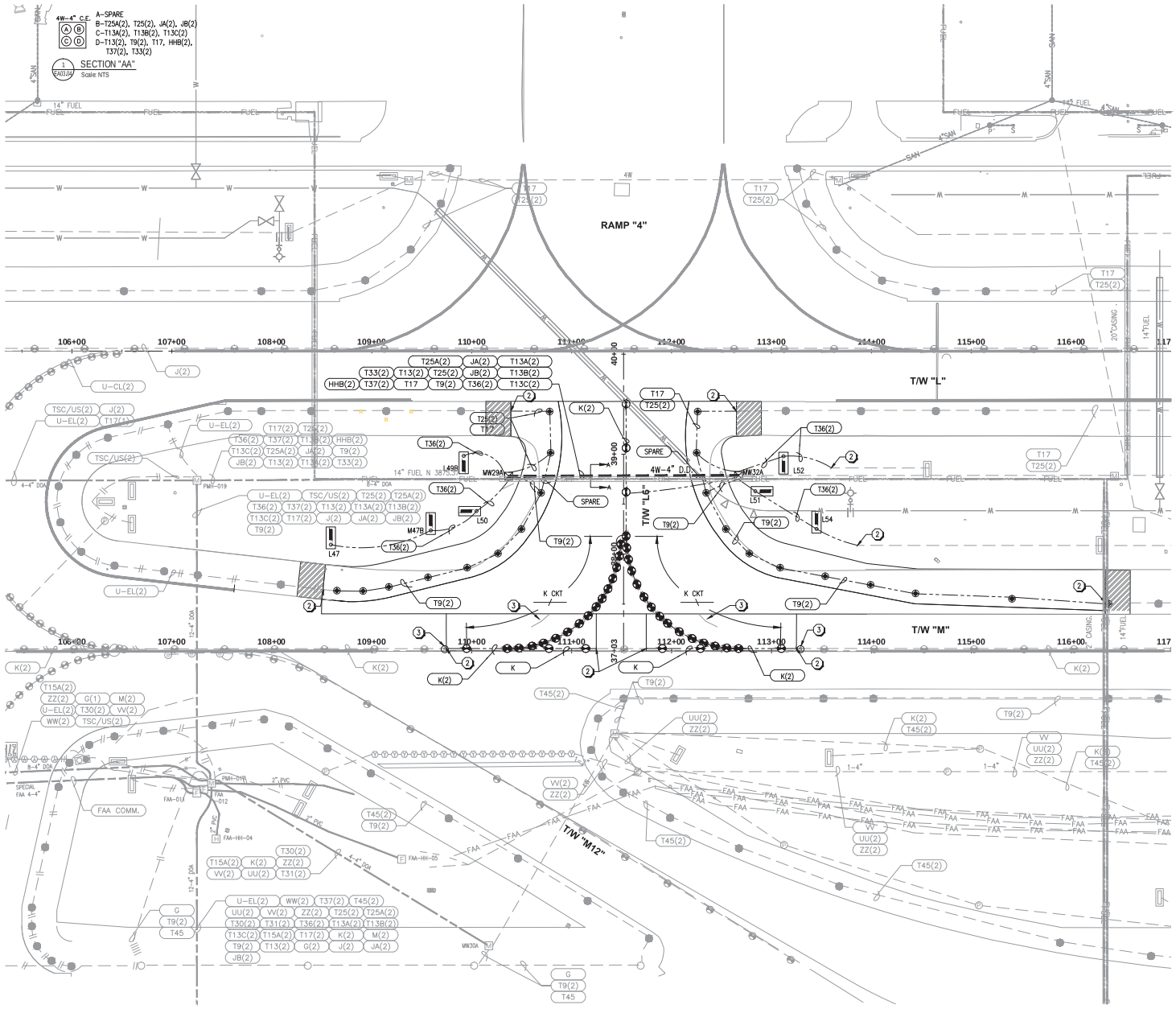
SHEET NAME

AIRFIELD ELECTRICAL LIGHTING CIRCUITING PLAN

SHEET No

EA 03.03.1

2/11/2016 5:43 PM
C:\PW_WORK\ATIGAGA01\TUDO4783\(M0596450)\EA-03.01-ELECTRICAL CIRCUITING.DWG



KEYED NOTES:

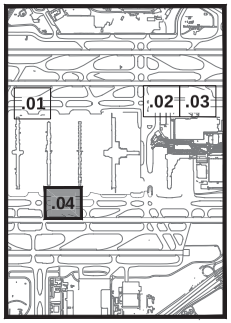
1. CONNECT NEW CONDUIT TO EXISTING BLANK BASE CAN TO CONNECT TO EXISTING CONDUIT SYSTEM. CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS FOR A COMPLETE WORKING SYSTEM IN PLACE.
2. CONTRACTOR SHALL INTERCEPT EXISTING CONDUIT/DUCT AND CONNECT TO NEW CONDUIT/DUCT AND EXTEND TO NEW/EXISTING MANHOLE/HANDHOLE/ SIGN/ BASE CAN/CONDUIT SYSTEM. CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS FOR A COMPLETE WORKING SYSTEM IN PLACE.
3. INSTALL STEEL PLATE ON EXISTING BASE CANS TO REMAIN. CONDUIT BETWEEN CANS SHALL BE ABANDONED IN PLACE.
4. REFERENCE DEMOLITION PLANS FOR CIRCUIT AND NUMBER OF CONDUCTORS IN THIS AREA.

GENERAL NOTES:

1. INSTALL PULL STRING IN ANY UNUSED CONDUIT.

TAXIWAY EDGE LIGHTS INSTALLED IN MILLED SHOULDER. SAW CUT TRENCH FOR NEW CONDUIT INSTALLATION.

KEY MAP



NORTH

GRAPHIC SCALE (IN FEET)
50 0 50 100

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
AIP/ WBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

AIRFIELD ELECTRICAL LIGHTING CIRCUITING PLAN

SHEET No

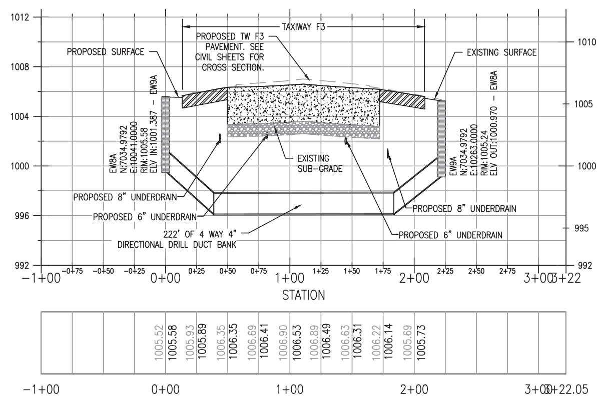
EA 03.04.1

NOT ISSUED FOR CONSTRUCTION

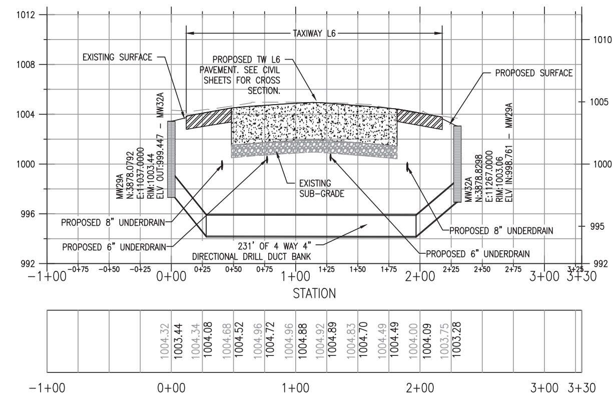
2/11/2016 5:45 PM
C:\PW_WORK\ATRDAD01\TUDD4783\DM5964551\EA-03.01-ELECTRICAL CIRCUITING.DWG

GENERAL NOTES:

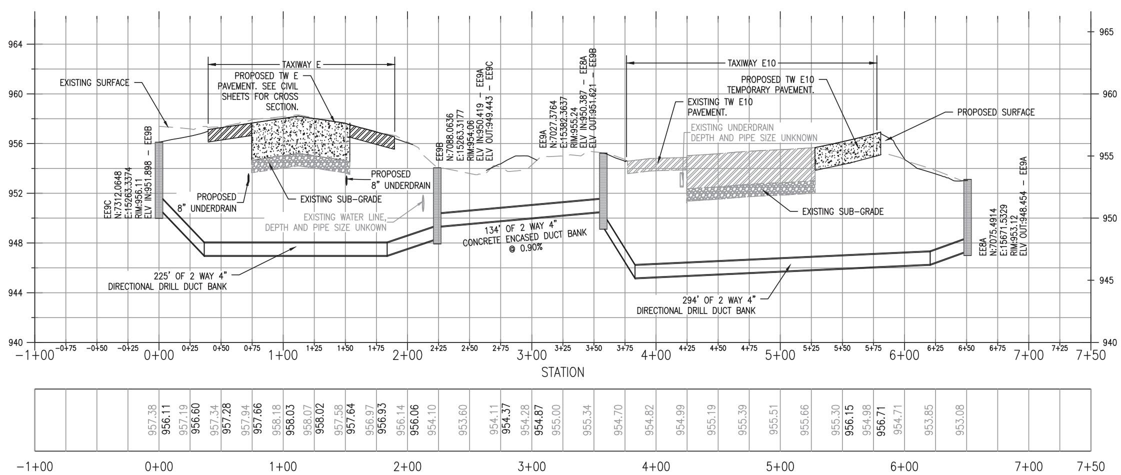
1. EXISTING GRADE IS BASED ON BEST AVAILABLE INFORMATION. ACTUAL ELEVATION MAY VARY. CONTRACTOR SHALL FIELD VERIFY BEFORE STARTING ANY WORK.
2. THE LOCATION AND DEPTH OF EXISTING CROSSINGS ARE BASED ON BEST AVAILABLE INFORMATION. CROSSING INFORMATION SHOWN ON PROFILES IS GENERAL AND SCHEMATIC. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES WITHIN TEN (10) FEET OF ANY PROPOSED UTILITY LOCATION, EMPLOYING NONDESTRUCTIVE METHODS OF LOCATING THE UTILITIES.
3. DETERMINE LOCATION AND DEPTH OF EXISTING CROSSINGS BEFORE DIRECTIONAL DRILLING, ENSURE 6" MIN. CLEARANCE.
4. ALL DUCTS SHALL BE INSTALLED A MINIMUM OF 18" BELOW EXISTING GRADE IN TURF AND A MINIMUM OF 4'-6" BELOW TOP OF SUB-GRADE UNDER PAVEMENT WHERE NECESSARY.
5. SEE FIXTURE ID PLANS FOR DUCT BANK ALIGNMENTS.



MANHOLE EW8A TO EW9A PROFILE



MANHOLE MW29A TO MW32A PROFILE



MANHOLE EE9C TO EE8A PROFILE

HORIZONTAL 50 0 50 100
VERTICAL 5 0 5 10

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

DOA CONTRACT No	FC-6684
DOA PROJECT No	
H-JDP WBS No	D.02.90.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

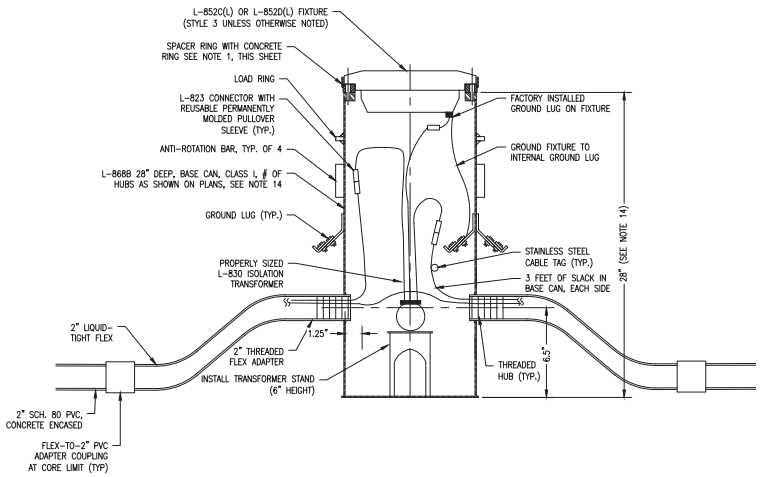
AIRFIELD ELECTRICAL DUCT BANK PROFILES

SHEET No

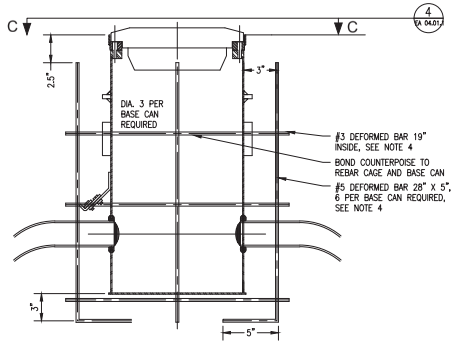
EA 03.11.1

NOT ISSUED FOR CONSTRUCTION

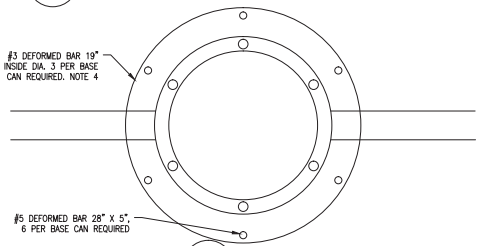
2/11/2016 5:49 PM
C:\PW_WORK\ATKNAGA01\TJD04763\DMS06455\EA-03.11-DUCT BANK PROFILES.DWG



1 EA 04.01 TYPICAL INPAVEMENT LIGHT FIXTURE ON AN L-868B BASE CAN IN 22" CONCRETE
Scale: NTS



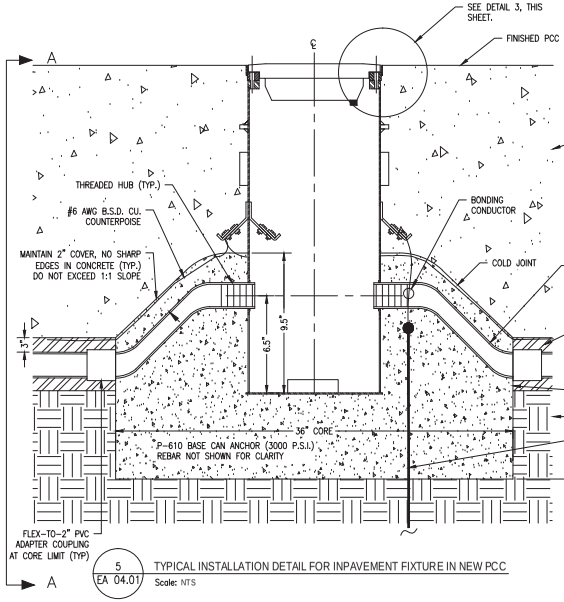
2 EA 04.01 REBAR DETAIL FOR ALL L-868B BASE CANS
Scale: NTS



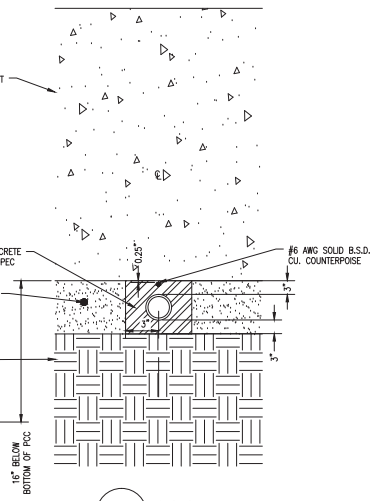
4 EA 04.01 PLAN C-C
Scale: NTS

NOTES:

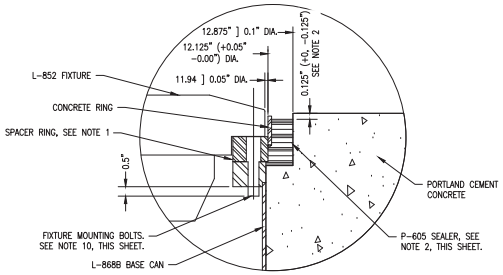
1. THE SPACER RING IS DESIGNED AS A NOMINAL 0.75" THICKNESS. THE SPACER RING MAY BE REQUIRED TO BE THINNER OR THICKER DEPENDING ON BASE CAN INSTALLATION AND PAVING TECHNIQUES. THIS CONTRACTOR SHALL BE RESPONSIBLE TO MEASURE AND DETERMINE THE REQUIRED THICKNESS OF EACH INDIVIDUAL SPACER RING REQUIRED TO PUT THE AIRFIELD LIGHTING FIXTURE AT THE CORRECT ELEVATION, AZIMUTH AND ROTATION PER FAA ADVISORY CIRCULARS, LATEST EDITIONS. THE CONTRACTOR'S BID PRICE FOR EACH LIGHT FIXTURE SHALL INCLUDE FURNISHING AND INSTALLING ALL SPACER RINGS.
2. THE P-605 SEALER SHALL FILL THE VOID TO WITHIN 0.125" OF THE TOP EDGE OF THE CONCRETE RING AT THE LOWEST POINT OF THE CONCRETE RING. ANY OVER POURS SHALL BE REPLACED BY AND AT THE CONTRACTOR'S EXPENSE.
3. ALL AIRFIELD LIGHTING MATERIALS SHALL COMPLY WITH FAA REQUIREMENTS.
4. TWO PIECE BASE CANS MAY BE USED WHERE PAVING INTERFERENCES REQUIRE THEIR USE. THE REBAR CAGE SHALL BE EXTENDED/MODIFIED TO ACCOMMODATE THE TWO PIECE BASE CAN.
5. ALL BASE CAN INSTALLATION TECHNIQUES, METHODS, MATERIALS, ETC., SHALL BE SUBMITTED TO THE RESIDENT ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE START OF WORK.
6. IMMEDIATELY AFTER THE HOLES ARE CORED IN THE BASE COURSE, THE BASE CANS SHALL BE INSTALLED AND THE 3,000 PSI CONCRETE PLACED SO AS TO PREVENT WATER FROM ENTERING THE STABILIZED SUBGRADE.
7. BEFORE PAVING MAY PROCEED THE CONTRACTOR SHALL DEMONSTRATE TO THE RESIDENT ENGINEER THAT THE BASE CANS ARE AT THE CORRECT ELEVATION, AZIMUTH AND ROTATION AND THAT THE PROPER CLEARANCE EXISTS BETWEEN THE BASE CAN AND THE PAVING TRAIN.
8. THE FINISHED PAVEMENT SURFACE SHALL BE PROTECTED FROM FOREIGN SUBSTANCES WHICH COULD CAUSE STAINING, IE. OIL, ETC. THE CONTRACTOR SHALL IMMEDIATELY CLEAN ALL SPILLS AND CORRECT/CLEAN ANY STAINED SURFACES AT THE CONTRACTOR'S EXPENSE.
9. USE ELECTRICALLY CONDUCTIVE SILICONE GREASE AS A SEALANT BETWEEN SEMI-FLUSH FIXTURE AND ADAPTER/SPACER RING IN PLACE OF AN O-RING. USE ELECTRICALLY CONDUCTIVE SILICONE GREASE BETWEEN ADAPTER/SPACER RING AND BASE CAN. DO NOT USE EXCESSIVE AMOUNTS OF SEALANT. THE SEALANT SHALL ACT AS A BARRIER FOR WATER, BUT SHALL NOT EFFECT THE ELECTRICAL CONDUCTIVITY BETWEEN THE BASE CANS AND THE SPACER RINGS.
10. THE FIXTURE MOUNTING BOLTS SHALL EXTEND THRU THE BASE CAN MOUNTING FLANGE INTO THE BASE CAN A MIN. OF 0.50". THE BOLTS SHALL HAVE ENOUGH THREAD LENGTH SO THEY DO NOT SHOULDER OUT BEFORE THE FIXTURE IS SECURELY TIGHTENED.
11. ALL HUBS SHALL BE FACTORY DRILL PRIOR TO GALVANIZING.
12. CONTRACTOR SHALL INSTALL THE REQUIRED NUMBER OF GROUND RODS AT EACH BASE CAN TO OBTAIN THE REQUIRED RESISTANCE MEASUREMENTS AS OUTLINED IN THE PROJECT SPECIFICATIONS.
13. IN-PAVEMENT LIGHT FIXTURE BOLTS SHALL TIGHTENED AT THE MANUFACTURER'S RECOMMENDED TORQUE.
14. L-868B BASE CAN DEPTH MAY VARY WITH PAVEMENT SECTIONS. SEE CIVIL PLANS TO DETERMINE REQUIRED BASE CAN DEPTH.
15. TRANSFORMER STANDS SHALL BE INSTALLED IN ALL BASE CANS TO HELP MAINTAIN ACCESS TO CABLES AND TRANSFORMERS.
16. BASE CANS SHALL BE INSTALLED SUCH THAT LIGHTS ARE AIMED CORRECTLY WITHOUT AZIMUTH CORRECTION RINGS.
17. ORIENT THE BASE CANS SUCH THAT THE LIGHT, WHEN INSTALLED, WILL BE PARALLEL TO THE CENTERLINE AT ITS NEAREST POINT.



5 EA 04.01 TYPICAL INSTALLATION DETAIL FOR INPAVEMENT FIXTURE IN NEW PCC
Scale: NTS



6 EA 04.01 SECTION A-A
Scale: NTS



3 EA 04.01 SPACER RING INSTALLATION
Scale: NTS

2/13/2016 4:00 PM
C:\PW_WORK\ATRDAG01\TUDO4783\{M0564S5}\EA-04.01-ELECTRICAL DETAILS.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
FAA-XDP W65 No	D.0280.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

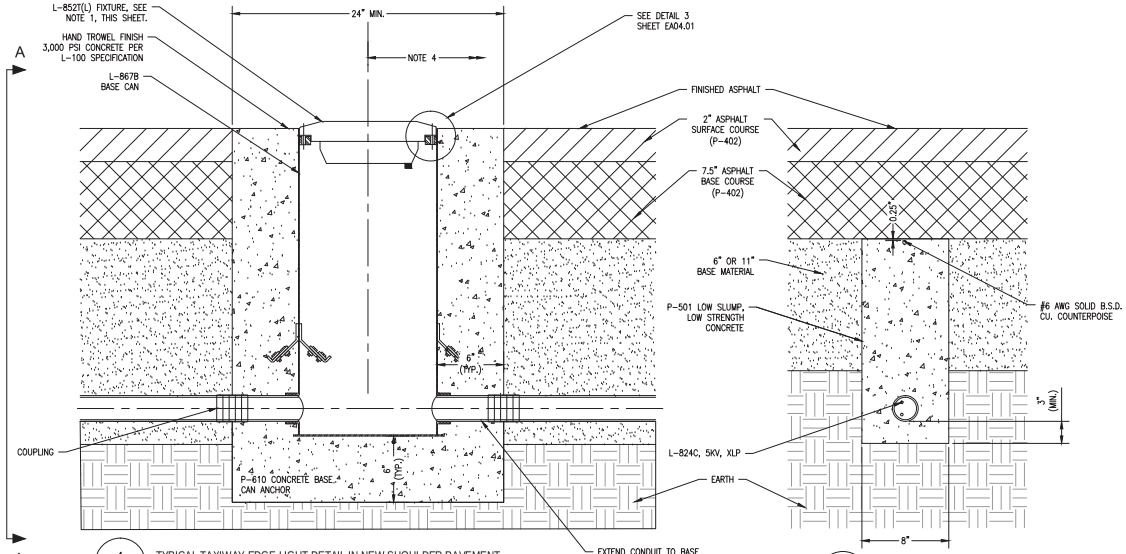
FEBRUARY 16, 2016

SHEET NAME

AIRFIELD ELECTRICAL LIGHTING DETAILS

SHEET No

EA 04.01.1

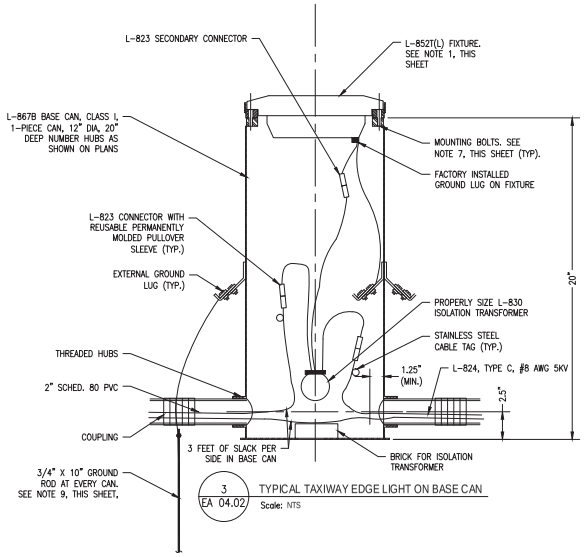


1 EA 04.02 TYPICAL TAXIWAY EDGE LIGHT DETAIL IN NEW SHOULDER PAVEMENT
Scale: NTS

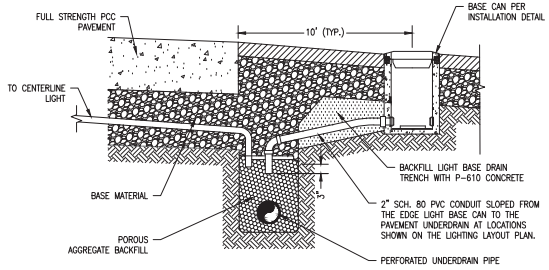
2 EA 04.02 SECTION A-A
Scale: NTS

NOTES:

1. ALL L-852T(L) SHALL BE STYLE 2, LED. ALL FIXTURE CASTINGS SHALL HAVE A 12" DIAMETER. 8" LIGHT FIXTURES WITH 12" ADAPTER RING WILL NOT BE ACCEPTED.
2. ALL BASE CAN INSTALLATION TECHNIQUES, METHODS, MATERIALS, ETC., SHALL BE SUBMITTED TO THE RESIDENT ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE START OF WORK.
3. BEFORE PAVING MAY PROCEED, THE CONTRACTOR SHALL DEMONSTRATE TO THE RESIDENT ENGINEER THAT THE BASE CANS ARE AT THE CORRECT ELEVATION, AZIMUTH AND ROTATION AND THAT THE PROPER CLEARANCE EXISTS BETWEEN THE BASE CAN AND THE PAVING TRAIN.
4. EDGE LIGHTS SHALL BE INSTALLED 10.0' FROM THE THEORETICAL EDGE OF THE FULL STRENGTH PAVEMENT.
5. THE FINISHED PAVEMENT SURFACE SHALL BE PROTECTED FROM FOREIGN SUBSTANCES WHICH COULD CAUSE STAINING, IE. CONCRETE, OIL, ETC. THE CONTRACTOR SHALL IMMEDIATELY CLEAN ALL SPILLS AND CORRECT/CLEAN ANY STAINED SURFACES AT THE CONTRACTORS EXPENSE.
6. CLEAN THE SURFACE OF THE CONCRETE TO EXPOSE ROUGH AGGREGATE. APPLY AN APPROVED EPOXY BONDING COMPOUND TO THE CLEANED SURFACE, PRIOR TO POURING THE SECOND LIFT.
7. THE BASE CAN COVER MOUNTING BOLTS SHALL EXTEND THROUGH BASE CAN MOUNTING FLANGE INTO THE BASE CAN A MIN. OF 0.5". THE BOLTS SHALL HAVE ENOUGH THREAD LENGTH SO THEY DO NOT SHOULDER OUT BEFORE THE FIXTURE IS SECURELY TIGHTENED.
8. PVC SHALL BE SCHEDULE 80 UNDER PAVEMENT AND SCHEDULE 40 IN TURF.
9. CONTRACTOR SHALL INSTALL THE REQUIRED NUMBER OF GROUND RODS AT EACH BASE CAN TO OBTAIN THE REQUIRED RESISTANCE MEASUREMENTS AS OUTLINED IN THE PROJECT SPECIFICATIONS.



3 EA 04.02 TYPICAL TAXIWAY EDGE LIGHT ON BASE CAN
Scale: NTS



4 EA 04.02 LIGHT BASE DRAIN DETAIL
Scale: NTS

NOTE:

1. THIS DETAIL IS SCHEMATIC IN NATURE. SEE PAVEMENT SECTION DETAILS IN CIVIL PLANS FOR THE EXACT PAVEMENT SECTION.
2. INSTALL CONNECTION TO UNDERDRAIN SYSTEM AT EACH LOW POINT AND AT A MINIMUM OF EVERY 200' LINEARLY.
3. CONNECTION TO UNDERDRAIN SHALL MAINTAIN A NEGATIVE SLOPE.
4. EDGE AND CENTERLINE LIGHTS SHALL BE DRAINED FROM AN ADDITIONAL FACTORY DRILLED HUB IN THE BASE CAN. IN 28" BASE CANS, DRILL THE ADDITIONAL HUB 2" ABOVE BASE CAN BOTTOM.

2/11/2016 5:52 PM
C:\PW_WORK\ATIDAG001\TUDO4783\DM596450\EA-04.01-ELECTRICAL DETAILS.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	####
I-JOP WBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

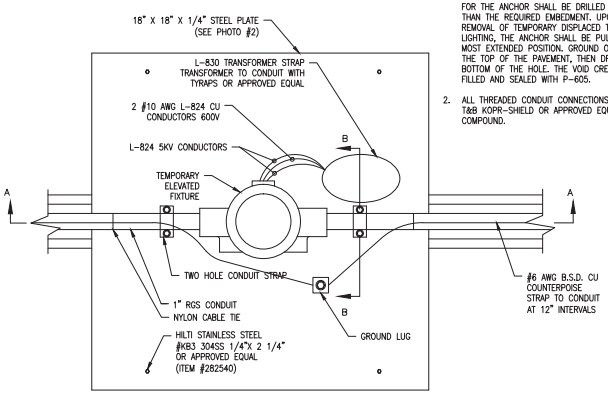
AIRFIELD ELECTRICAL LIGHTING DETAILS

SHEET No

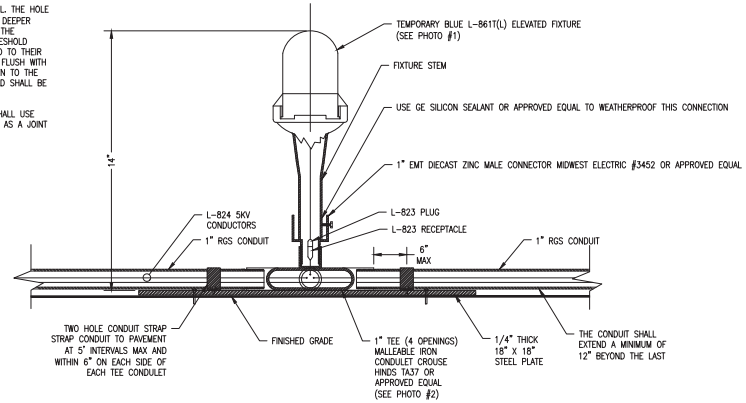
EA 04.02.1

NOTES:

1. ALL ANCHORS SHALL BE STAINLESS STEEL. THE HOLE FOR THE ANCHOR SHALL BE DRILLED 1" DEEPER THAN THE REQUIRED EMBEDMENT. UPON THE REMOVAL OF TEMPORARY DISPLACED THRESHOLD LIGHTING, THE ANCHOR SHALL BE PULLED TO THEIR MOST EXTENDED POSITION. GROUND OFF FLUSH WITH THE TOP OF THE PAVEMENT, THEN DRIVEN TO THE BOTTOM OF THE HOLE. THE VOID CREATED SHALL BE FILLED AND SEALED WITH P-605.
2. ALL THREADED CONDUIT CONNECTIONS SHALL USE T&B KOPR-SHIELD OR APPROVED EQUAL AS A JOINT COMPOUND.



1 EA 04.03 TEMPORARY ELEVATED LIGHT PLAN
Scale: NTS



2 EA 04.03 TEMPORARY ELEVATED LIGHT SECTION: A-A
Scale: NTS

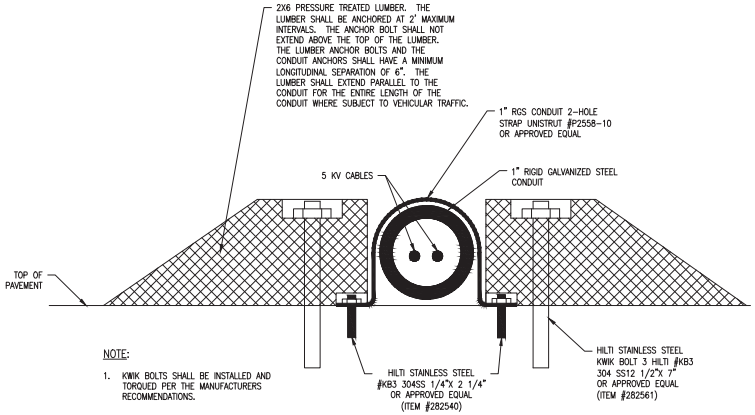
NOTES:

1. THE ELEVATED EDGE LIGHTS SHALL BE 14" HIGH UNLESS NOTED OTHERWISE IN THE CONTRACT DOCUMENTS.
2. ALL INSTALLATION TECHNIQUES, METHODS, MATERIALS, ETC., SHALL BE SUBMITTED TO THE RESIDENT ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE START OF WORK.
3. EDGE LIGHTS SHALL BE INSTALLED 10.0' FROM TEMPORARY EDGE MARKING.
4. THE FINISHED PAVEMENT SURFACE SHALL BE PROTECTED FROM FOREIGN SUBSTANCES WHICH COULD CAUSE STAINING, IE. CONCRETE, OIL, ETC. THE CONTRACTOR SHALL IMMEDIATELY CLEAN ALL SPILLS AND CORRECT/CLEAN ANY STAINED SURFACES AT THE CONTRACTOR'S EXPENSE.
5. ALL L-824 CABLES SHALL BE IDENTIFIED WITH AN 18 GAUGE STAINLESS STEEL TAG WITH ITS RESPECTIVE CIRCUIT/LOOP NUMBER AT ALL ACCESSIBLE LOCATIONS. ATTACH ID TAG 12" FROM THE L-823 CONNECTORS OR MID LOOP, IF NO CONNECTORS ARE REQUIRED. THE CONDUCTORS SHALL BE IDENTIFIED ON EACH SIDE OF THE CONNECTORS OR LOOP.
6. L-823 CONNECTORS SHALL BE INSTALLED ON ALL CABLES, IN EACH MANHOLE, BASE CAN, OR OTHER ACCESSIBLE LOCATIONS.

NOTE:

1. TEMPORARY ELEVATED FIXTURES SHALL HAVE OMNIDIRECTIONAL BLUE LIGHTS

3 EA 04.03 TEMPORARY ELEVATED PHOTO #1
Scale: NTS



NOTE:

1. KWIK BOLTS SHALL BE INSTALLED AND TORQUED PER THE MANUFACTURERS RECOMMENDATIONS.

4 EA 04.03 TEMPORARY ABOVE GROUND CONDUIT DETAIL
Scale: NTS

5 EA 04.03 TEMPORARY ELEVATED PHOTO #2
Scale: NTS

NOTE:

1. ALL EQUIPMENT INDICATED ON THIS SHEET SHALL BE INCIDENTAL TO THE COST OF TEMPORARY ELEVATED LIGHT FIXTURE INSTALLATION.

2/11/2016 5:52 PM
C:\PW_WORK\ATRONAGA01\TUDO4783\D6596450\EA-04.01-ELECTRICAL DETAILS.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
I-JOP WBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

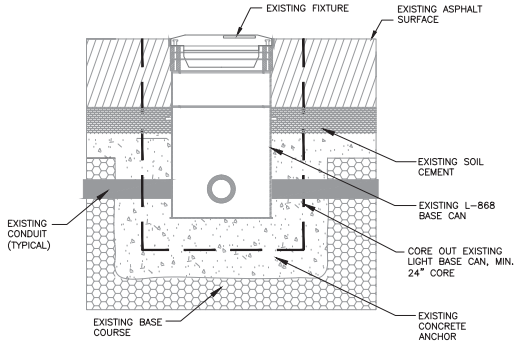
FEBRUARY 16, 2016

SHEET NAME

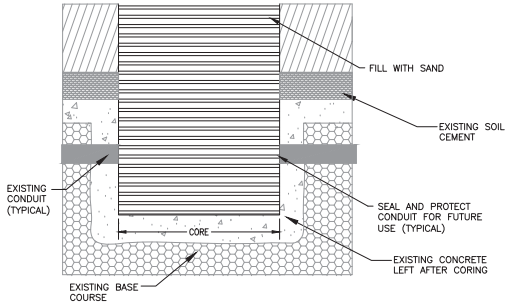
AIRFIELD ELECTRICAL LIGHTING DETAILS

SHEET No

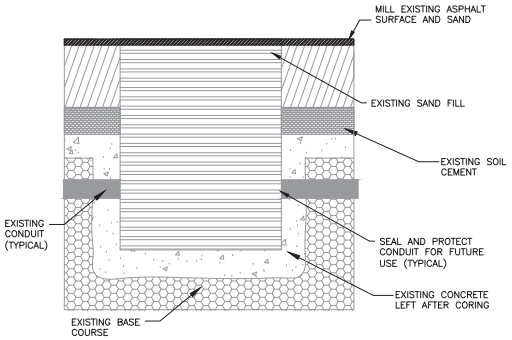
EA 04.03.1



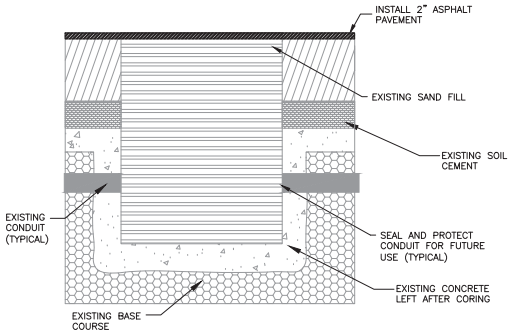
CORE OUT EXISTING BASE CAN (1 / EA 04.04)
NOT TO SCALE



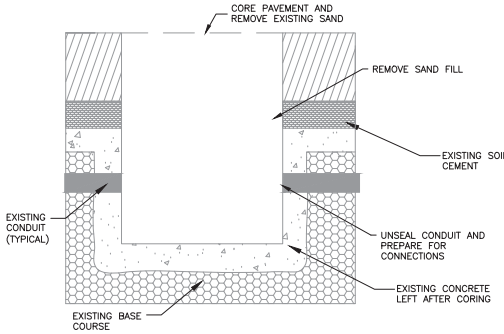
SEAL CONDUIT CONNECTIONS, FILL VOID WITH SAND FILL (2 / EA 04.04)
NOT TO SCALE



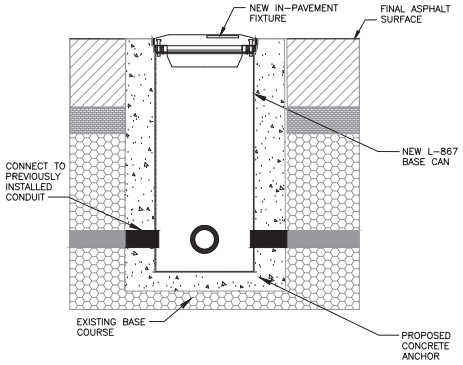
MILL EXISTING ASPHALT (3 / EA 04.04)
NOT TO SCALE



PAVE MILLED AREA WITH 2" HMA (4 / EA 04.04)
NOT TO SCALE



CORE AND REMOVE SAND FILL (5 / EA 04.04)
NOT TO SCALE



INSTALL BASE CAN AND FIXTURE (6 / EA 04.04)
NOT TO SCALE

1 / EA 04.04 ORDER OF INSTALLATION
Scale: NTS

2/11/2016 5:53 PM
C:\PW_WORK\ATKINAD01\TUDO4783\D6596450\EA-04.01-ELECTRICAL DETAILS.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
FAA-XDP W65 No	D.0280.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

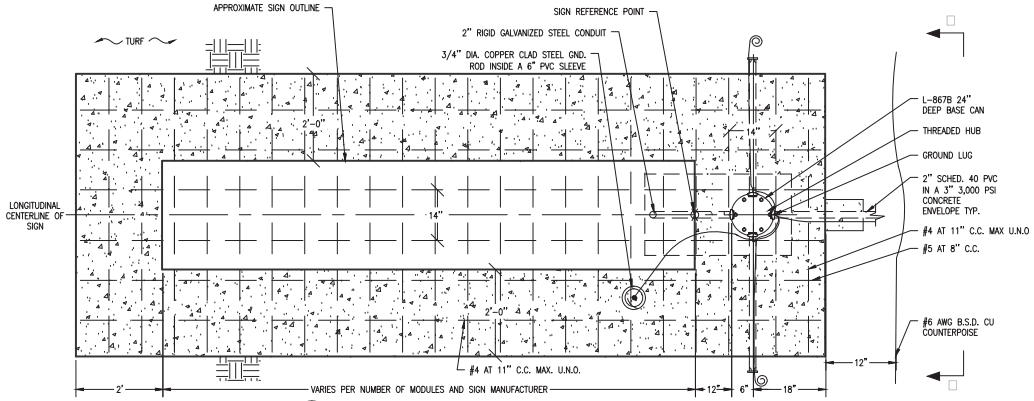
FEBRUARY 16, 2016

SHEET NAME

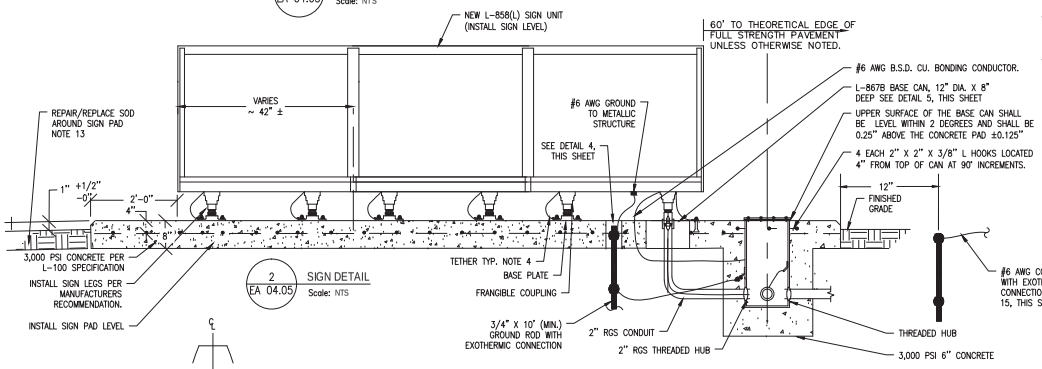
AIRFIELD ELECTRICAL LIGHTING DETAILS

SHEET No

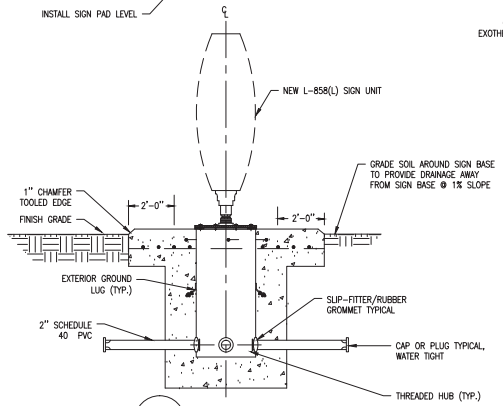
EA 04.04.1



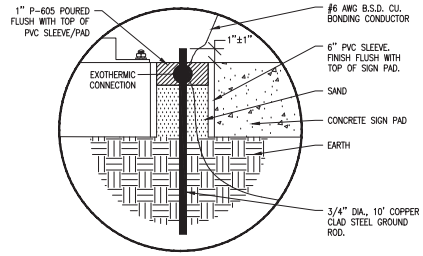
1 EA 04.05 SIGN DETAIL - PLAN VIEW
Scale: NTS



2 EA 04.05 SIGN DETAIL
Scale: NTS



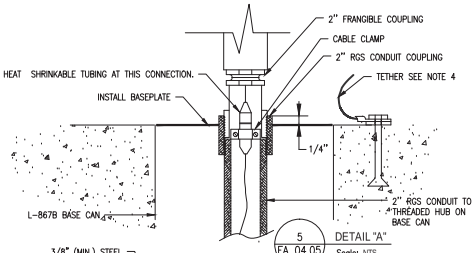
3 EA 04.05 B-B SIDE VIEW
Scale: NTS



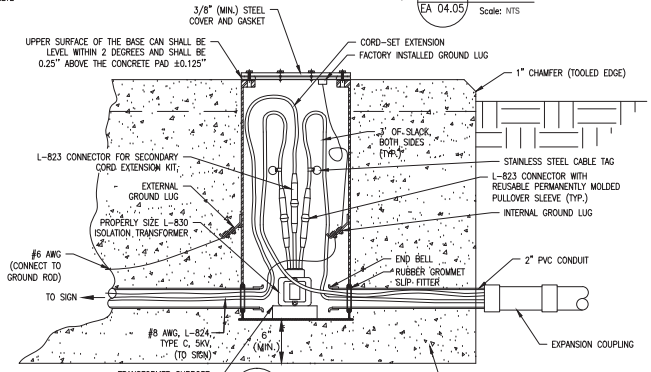
4 EA 04.05 GROUND DETAIL
Scale: NTS

NOTES:

1. ALL SIGNS SHALL CONFORM TO AC 150/5340-18 AND 150/5345-44, LATEST EDITIONS. ALL MATERIALS, SIGN BASE DETAILS, ETC., SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ANY NEW SIGN PANELS FOR EXISTING SIGNAGE SHALL BE FURNISHED BY THE MANUFACTURER OF THE EXISTING SIGN.
2. THE DETAILS SHOWN IN THE PLANS PROVIDE THE MINIMUM REQUIREMENTS FOR SIGN INSTALLATIONS. THE CONTRACTOR SHALL USE STANDARDS APPLICABLE FOR THE PARTICULAR SIGN MANUFACTURER. THE BOLTING PATTERN, METHOD OF ANCHORING, ETC., SHALL BE PER SIGN MANUFACTURER'S RECOMMENDATIONS AND APPROVED BY THE ENGINEER.
3. THE SIGN SHALL WITHSTAND 200 MPH WIND LOAD PER AC 150/5345-44 WITHOUT DAMAGE. THE SIGN SHALL NOT BREAK AT THE FRANGIBLE POINTS NOR SUFFER PERMANENT DISTORTION. THE SIGN MANUFACTURER SHALL SUBMIT TO THE ENGINEER MOUNTING METHODS, AND THE CALCULATIONS OR TEST RESULTS SUPPORTING THE ABOVE REQUIREMENT. THE SIGNS SHALL BE FRANGIBLE, MEETING THE REQUIREMENTS OF AC 150/5345-44, LATEST EDITION.
4. ALL SIGNS SHALL BE FURNISHED WITH TETHERS. TETHERS SHALL BE 3/16" STAINLESS STEEL AIRCRAFT CABLE WITH A FORMED EYE ON BOTH ENDS. THE TETHER EYE SHALL BE ATTACHED TO THE SIGN AND BASE BY BEING SANDWICHED BETWEEN TWO STAINLESS STEEL FENDER WASHERS, WITH A 1/2" MINIMUM STAINLESS STEEL BOLT. THE TETHER SHALL BE OF SUFFICIENT LENGTH TO HAVE A MINIMUM OF 6" OF SLACK WHEN ATTACHED BETWEEN THE SIGN AND THE SIGN BASE. THE TETHERS AND BONDING CONDUCTORS SHALL BE OF SUFFICIENT LENGTH TO ALLOW THE FRANGIBLE COUPLINGS TO OPERATE WITHOUT RESTRICTIONS AND TO ALLOW THE POWER CABLE TO DISCONNECT IF THE SIGN FALLS OVER.
5. FOR LOCATION AND ORIENTATION OF SIGNS AND FOUNDATIONS, SEE PLANS. THE LOCATION SHOWN ON THE PLANS IS THE PERPENDICULAR DISTANCE FROM THE DEFINED TAXIWAY/RUNWAY EDGE OF FULL STRENGTH PAVEMENT, TO THE NEAR SIDE OF THE SIGN ON THE SIGN'S LONGITUDINAL CENTERLINE (SEE PLAN VIEW).
6. ALL SIGNS SHALL BE ORIENTED SUCH THAT THE LONGITUDINAL CENTERLINE OF THE SIGN IS PERPENDICULAR TO THE RESPECTIVE TAXIWAY/RUNWAY CENTERLINE, UNLESS NOTED OTHERWISE.
7. ALL MANDATORY SIGNS SHALL BE LOCATED 60' OFF THE EDGE OF FULL STRENGTH PAVEMENT UNLESS OTHERWISE NOTED, AND ALIGNED WITH THE FRONT EDGE OF THE FRONT STRIPE OF THE HOLD POSITION MARKING, UNLESS OTHER SHOWN ON THE PLANS.
8. ALL TAXIWAY GUIDANCE SIGNS SHALL BE LOCATED 60' OFF THE EDGE OF FULL STRENGTH PAVEMENT UNLESS OTHERWISE NOTED.
9. THE ACTUAL SIGN DIMENSIONS WILL VARY. THE BASE SIZE AS SHOWN SHALL BE ADJUSTED TO MATCH THE SIGN.
10. 3,000 PSI CONCRETE STEEL REINFORCEMENT SHALL BE TYPE ASTM A615 GRADE 60. ALL REINFORCEMENT SHALL HAVE A 3" MINIMUM CONCRETE COVER. REINFORCEMENTS MAY BE ADJUSTED TO MISS INTERFERENCES.
11. INSTALL SIGN UNIT FOUNDATION LEVEL. INSTALL SIGN LEGS PER MANUFACTURER'S RECOMMENDATION.
12. ALL AREAS FOR THE LEG FLANGE PLATES SHALL BE IN THE SAME PLANE. THE ANCHOR BOLTS SHALL BE A-36 STEEL, HOT DIP GALVANIZED WHEN CAST INTEGRALLY WITH THE CONCRETE PAD OR STAINLESS STEEL EXPANSION ANCHORS, WHEN USED ON EXISTING OR DRILLED INTO NEW CONCRETE PADS.
13. SODDING OF DISTURBED AREAS SHALL BE INCLUDED IN THE INDIVIDUAL SIGN PAY ITEM.
14. EACH ABANDONED/SPARE CONDUIT AND DUCT SHALL BE WATERPROOF SEALED.
15. EACH SIGN BASE SHALL HAVE 3/4 INCH DIA. X 10' COPPER GROUND ROD. EACH GROUND ROD SHALL BE INDIVIDUALLY TESTED PRIOR TO CONNECTION TO THE GROUND GRID OR COUNTERPOISE. EACH INDIVIDUAL ROD SHALL HAVE AN EARTH RESISTANCE OF 25 OHMS OR LESS. ADDITIONAL SECTIONS SHALL BE ADDED TO THE ROD TO ACHIEVE THE 25 OHM REQUIREMENT.
16. THE GROUND ROD SHALL BE INSTALLED IN A 6" PVC SLEEVE LARGE ENOUGH TO ACCOMMODATE THE EXOTHERMIC CONNECTION MOLD. THE TOP OF THE GROUND ROD SHALL BE 1" ABOVE THE PAD ±1". THE GROUND ROD SHALL NOT BE DRIVEN AFTER THE EXOTHERMIC CONNECTION HAS BEEN MADE.



5 EA 04.05 DETAIL "A"
Scale: NTS



6 EA 04.05 SIGN BASE CAN
Scale: NTS

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
FAA-AIP NRS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

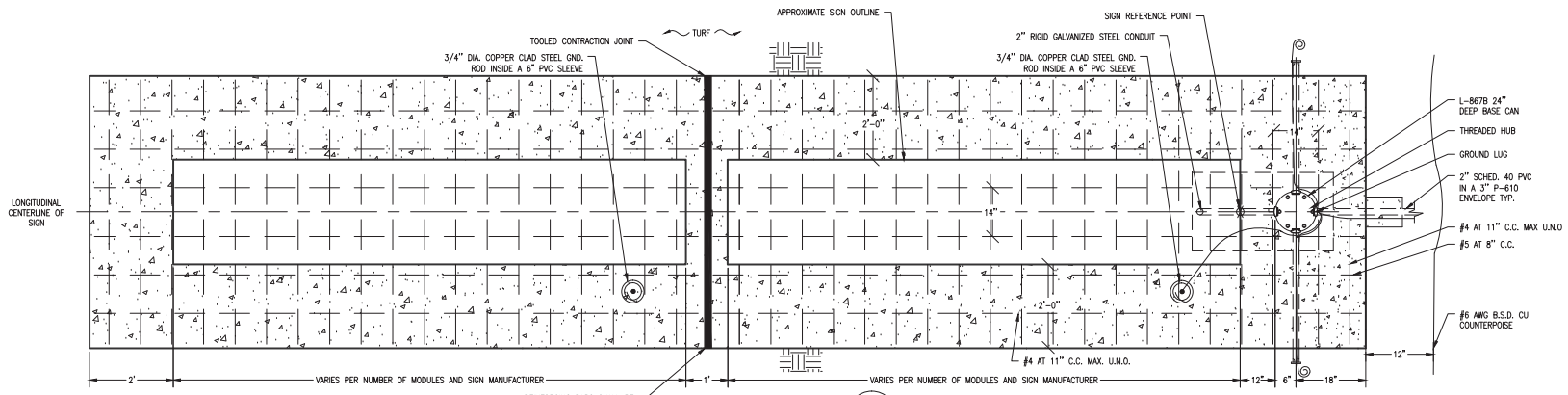
AIRFIELD ELECTRICAL LIGHTING DETAILS

SHEET No

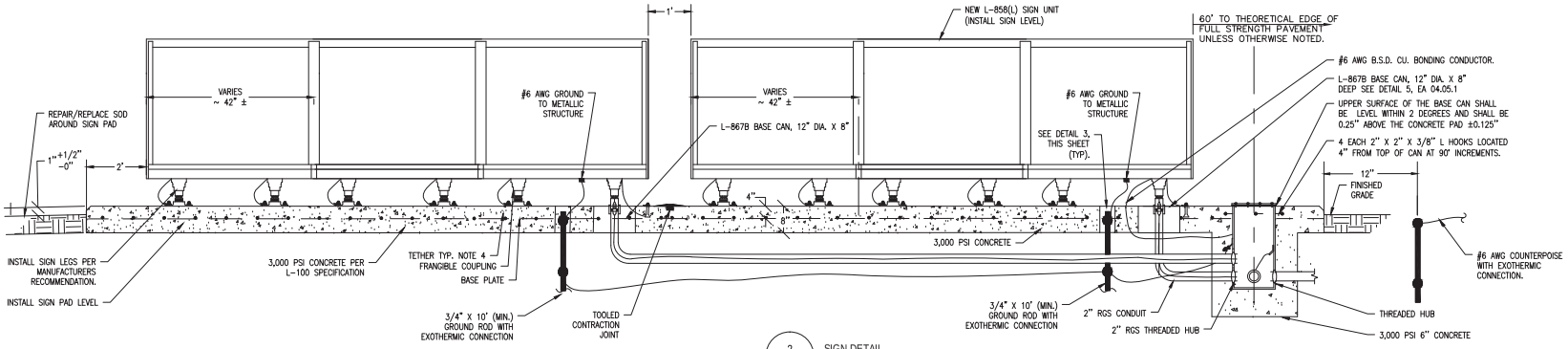
EA 04.05.1

NOT ISSUED FOR CONSTRUCTION

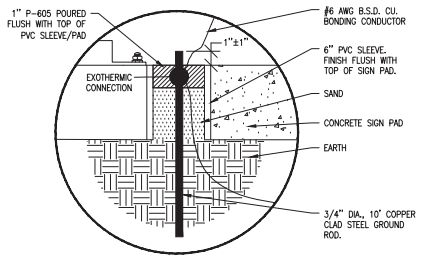
2/11/2016 5:53 PM
C:\PW_WORK\ATRDAG01\TUDO4783\DM5964551\EA-04.01-ELECTRICAL DETAILS.DWG



1 EA 04.06 SIGN DETAIL - PLAN VIEW
Scale: NTS



2 EA 04.06 SIGN DETAIL
Scale: NTS



3 EA 04.06 GROUND DETAIL
Scale: NTS

2/11/2016 5:53 PM
C:\PW_WORK\ATRDAG01\TUDD4783\D6596450\EA-04.01-ELECTRICAL DETAILS.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
I-JOP W65 No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

AIRFIELD ELECTRICAL LIGHTING DETAILS

SHEET No

EA 04.06.1

NEW SIGNS

SIGN NO.	LEGEND – SIDE 1				LEGEND – SIDE 2				SIZE	STYLE	MODE	CLASS	REMARKS	CONCRETE PAD SIGN ELEVATION
	1	2	3	4	1	2	3	4						
E17 (1)	↖	E3			BLANK	BLANK			3	5	2	2	–	
	Y	Y												
E17 (2)	E	F3	→		BLANK	BLANK	BLANK		3	5	2	2	–	
	L	Y	Y											
E18	BLANK	BLANK	BLANK		R A	M P	3 →		3	5	2	2	–	
					Y	Y	Y							
E19	←	F3	E		BLANK	BLANK	BLANK		3	5	2	2	–	
	Y	Y	L											
E20	← R	A M	P 3		BLANK	BLANK	BLANK		3	5	2	2	–	
	Y	Y	Y											
E45	E	G →	BLANK		E	← D	→		3	5	2	2	–	
	L	Y			L	Y	Y							
E48	BLANK	BLANK	BLANK		← G	↖ F	E		3	5	2	2	–	
					Y	Y	L							
E50	E	E1	0 ↗		BLANK	BLANK	BLANK		3	5	2	2	–	
	L	Y	Y											
E51	↖ E	E10	E ↘		BLANK	BLANK	BLANK		3	5	2	2	–	
	Y	L	Y											
F11	←	F3	F		BLANK	BLANK	BLANK		3	5	2	2	–	
	Y	Y	L											
F12 (1)	← E	F3			BLANK	BLANK			3	5	2	2	–	
	Y	L												
F12 (2)	E3	↗	E →		RA	MP	3 ↑		3	5	2	2	–	
	Y	Y	Y		Y	Y	Y							
F13	F3	← F	→		BLANK	BLANK	BLANK		3	5	2	2	–	
	L	Y	Y											
F14	BLANK	BLANK	BLANK		F	F3	→		3	5	2	2	–	
					L	Y	Y							
L47	← R	A M	P 4		BLANK	BLANK	BLANK		3	5	3	2	–	
	Y	Y	Y											
L49B	BLANK	BLANK	BLANK		L	L6	→		3	5	3	2	–	
					L	Y	Y							
L50	L6	← L	→		BLANK	BLANK	BLANK		3	5	3	2	–	
	L	Y	Y											
L51	L6	← M	→		R A	M P	4 ↑		3	5	3	2	–	
	L	Y	Y		Y	Y	Y							
L52	←	L6	L		BLANK	BLANK	BLANK		3	5	3	2	–	
	Y	Y	L											
L54	BLANK	BLANK	BLANK		R A	M P	4 →		3	5	3	2	–	
					Y	Y	Y							
M47B	←	L6	M		BLANK	BLANK	BLANK		3	5	3	2	–	
	Y	Y	L											

1
EA 04.07

SIGN SCHEDULE
Scale: NTS

LEGEND:

SIDE 2
0 → END TOWARD T/W OR R/W
SIDE 1

TYPE DESIGNATIONS
L = L-858(L)L LOCATION SIGN
Y = L-858(L)Y DIRECTION OR BOUNDARY SIGN
R = L-858(L)R MANDATORY INSTRUCTION SIGN
B = L-858(L)B RUNWAY DISTANCE REMAINING SIGN
BLANK = SIGN PANEL WITHOUT INSCRIPTION; BLANK PANEL

NOTES:

1. SEE LAYOUT SERIES FOR LOCATION DIMENSIONS OF SIGNS.

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
I-JOP WBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

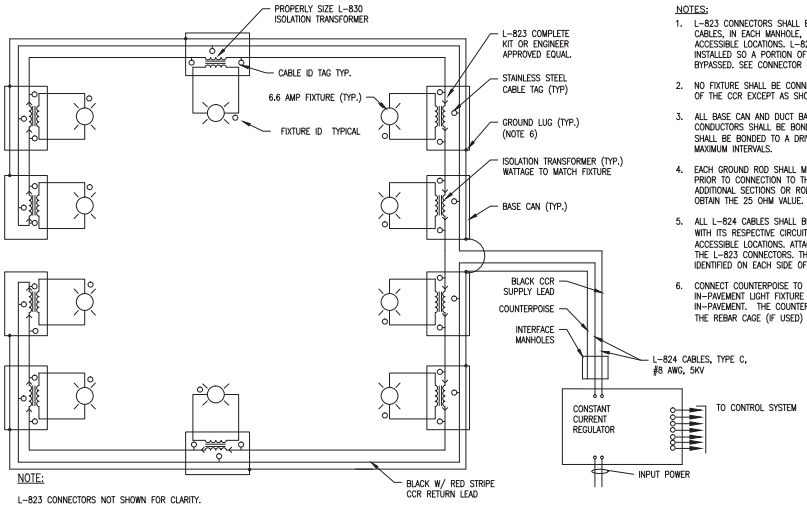
AIRFIELD ELECTRICAL LIGHTING DETAILS

SHEET No

EA 04.07.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:53 PM
C:\PW_WORK\ATKINGA01\TUD04783\M0596450\EA-04.01-ELECTRICAL DETAILS.DWG



NOTE:

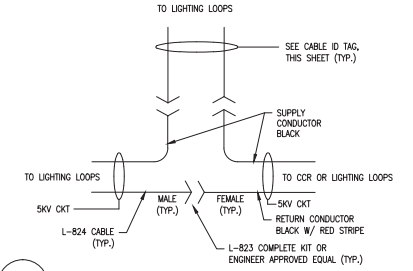
L-823 CONNECTORS NOT SHOWN FOR CLARITY.

1 / EA 04.08 TYPICAL SERIES LIGHTING CIRCUIT

Scale: NTS

NOTES:

1. L-823 CONNECTORS SHALL BE INSTALLED ON ALL CABLES, IN EACH MANHOLE, BASE CAN, OR OTHER ACCESSIBLE LOCATIONS. L-823 CONNECTORS SHALL BE INSTALLED SO A PORTION OF THE LOOP CAN BE BYPASSED. SEE CONNECTOR DETAILS.
2. NO FIXTURE SHALL BE CONNECTED TO THE RETURN LEAD OF THE CCR EXCEPT AS SHOWN ON THE DWGS.
3. ALL BASE CAN AND DUCT BANK COUNTERPOISE CONDUCTORS SHALL BE BONDED AT EACH CROSSING AND SHALL BE BONDED TO A DRIVEN GROUND ROD AT 500' MAXIMUM INTERVALS.
4. EACH GROUND ROD SHALL MEASURE 25 OHMS OR LESS PRIOR TO CONNECTION TO THE COUNTERPOISE. ADDITIONAL SECTIONS OR RODS SHALL BE ADDED TO OBTAIN THE 25 OHM VALUE.
5. ALL L-824 CABLES SHALL BE IDENTIFIED WITH A TAG WITH ITS RESPECTIVE CIRCUIT/LOOP NUMBER AT ALL ACCESSIBLE LOCATIONS. ATTACH THE ID TAG 12" FROM THE L-823 CONNECTORS. THE LOOPS SHALL BE IDENTIFIED ON EACH SIDE OF THE CONNECTORS.
6. CONNECT COUNTERPOISE TO EXTERIOR GROUND LUG ON IN-PAVEMENT LIGHT FIXTURE BASES, INSTALLED IN-PAVEMENT. THE COUNTERPOISE IS ALSO BONDED TO THE REBAR CAGE (IF USED) AROUND THE FIXTURE BASE.

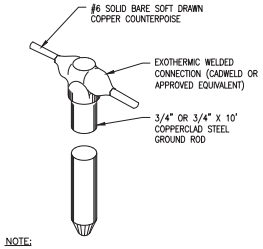


2 / EA 04.08 TYPICAL L-824 CABLE TAGGING AND L-823 CONNECTOR INSTALLATION

Scale: NTS

NOTES:

1. CONTRACTOR SHALL PROVIDE CABLE CIRCUIT IDENTIFICATION MARKERS ATTACHED TO BOTH SIDES OF EACH CABLE CONNECTION.
2. CABLE IDENTIFICATION MARKERS SHALL BE ATTACHED VIA HEAVY GAUGED NYLON CORD.
3. THE CABLE SHALL THOROUGHLY BE CLEANED PRIOR TO THE INSTALLATION OF THE L-823 COMPLETE KIT OR ENGINEER APPROVED EQUAL.
4. INSTALLATION OF THE PIN/RECEPTACLE SHALL BE COMPLETED WITH "CRIMPING" TOOL SUPPLIED OR RECOMMENDED BY THE MANUFACTURER AND DESIGNED FOR THIS SPECIFIC PURPOSE. THREE CRIMPING TOOLS SHALL BE TURNED OVER TO THE AIRPORT UPON COMPLETION OF THE PROJECT.
5. INSTALL FEMALE END OF L-823 INSTALLED ON END OF CABLE FACING VAULT, WHEN POSSIBLE.

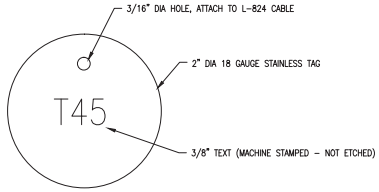


NOTE:

1. GROUND RODS SHALL BE INSTALLED NOT MORE THAN 500 FEET APART.

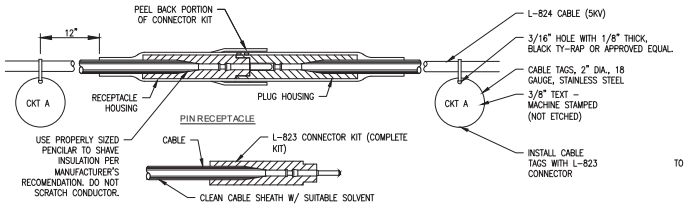
3 / EA 04.08 COUNTERPOISE TEE CONNECTION

Scale: NTS



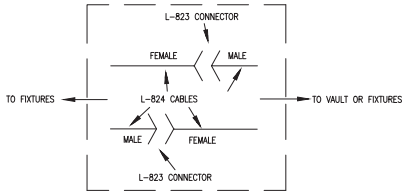
4 / EA 04.08 TYPICAL L-824 CABLE ID TAG

Scale: NTS



5 / EA 04.08 TYPICAL L-823 CONNECTOR DETAIL

Scale: NTS



6 / EA 04.08 TYPICAL L-823 CONNECTOR SCHEMATIC

Scale: NTS

2/11/2016 5:53 PM
C:\PW_WORK\ATRDAG01\TUDO4783\DM596455\EA-04.01-ELECTRICAL DETAILS.DWG

NOT ISSUED FOR CONSTRUCTION

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
I-JOP W65 No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

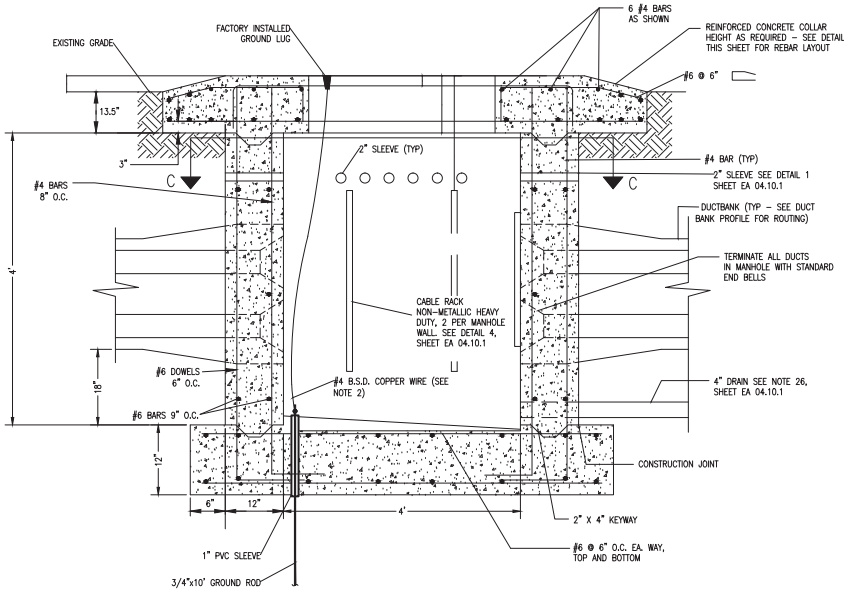
FEBRUARY 16, 2016

SHEET NAME

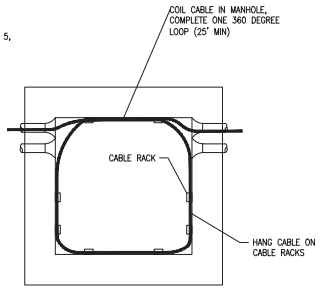
AIRFIELD ELECTRICAL LIGHTING DETAILS

SHEET No

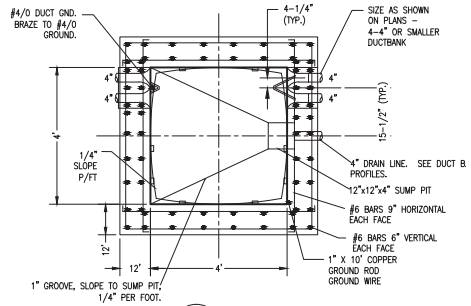
EA 04.08.1



1 EA 04.09 TYPE "A1" MANHOLE
Scale: NTS

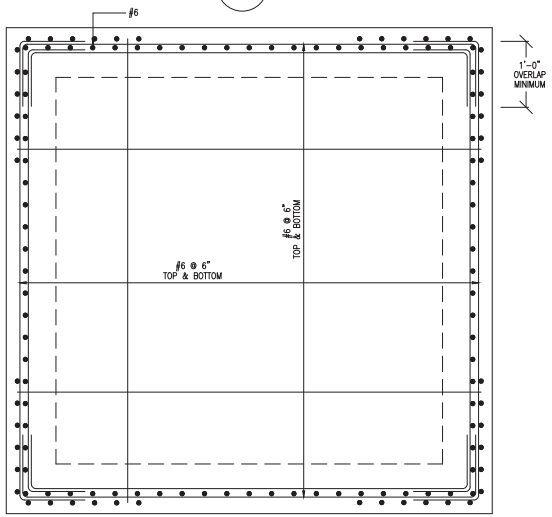


2 EA 04.09 COIL DETAIL
Scale: NTS

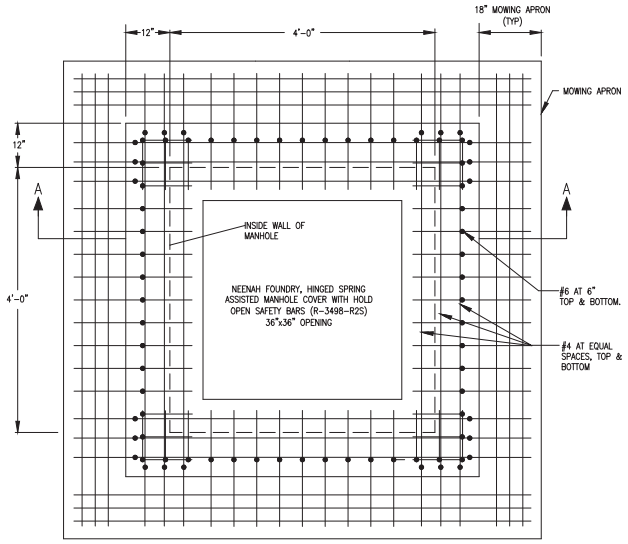


3 EA 04.09 SECTION C–C
Scale: NTS

NOTES:
1. PROVIDE 2" CLEAR TO REINFORCEMENT STEEL ALL SIDES, (TYP.)
   LAP SPLICE #6 BARS 2'–6" MIN.
   LAP SPLICE #4 BARS 1'–6" MIN.
2. GROUND ALL METALLIC PARTS OF THE MANHOLE.



4 EA 04.09 BOTTOM REINFORCEMENT
Scale: NTS



5 EA 04.09 TOP SLAB (WITH TOP REINFORCEMENT)
Scale: NTS

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
A-JOP WBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

AIRFIELD ELECTRICAL LIGHTING DETAILS

SHEET No

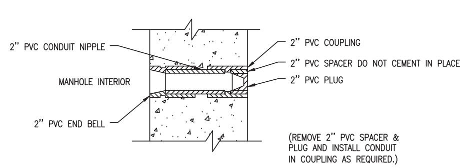
EA 04.09.1

NOT ISSUED FOR CONSTRUCTION

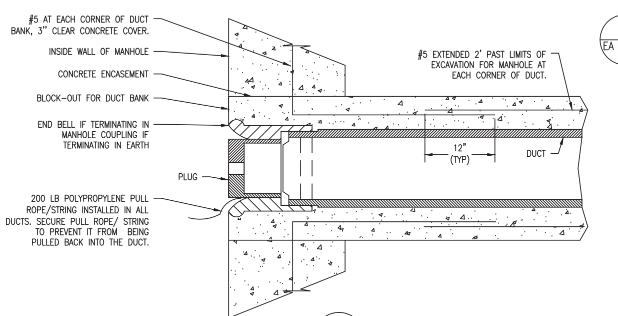
2/11/2016 5:53 PM
C:\PW_WORK\ATIGAGA01\TUDO4783\(M59645)\EA-04.01-ELECTRICAL DETAILS.DWG

GENERAL NOTES FOR CONDUITS, DUCT BANKS AND MANHOLES:

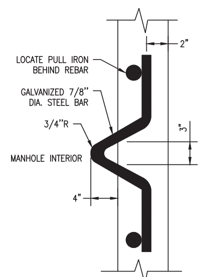
1. THE COUNTERPOISE SHALL BE POSITIONED ACCORDINGLY:
   a. 8" ABOVE THE DUCT/DUCT BANK (INCLUDING CONCRETE) CENTERLINE WHEN INSTALLED AT RIGHT ANGLES TO OR UNDER PAVEMENT OR IN GRASSY AREAS.
   b. 8" ABOVE THE DUCT/DUCT BANK (INCLUDING CONCRETE) ON THE SIDE OF THE DUCT/DUCT BANK RUNNING PARALLEL WITH THE PAVEMENT AND THE DUCT/DUCT BANK IS WITHIN 20' OF THE PAVEMENT EDGE.
   c. EXCEPTIONS MAY HAVE TO BE MADE TO (a) AND (b) ABOVE UNDER FULL STRENGTH PAVEMENT, THE 8" WILL VARY, DEPENDENT UPON BASE AND PAVEMENT THICKNESS. SEE SPECIFIC INSTALLATION DETAILS.
2. THE MINIMUM DISTANCE BETWEEN TOP OF CONDUIT IN DUCT BANK AND COUNTERPOISE IS ELEVEN (11) INCHES.
3. THIS CONTRACTOR SHALL INSTALL A 200 LB. POLYPROPYLENE PULL ROPE/STRING IN EACH DUCT AND CONDUIT INSTALLED AND PLUG OR CAP THE DUCT. THE ROPE SHALL BE SECURELY ATTACHED TO THE PULL IRON IN EACH MANHOLE, OR A STAKE WHERE THE DUCT TERMINATES UNDERGROUND.
4. INSTALL A RED PLASTIC, DETECTABLE, FOUR (4) INCHES WIDE WARNING TAPE, EIGHT (8) INCHES BELOW GRADE ABOVE ALL PORTIONS OF DUCT BANKS AND CONDUITS NOT INSTALLED UNDER AIRFIELD PAVEMENT. THE TAPE SHALL HAVE CONTINUOUS PRINTING WITH THE MESSAGE "CAUTION ELECTRIC LINE BELOW."
5. DUCT BANKS SHALL DRAIN TOWARD THE MANHOLES WITH THE CROWN OF THE DUCT BANK MIDWAY BETWEEN MANHOLES. THE DUCT SLOPE SHALL BE THREE (3) INCHES PER ONE HUNDRED (100) FEET.
6. ALL MANHOLES SHALL BE INSTALLED OUTSIDE OF THE RUNWAY AND TAXIWAY SAFETY AREAS. COORDINATE FINAL LOCATION WITH EXISTING GRADING. WHEN EXTENDING EXISTING DUCT TO NEW MANHOLE, PUT MANHOLE IN LINE WITH EXISTING DUCT, WHEN POSSIBLE. MANHOLES SHALL NOT BE INSTALLED IN DITCHES, DRAINAGE SWALES OR WHERE WATER WILL POND ON TOP OF THE MANHOLE.
7. SIX 2" PVC SLEEVES ON 4 1/2" CENTERS, SHALL BE INSTALLED IN EACH WALL OF EVERY MANHOLE, ACCORDING TO DETAIL 1, SHEET EA 04.09.1. THESE SLEEVES ARE FOR PRESENT AND FUTURE USE.
8. ALL PVC CONDUIT AND FITTINGS TO BE INSTALLED IN DUCT BANKS SHALL BE SCHEDULE 80. PVC CONDUIT AND FITTINGS INSTALLED IN TURF THAT ARE NOT INSTALLED IN DUCT BANKS SHALL BE SCHEDULE 40. ALL CONDUIT SHALL CONFORM TO FEDERAL SPECIFICATION W.C.-1094 AND SHALL BE U.L. LISTED.
9. PVC PLUGS SHALL BE INSTALLED IN EACH EMPTY SLEEVE AND DUCT.
10. THE MANHOLES SHALL BE LOCATED AS SHOWN ON THE DRAWING. THE DEPTH OF THE MANHOLES SHALL VARY TO ACCOMMODATE THE DUCT BANKS. THE TOP OF THE MANHOLES SHALL BE 1" MIN (+1" TOL.) ABOVE THE FINISHED GRADE INCLUDING THE SOD OR TURF, EXCEPT WHEN INSTALLED IN PAVEMENT. GROUND ALL METALLIC PARTS OF THE MANHOLE WITH A #6 AWG B.S.D. COPPER WIRE.
11. EACH MANHOLE AND HANDHOLE SHALL INCLUDE THE FURNISHING AND INSTALLATION OF A 3/4" DIAMETER COPPER CLAD STEEL SECTIONAL GROUND ROD. EACH GROUND ROD SHALL BE INDIVIDUALLY TESTED PRIOR TO CONNECTION TO THE GROUND GRID OR COUNTERPOISE TO OBTAIN A NOT TO EXCEED EARTH RESISTANCE OF 25 OHMS. ADDITIONAL SECTIONS OF GROUND RODS SHALL BE ADDED TO ACHIEVE THE 25 OHM REQUIREMENT. SEE ITEM L-108. DRESS AND STRAP GROUNDING CONDUCTORS AT 2' MAXIMUM INTERVALS, AND WITHIN 6" ON BOTH SIDES OF A DIRECTION CHANGE. GROUNDING AND BONDING SHALL BE PERFORMED IN SUCH A MANNER THAT THE DISCONNECTION OF ONE ITEM WILL NOT RESULT IN ANOTHER ITEM NOT BEING GROUNDED.
12. ALL MANHOLES SHALL BE PROVIDED WITH NON-METALLIC CABLE RACKS PER DETAILS 4, 5 AND 6, THIS SHEET.
13. A PULLING IRON AS SHOWN IN DETAIL 3 SHALL BE PROVIDED OPPOSITE EACH CONDUIT OR DUCT ENTRANCE. THE PULLING IRON WILL BE POSITIONED 6" BELOW LEVEL OF THE DUCT WINDOW.
14. ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 AND THE CONCRETE SHALL BE P-610 WITH A 28 DAY STRENGTH OF 3000 PSI. ALL MANHOLES SHALL BE PRECAST. CAST-IN-PLACE MAY BE USED, AFTER REVIEW AND APPROVAL OF THE RESIDENT ENGINEER.
15. ALL WALL REINFORCEMENT (LOOP AND VERTICAL) AFFECTED BY DUCTWORK SHALL BE RELOCATED ON EITHER SIDE OF THE DUCT, AND DETAILED IN THE SUBMITTAL.
16. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SHOWING ALL REINFORCING STEEL AND OTHER CONSTRUCTION DETAILS (SHIP-LAP JOINT, ETC.) PRIOR TO FABRICATION. THE MANHOLE SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY A LICENSED, PROFESSIONAL ENGINEER FROM THE STATE OF GEORGIA.
17. IN THE EVENT ANY MANHOLE COVER IS NOT INSTALLED WHEN BOX IS PLACED, THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO ASSURE SAFETY. THE SAFETY MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO BARRICADING THE MANHOLE SITE.
18. ALL TYPE A MANHOLES ARE AIRCRAFT RATED AND SHALL BE PROVIDED WITH A NEENAH FOUNDRY CO. INC., HINGED, SPRING-ASSIST HEAVY DUTY MANHOLE COVER, OR APPROVED EQUAL. THE COVER SHALL BE CAST FLUSH WITH THE TOP OF THE MANHOLE SLAB. THE MANHOLES SHALL MEET THE REQUIREMENTS OF FAA A/C 150/5320-6 LATEST EDITION. THE FRAME AND COVER MANUFACTURER SHALL CERTIFY THAT THE COVER IS RATED TO EXCEED THE REQUIREMENTS OF A/C-150/5320-6 LATEST EDITION, FOR 250 PSI. THE COVERS SHALL BE FURNISHED WITH HOLD-OPEN SAFETY BARS, STAINLESS STEEL SPRING-ASSIST TO LOWER THE LIFTING FORCE AND TO ASSIST IN LOWERING THE COVER AND WITH BOLTED AND SEALED COVER. THE COVER SHALL BE RATED FOR 100,000 POUNDS WHEEL LOADING. THE CONTRACTOR SHALL TURN OVER 25 TEE-BAR MANHOLE OPENERS.
19. ALL MANHOLE COVERS SHALL HAVE SURFACE LETTERING AS SHOWN ON THE FIXTURE ID PLANS.
20. EACH DUCT CROSSING UNDER PAVEMENT SHALL BE LOCATED AND DIMENSIONED ON THE RECORD DRAWINGS, ACCURATE TO 0.5 FEET. THE ENTRANCE AND EXIT FROM UNDER THE PAVEMENT SHALL BE MARKED WITH AN EMBEDDED ID MARKER AND STAMPED WITH THE DUCT BANK NUMBER.
21. ALL MANHOLES SHALL BE PROVIDED WITH CABLE RACKS AND HOOKS UNDERGROUND DEVICES, INC., RACK #CR36, OR APPROVED EQUAL, FOR CABLE RACKS AND UNDERGROUND DEVICES, INC., MEDIUM ARM #RA14, OR APPROVED EQUAL, FOR CABLE HOOKS SHALL BE USED. RACKS MAY BE EMBEDDED OR SURFACE MOUNTED. TWO CABLE HOOKS AND RACKS SHALL BE PROVIDED FOR EACH WALL OF THE MANHOLE. ADEQUATE HOOKS SHALL BE PROVIDED TO ALLOW THE CABLE TO BE A MAXIMUM OF ONE LAYER DEEP ON THE HOOKS.
22. GROUT OVER LIFTING EYES AND PRECAST SECTION SEAMS.
23. DEWATERING FOR THE INSTALLATION OF MANHOLES, DUCT BANKS OR CONDUITS IS INCIDENTAL TO THE RESPECTIVE PAY ITEM. THE CONTRACTOR SHALL BE RESPONSIBLE TO PAY FOR AND OBTAIN ANY AND ALL PERMITS REQUIRED FOR DEWATERING.
24. INSTALL CABLE TAG AT ENTRANCE TO MANHOLE OR HANDHOLE AND AT CENTER POINT OF MANHOLE WALLS ON CABLE RACKS.
25. CONTRACTOR SHALL CONNECT 4" PVC ELECTRICAL MANHOLE DRAIN PIPE TO EXISTING INLET BY CORING HOLE INTO INLET WALL AND PATCHING THE AREA AROUND THE NEWLY INSTALLED PVC PIPE. WITH THIS INSTALLATION ALL COSTS ASSOCIATED SHALL BE INCIDENTAL TO THE COST OF THE DRAIN PIPE. NO ADDITIONAL PAYMENT SHALL BE MADE FOR MANHOLE DRAIN CONNECTIONS.
26. INSTALL 4/0 COPPER AT EACH MANHOLE AND HANDHOLE, STRUNG ALONG DUCT BANK AND TIED TO REBAR CAGE. ENTER MANHOLE THROUGH A CONDUIT KNOCK-OUT AFTER ENTIRELY LOOPING MANHOLE. TERMINATE 4/0 INSIDE OF EVERY MANHOLE AT GROUND ROD.
27. LOCATION OF DUCT BANK MAY BE MODIFIED SLIGHTLY TO AVOID EXISTING OR PROPOSED INFRASTRUCTURE AT THE ENGINEER'S DISCRETION.



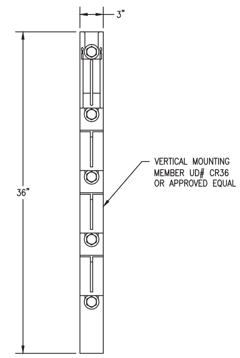
1 / EA 04.10 — 2" SLEEVE THROUGH MANHOLE WALL
Scale: NTS



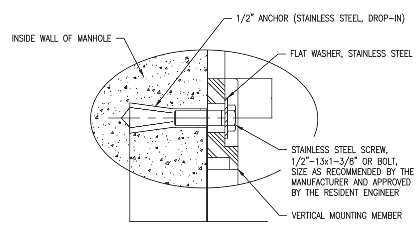
2 / EA 04.10 — MANHOLE DUCT ENTRY OR END OF DUCT DETAIL
Scale: NTS



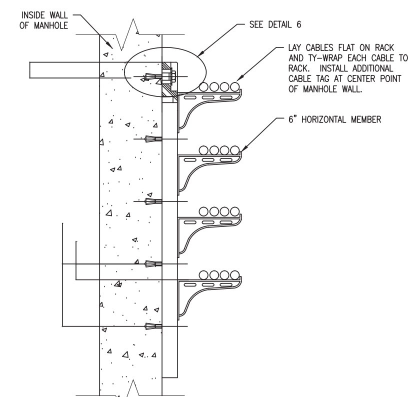
3 / EA 04.10 — DETAIL B PULL IRON DETAIL
Scale: NTS



5 / EA 04.10 — CABLE RACK DETAIL
Scale: NTS



6 / EA 04.10 — CABLE RACK DETAIL
Scale: NTS



4 / EA 04.10 — CABLE RACK DETAIL
Scale: NTS

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
H-JDP WBS No	D.02.90.017

PROJECT ELEMENT
AIRSIDE

PROJECT NAME
TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR
BID

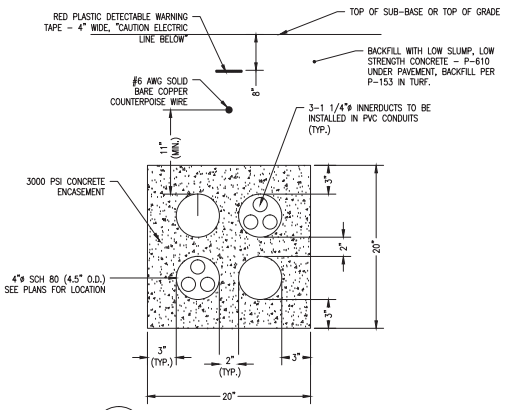
DATE
FEBRUARY 16, 2016

SHEET NAME
AIRFIELD ELECTRICAL LIGHTING DETAILS

SHEET No
EA 04.10.1

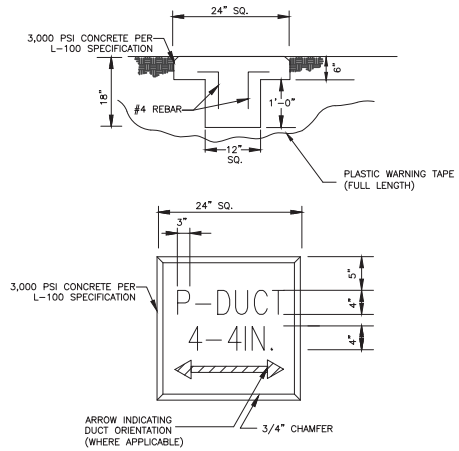
NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:53 PM
C:\PW_WORK\ATKNAGA01\TUDO4763\DMS06455\EA-04.01-ELECTRICAL DETAILS.DWG



1 EA 04.11 — 4 WAY - 4" CONCRETE ENCASED DUCT BANK

Scale: NTS



2 EA 04.11 — CABLE AND DUCT MARKERS

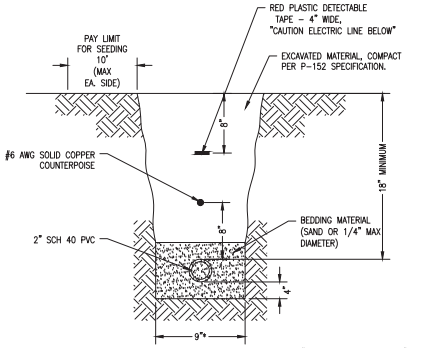
Scale: NTS

NOTES:

1. COUNTERPOISE WIRE SHALL BE PLACED ABOVE PROPOSED DUCT BANK IN ALL LOCATIONS.
2. SHOULD ROCK BE ENOUNTERED, THE PAY ITEM FOR ROCK TRENCH EXCAVATION SHALL BE LIMITED TO A MAXIMUM OF 1'-0" OUTSIDE THE NEAT LINES OF THE DUCT BANK AND A MAXIMUM OF 6" BELOW THE BOTTOM OF THE DUCT BANK, REGARDLESS OF THE ACTUAL ROCK EXCAVATION LINE.
3. THE LIMITS OF STANDARD TRENCH BACKFILL WITH NO ROCK TRENCH EXCAVATION IS 12" FOR 1-WAY 4" DUCT BANK.
4. THE 3000 PSI CONCRETE ENCASEMENT SHALL BE INCLUDED IN THE COST OF THE DUCT BANK.
5. ALL PVC CONDUITS AND FITTINGS SHALL BE SCHEDULE 80 UNDER PAVEMENT AND SCHEDULE 40 IN TURF. ALL PVC CONDUITS AND FITTINGS SHALL CONFORM TO FEDERAL SPECIFICATION W.C.–1094 AND SHALL BE U.L. LISTED.
6. THE COUNTERPOISE SHALL BE POSITIONED ACCORDINGLY:
   - A. 8" ABOVE THE DUCT/DUCT BANK (INCLUDING CONCRETE) CENTERLINE WHEN INSTALLED AT RIGHT ANGLES TO OR UNDER PAVEMENT OR IN GRASSY AREAS.
   - B. 8" ABOVE THE DUCT/DUCT BANK (INCLUDING CONCRETE) ON THE SIDE OF THE DUCT/DUCT BANK RUNNING PARALLEL WITH THE PAVEMENT AND THE DUCT/DUCT BANK IS WITHIN 20' OF THE PAVEMENT EDGE.
   - C. EXCEPTIONS MAY HAVE TO BE MADE TO (a) AND (b) ABOVE UNDER FULL STRENGTH PAVEMENT, THE 8" WILL VARY, DEPENDENT UPON BASE AND PAVEMENT THICKNESS. SEE SPECIFIC INSTALLATION DETAILS.
   - D. 1.75" ABOVE CONDUIT IN FULL STRENGTH PAVEMENT, SEE TAXIWAY CENTERLINE LIGHT DETAILS.
8. THIS CONTRACTOR SHALL INSTALL A 200 LB. POLYPROPYLENE PULL ROPE/STRING IN EACH DUCT AND CONDUIT INSTALLED, INCLUDING SPARES, AND PLUG OR CAP THE DUCT. THE ROPE SHALL BE SECURELY ATTACHED TO THE PULL IRON IN EACH MANHOLE, OR A STAKE WHERE THE DUCT TERMINATES UNDERGROUND.
9. INSTALL A RED PLASTIC, DETECTABLE, FOUR (4) INCHES WIDE TAPE, EIGHT (8) INCHES BELOW GRADE ABOVE ALL PORTIONS OF DUCT BANKS AND CONDUITS NOT INSTALLED UNDER AIRFIELD PAVEMENT. THE TAPE SHALL HAVE CONTINUOUS PRINTING WITH THE MESSAGE "CAUTION ELECTRIC LINE BELOW."
10. ALL PVC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO FEDERAL SPECIFICATION W.C.–1094 AND SHALL BE U.L. LISTED.

DOA DUCT BANK CABLE MARKER NOTES:

1. CABLES AND DUCTS SHALL BE MARKED WITH A CONCRETE DUCT MARKER OVER THE DUCT, 10' OFF OF THE EDGE OF PAVEMENT WHERE A DUCT EMERGES OUT FROM UNDER A RUNWAY OR TAXIWAY.
2. ALL CABLE MARKERS SHALL BE INSTALLED WITHIN 24 HOURS OF FINAL BACKFILL OF CABLE OR DUCT TRENCH OR DURABLE TEMPORARY MARKERS.
3. TOP SURFACE OF CABLE MARKER PAINTED INTERNATIONAL ORANGE A MINIMUM OF 24 HOURS AFTER SETTING THE MARKER. THE PAINT IS SPECIFICALLY FOR UNCURED EXTERIOR CONCRETE.
4. EACH CABLE MARKER HAS THE FOLLOWING INFORMATION IMPRESSED INTO THE CONCRETE'S TOP SURFACE WHILE THE CONCRETE IS WET:
   - A. THE WORDS "DOA" AND "CABLE" OR "SPLICE"
   - B. THE TYPE OF CABLE INSTALLED. "P" FOR POWER, "COMM"
   - C. FOR COMMUNICATIONS, "FOC" FOR FIBER OPTIC CABLE AND/OR "C" FOR CONTROL
   - D. AN ARROW INDICATING THE DIRECTION OR THE CHANGE OF THE CABLE RUN
   - E. ANY ADDITIONAL INFORMATION AS DIRECTED BY THE RESIDENT ENGINEER.
   - F. ALL ITEMS TO BE 3" MINIMUM FROM THE MARKER EDGES
5. SCRIBING IN LIEU OF IMPRESSING IS NOT ACCEPTABLE.
6. BLOCK LETTERS ARE 4" HIGH, 3" WIDE, AND 1/2" DEEP.
7. CABLE MARKERS ARE FLAT IN THE GROUND WITH THE TOP NO MORE THAN 1" ABOVE THE EXISTING GRADE.
8. PLASTIC WARNING TAPE 12 INCHES BELOW GRADE.



* ADD 4" FOR EACH ADDITIONAL 2" CONDUIT

3 EA 04.11 — CONDUIT IN TURF TRENCHING DETAIL

Scale: NTS

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
DOA PROJECT No	
I-JOP WBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

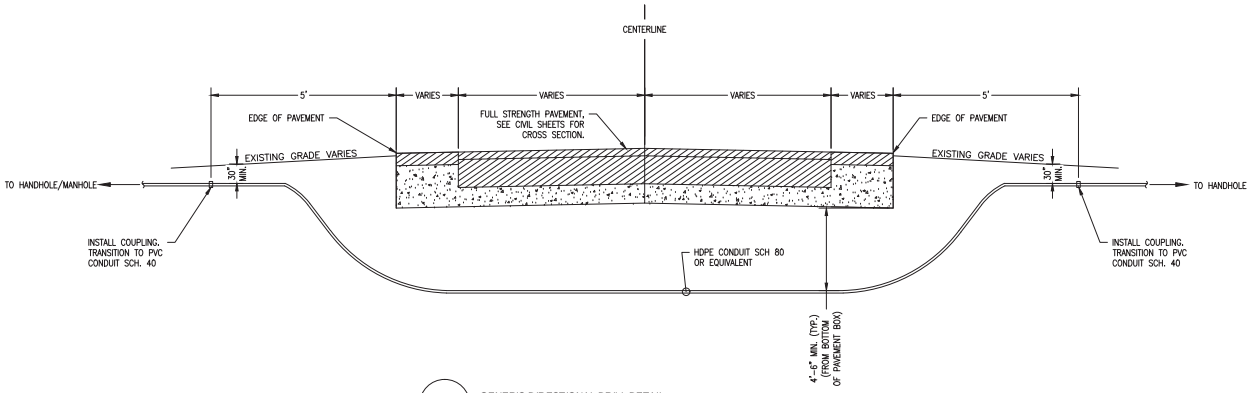
AIRFIELD ELECTRICAL LIGHTING DETAILS

SHEET No

EA 04.11.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:54 PM
C:\PW_WORK\ATKINAD01\TUDO4783\D6596450\EA-04.01-ELECTRICAL DETAILS.DWG



1
EA 04.12

GENERIC DIRECTIONAL DRILL DETAIL

Scale: NTS

GENERAL NOTES

1. THE CONTRACTOR FOR DIRECTIONAL DRILL SHALL SUBMIT A DETAILED PLAN SHOWING INSTALLATION METHODS, EQUIPMENT AND DRILLING FLUIDS TO BE USED. THE PLAN SHALL INCLUDE THE PROPOSED METHOD TO CONTROL HORIZONTAL AND VERTICAL PROFILE OF THE DIRECTIONAL DRILL.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ANY UNDERGROUND UTILITIES LOCATED IN THE DRILLING PROFILE.
3. THE CONTRACTOR SHALL PLAN DRILLING PATH AND SETUP THAT MEETS THE DEPTH REQUIREMENTS AND AVAILABLE WORK WORK AREA.
4. THE CONTRACTOR SHALL DETERMINE THE SIZE PIPE AND CONFIGURATION OF DUCT SPACERS FOR EACH TYPE OF DUCT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN UP AND DISPOSAL OF WASTES FROM DRILLING OPERATION.
6. CONTRACTOR SHALL PROVIDE GEOTECHNICAL REVIEW/ANALYSIS TO CONFIRM MATERIALS/PAVEMENT SECTION WILL NOT COLLAPSE DURING INSTALLATION.

CITY OF ATLANTA, GEORGIA

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

PROGRAM TEAM

HARTSFIELD-JACKSON ATLANTA DEVELOPMENT PROGRAM

NO.	DATE	ISSUED FOR

REVISIONS

PROJECT TEAM

ABSolute joint venture

DESIGN TEAM

DESIGN BY	JDT
DRAWN BY	JDT
CHECKED BY	CFA
APPROVED BY	NBD

PROJECT INFORMATION

COA CONTRACT No	FC-6684
COA PROJECT No	
A-JOP WBS No	D.0290.017

PROJECT ELEMENT

AIRSIDE

PROJECT NAME

TAXIWAY PAVEMENT REPLACEMENT 2016

ISSUED FOR

BID

DATE

FEBRUARY 16, 2016

SHEET NAME

AIRFIELD ELECTRICAL LIGHTING DETAILS

SHEET No

EA 04.12.1

NOT ISSUED FOR CONSTRUCTION

2/11/2016 5:54 PM
C:\PW_WORK\ATIGMAD01\TUD04783\M0596450\EA-04.01-ELECTRICAL DETAILS.DWG

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

FC- 8746; TAXIWAY PAVEMENT REPLACEMENT 2016

EXHIBIT "G", AIRPORT SECURITY REQUIREMENTS

1. **Airport Security Requirements**. Contractor shall at all times conduct all operations under this Contract in a manner to avoid the risk of loss, theft, or damage by vandalism, sabotage or any other means to any equipment, materials, work or other property at the Jobsite. Contractor shall continuously inspect all equipment, materials and work to discover and determine any conditions which might involve such risks and shall be solely responsible for discovery, determination and correction of any such conditions.

2. **Compliance**. Contractor shall comply with the Transportation Security Administration (TSA) and the City's security requirements for the Airport. Contractor shall cooperate with the TSA and the City on all security matters and shall promptly comply with any Project security arrangements established by City. Such compliance with these security requirements shall not relieve Contractor of its responsibility for maintaining proper security for the above-noted items, nor shall it be construed as limiting in any manner Contractor's obligation with respect to all applicable state, federal and local laws and regulations and its duty to undertake reasonable action to establish and maintain secure conditions at the Jobsite.

3. **Preventing Unauthorized Access**. The Airport has been secured to prevent unauthorized access to the Air Operations Area (AOA), the secured area, the sterile area and other controlled areas of the Airport. Contractor shall cooperate to the fullest extent with the TSA and DOA to maintain the integrity of the security system. The Contractor shall control its operations and the operations of its subcontractors and all suppliers so as to provide for the free and unobstructed movement of aircraft, aircraft operations personnel and equipment in the AOA, the secured area, the sterile area and other controlled areas of the Airport as defined herein.

4. **Transportation Security Administration/Responsibility of Contractor.** In order to comply with the TSA and DOA security requirements, Contractor shall be responsible for informing itself as to current, ongoing, and changing requirements, and for remaining in compliance with those requirements throughout this Contract. The security requirements are as follows and from time to time may change as required by the TSA and/or DOA.

5. **Security Identification Display Area (SIDA)**. The Security Identification Display Area (SIDA) is defined in the Airport Security Program as any area that requires individuals to continuously display Airport issued or Airport approved identification badges. Personnel associated with construction contracts in the AOA secured area or sterile area of the Airport shall display SIDA badges at all times. The TSA and the DOA require all personnel to display SIDA badges in areas controlled for security purposes at all times.

4.1 FBI/CHRC Checks. To obtain a SIDA badge, each individual must successfully undergo a Federal Bureau of Investigation (FBI) fingerprint based Criminal History Records Check (CHRC) which must reveal no convictions of disqualifying crimes within the last ten years as defined in Transportation Security Regulation, TSR Part 1542.209. Each individual must also attend a security awareness course conducted by the DOA Security Division. Each employee must present two forms of Identification prior to the badging process. At least one form of identification must have been issued by a government authority and at least one must contain a photograph. Contractor shall be responsible for all fees associated with obtaining a SIDA badge, (i.e. badge and fingerprint fees as determined by DOA). The current cost for the CHRC is $60.00 per individual. The current cost for badge is $60.00 per individual. Costs for lost badges is $200.00. Contractor shall contact the DOA Security office at (404) 530-6667 prior to sending individuals to the DOA Security office for badging. Contractor/Escorting Requirements are specified in subsection below.

5 Displaying Badges. Employees and those of all subcontractors must display a DOA issued badge showing Contractor's name and an employee number. All personnel shall be required to wear this badge at all times while within the secured areas of the Airport.

6 Badging Records and Process. Contractor shall maintain an up-to-date record of all badge holders showing name, address, sex, height, weight, color of eyes and badge number. Contractor will be required to furnish this information to the DOA upon request.

6.1 The Badging process may begin upon the Contractor's receipt of a formal Notice to Proceed (NTP) from the City and may take up to fourteen (14) calendar days to complete. Access to secured areas shall be denied until such time as the Contractor has completed the badging process.

6.2 If applicable, an Administrative NTP may be presented to the DOA Security Division by the Contractor in order to initiate the badging process for the Contractor's employees.

6.3 The Contractor shall appoint one of its employees as an Authorizing Agent and submit his or her name, on the Contractor's letterhead, to the DOA Security Division. The submittal letter shall indicate the Project Name, Contract Number, Point of Contact, Telephone and Fax number, list of subcontractors including subcontractors' Authorizing Agent nature of the work to be performed by Contractor, and each subcontractor, location and duration, time frame(s), and justification for vehicle access, if required. A copy of the Contractor's Insurance Certificate shall accompany the letter. Once badged, the Contractor's Authorizing Agent shall be responsible for the badging process of his/her company employees.

6.4 Each Subcontractor identified in the Contractor's letter shall appoint one of its employees as an Authorizing Agent and submit his or her name through the Contractor, to the DOA Security Division. A copy of the Subcontractor's Insurance certificate shall accompany the letter. Once badged, the Subcontractor's Authorizing Agent shall be responsible for the badging process of his/her company employees.

6.5 Processing time for badging, at the badging office after completion of the CHRC, will last approximately one (1) hour. Processing time for Authorizing Agents will last an additional hour for briefing by the DOA Security Division. Authorizing agent briefing sessions will be conducted only on Mondays, Wednesdays and Fridays at 11 a.m. in the DOA Security office.

6.6 Each person applying for badging shall complete and submit all forms required by the DOA Security Division. All required forms will be provided to the authorizing agent at the time of the briefing at the DOA Security office.

6.7 Each person applying for a badge shall also submit to fingerprinting upon the submittal of said forms. Fingerprints will be utilized for a ten (10) year Federal Bureau of Investigation (FBI) based criminal history records check for each individual employee.

6.8 Pursuant to TSR § 1542.209 certain Felony convictions within the most recent ten (10) year period, may cause disqualification. A list of disqualifying Felony convictions is available in the offices of the DOA Security Division and in the TSR Regulations.

6.9 The Authorizing Agent will be notified when the results of the fingerprint checks are completed. Upon notification and approval, Contractor's and subcontractor's approved employees may return to the DOA Security Office, during posted hours, for photographing and badging. This process may take up to sixty (60) minutes.

6.10 Badges issued to Contractor and subcontractor employees and agents shall expire upon the happening of one (1) of the following events, whichever occurs first:

6.10.1 Completion of Contract or subcontract, unless extended by the City;
6.10.2 Expiration of Insurance coverage, as indicated on the Contractor's Insurance certificate; or
6.10.3 Employee's driver's license expiration date;
6.10.4 Two (2) years from the issuance of the badge.

6.11 Contractor and its subcontractor shall be responsible for making arrangements, ahead of time, to extend badges, when necessary. A letter, directed to both the DOA Assistant General Manager, Facilities and the DOA Security Manager, explaining the reason(s) for the badge extension on Contractor's letterhead will be required. Extension requests must be approved in writing by the DOA prior to extension of the badges.

6.12 Contractor's questions concerning Airport Security shall be directed to (404) 530-6667.

7 Drivers. All drivers operating vehicles within the AOA must obtain, in addition to the DOA Security badge, a DOA Ramp Certification. Ramp Certification will be evidenced by a "D" sticker placed on the face of the badge by the DOA Security department.

7.1 Ramp Certification. City will require Airport Driver Safety Training and Ramp Certification for all personnel required to operate a motor vehicle in the AOA. This can be obtained by

completing an Airport Driver Safety Training Course administered by the Airport Operations Division. These drivers shall only operate vehicle on the approved NLVR's & Aprons, excluding the Aircraft Movement Area. Contractor shall contact Airport Operations, at (404)530-6620 during normal business hours to schedule the training session.

7.2 Except where noted, all vehicles operating within the AOA shall carry a minimum liability insurance coverage amount of TEN MILLION DOLLARS ($10,000,000.00).

7.3 Contractor shall mark all vehicles and construction equipment, including those of subcontractors, in a manner as required by the Department of Aviation and consistent with Transportation Security Regulations (TSR).

7.4 All vehicles operating within the AOA must display permanent signage, legible and visible from a sight distance of five hundred (500) feet on both sides of the vehicle. MAGNETIC SIGNS ARE PROHIBITED FROM USE IN THE AOA.

8 **Protocols for Contractor Escorting.** Prime contractor must incorporate escorting protocol with Security Plan submitted for approval by the Security Manager. The Security Manager must approve any exceptions. Contractor must attach a map of work area(s) and routes to access the work area(s) to project security plan submitted to the Aviation Security Division for approval. Contractor may contact DOA Security Manager at (404) 530–6667 during normal operating hours. These requirements cover security escorting of unbadged personnel through airport security gates. The requirements for escorting onto the Aircraft Movement Area (AMA) and for crossing-guards on the airfield are included in the Technical Specifications.

8.1 All escorted vehicles and personnel must remain under the direction of authorized escorting personnel at all times.

8.2 Contractor and escorted personnel shall have no Terminal or Concourse access.

8.3 Escorting is limited to an Airport SIDA badged prime Contractor or an Airport SIDA badged escorting subcontractor approved by the Security and Operations Managers to perform escorting duties. The individuals involved in escorting shall perform no other services other than escorting while in service. No other subcontractors will be allowed to escort any vehicle(s).

8.4 Escorting person(s) must have a SIDA badge.

8.5 Designated badged prime Contractor employees approved or badged escorting subcontractor must escort prime Contractor employees and subcontractors' employees to all work sites. Once at the work site, badged employees, prime or subcontractors', may supervise unbadged employees, not to exceed five (5) employees per one (1) SIDA badged employee.

8.6 All personnel (badged or escorted) must have an employee photo ID displayed on the outermost garment, waist high or above. The employee badge must contain the employee's name, Contractor's name and project number or name. All escorted personnel must remain under the control of person(s) with an Atlanta SIDA badge at all times while in the SIDA.

8.7 Maximum vehicular escort—one (1) prime contractor vehicle or approved badged escorting subcontractor is permitted to escort two (2) subcontractor vehicles.

8.8 All vehicles requiring escort must access and egress the AOA through Pre-approved gates. Vehicles requiring escort shall not be permitted access or egress through any other entry or exit point within the AOA for any reason whatsoever.

8.9 All escorted vehicles must obtain a permit, valid for up to ten (10) hours**,** at Gate 59. The obtaining of a permit, however, shall not relieve a vehicle from the requirement of being escorted as set forth herein.

8.10 In the event an escorted vehicle requires a time limit extension, the vehicle, and its original operator, must return to Gate 59 to obtain a time limit extension to complete work in the AOA secure or sterile area. Time limit extension shall not exceed an additional ten (10) hour period under any circumstances.

9 Construction Contracts Within Sterile Area (Inside Terminal, Concourses)

9.1 Highest level of Security required.

9.2 All employees of prime Contractor and subcontractor, must be badged to work in the sterile area.

9.3 If escorting of unbadged Contractors and or subcontractors is required, an approved sponsor agency (DOA, AATC, IAC , HACM, HCM, etc.) must perform escort full time.

9.4 For any work requiring access to the sterile area (beyond the Passenger Screening Checkpoint area and on Concourses), a tool inventory must be conducted daily by the prime Contractor or designated representative. A copy of this inventory should be provided to the construction manager or project manager for verification. In general, tools will not be allowed to pass through the checkpoint area.

10 **Restricted AOA Access.** Contractor shall allow passage into the AOA or secured area through its access point to persons, vehicles, and equipment displaying identification of the DOA or provide an escort for each person or vehicle not displaying proper identification. Escort vehicles must be insured as specified per Exhibit D, Insurance and Bonding Capacity. Escorted vehicles need not carry the aforementioned coverage but must carry the minimum amounts of insurance required

by Georgia Law. However, Insurance coverage of escort vehicles must provide coverage as specified by Exhibit D for vehicles being escorted.

11 Visual Aids. In the event of the possibility of contact with the AOA or secured area, Contractor shall establish a system of visual aids for marking and delineating the limits of required clearances adjacent to active runways, taxiways, and NAVAIDS during both day and night time work, subject to City's approval prior to the start of any work under this Contract. The approved system of marking and delineating shall be installed, maintained and protected at all times.

12 Tools and Materials. Contractor shall create and maintain an inventory of all tools and materials utilized within the SIDA, terminal building, Federal Inspection Service (FIS), and AOA.

12.1 All tools and materials shall be stored and maintained in a secured manner to prevent unauthorized use, within pre-designated areas within the secured areas of the airport. Storage designations shall be obtained by the Contractor and/or subcontractor, prior to mobilization, by contacting the DOA Properties Division at (404) 209-2945. Change requests for storage designation may be approved only through the DOA Properties Division with notification and concurrence from the DOA Security Division. Failure to comply with this requirement may result in the termination of Contractor's or subcontractor's contract and disqualification from working on construction contracts within secured areas of the Airport.

12.2 All tools and materials must be secured to prevent unauthorized use at all times within the secured areas of the Airport and/or the AOA. Failure to comply with this requirement may result in the termination of Contractor's or subcontractor's contract and disqualification from working on construction contracts within secured areas of the Airport.

12.3 Any and all job-specific or unusual tools and/or materials shall be presented to the security authority at point of entry gate when accessing and/or egressing the SIDA and/or AOA. Failure to comply with this requirement may result in the termination of Contractor's or subcontractor's contract and disqualification from working on construction contracts within secured areas of the Airport.

12.4 All vehicles shall remain subject to search while within the secured areas of the Airport and/or the AOA at all times. Vehicles may also be searched prior to entry to the secured areas of the Airport. The possession of weapons and other prohibited items may result in criminal or civil charges in accordance with applicable laws.

13 Terminal/Curbside. A maximum of two (2) Contractor vehicles <u>or</u> two (2) subcontractor vehicles may be permitted in a work area at any given time, subject to the approval of the Atlanta Police Department, and the DOA Security. In the event one (1) Contractor vehicle is present, then no more than one (1) subcontractor vehicle may be present at the same time, and vice versa.

13.1 Debris removal may be allowed from curbside with special permission by the DOA Security Department.

13.2 When parked at curbside, at least one (1) badged employee must remain with the vehicle at all times. Vehicles must be removed as expeditiously as possible in all cases.

13.3 Areas surrounding vehicles accessing curbsides must be kept clean at all times.

13.4 For purposes of obtaining Terminal or Curbside access, the APD Airport Section shall be contacted by dialing (404) 530-6630 24 hours in advance of the desired access time.

14 Staging Areas. The Contractor's Construction staging area shall be identified on the plans.

15 Federal Inspection Service Areas. For any or all work conducted within Federal Inspection Service (FIS) areas, Contractor shall submit FIS Authorization requests to the **U.S. Customs Service (404) 765-2303.** The request shall detail the names of employees, description and area of work, work schedule, and any other relevant information to the DOA Security Department.

15.1 Contractor shall be responsible for obtaining the appropriate approvals and special SIDA badge FIS access decals from the appropriate Federal authorities. Special SIDA badge FIS access decals will not be required in if one (1) or more U.S. Customs Agent(s) are present at the work site at all times.

16 Security Checkpoints. Contractor and subcontractors shall maintain awareness among all employees, and at all times, that all Security Checkpoints are now under Federal jurisdiction rather than privately contracted Security agents. In general, contractors will not be allowed to carry tools and construction materials through the passenger security screening points.

16.1 Questions regarding Federal Security Checkpoints shall be directed to (404) 763-7437 or (404) 530-2150.

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

FC-8746 TAXIWAY PAVEMENT REPLACEMENT 2016

EXHIBIT H - SCHEDULE REQUIREMENTS

1. General Requirements

1.1. The Work under this Contract shall be planned, scheduled, executed, reported and accomplished using the Precedence Diagramming Critical Path Method (hereinafter referred to as CPM), in workdays, unless otherwise specifically provided in the Contract Documents.

1.2. Contractor shall have within its employ or under contract, throughout the execution of the Work under its contract, such expertise in CPM scheduling and experience with the specified scheduling program so as to insure its effective and efficient performance under this section. Contractor shall submit the qualifications of the Project Scheduler for acceptance by the ENGINEER and comply with the requirements of this Exhibit.

1.3. The Project Schedule shall be computerized by the Contractor utilizing the latest version of Oracle Primavera P6, hereinafter referred to as Primavera. It is expected that the Contractor shall have sufficient capabilities to perform this Work. Any and all costs incurred by the Contractor in researching and/or educating its personnel in CPM or Primavera are to be borne by the Contractor and will not be reimbursed by the CITY.

1.4. The primary objectives of the requirements of this section are: (a) to insure adequate planning and execution of the Work by Contractor; (b) to assist ENGINEER in evaluating progress of the Work; (c) to provide for optimum coordination by Contractor of its trades, Subcontractors, and Suppliers, and of its Work with the work or services provided by any separate CONTRACTORS; (d) to permit the timely prediction or detection of events or occurrences which may affect the timely prosecution of the Work; (e) to provide a mechanism or tool for use by the ENGINEER, and Contractor in determining and monitoring any actions of the Contractor which may be required in order to comply with the requirements of the Contract Documents relating to the completion of the various portions of the Work by the Contract Time specified in the Contract Documents.

1.5. Contractor is responsible for determining the sequence of activities, the time estimates for the detailed construction activities and the means, methods, techniques and procedures to be employed. The Project Schedule shall represent the Contractor's best judgment of how it will prosecute the Work in compliance with the Contract requirements. Contractor shall ensure that the Project Schedule is current and accurate and is properly and timely monitored, updated and revised as Project conditions may require and as required by the Contract Documents.

1.6. Contractor shall provide the basic data relating to activities, durations, Specified Contract milestones, and sequences to ENGINEER as part of Contractor's Draft Baseline Schedule and Finial Baseline Schedule submittal, discussed later in this Exhibit. This data shall reflect the Contractor's actual plan for the Project, and shall fully comply with all requirements of the Contract Documents and this Exhibit.

1.7. Subject to ENGINEER's review and approval, Contractor shall determine when, where, and how it will interface with others performing work, for the CITY, in the same area and to coordinate its activities with all parties including the Owner, Consultants, Suppliers and other CONTRACTORS.

1.8. Contractor shall include in the Project Schedule all interface points with others. These points shall be in the form of Start Milestones for deliverables due to the Contractor from others and as Finish Milestones for deliverables that Contractor must supply to others.

1.9. Should Contractor intend or plan to complete the Work, or any portion thereof, earlier than any applicable Specified Milestone Date or the Contract Time, Contractor shall give timely and reasonable Notice of this fact to ENGINEER. The CITY shall have the sole discretion to agree to or reject such early completion plan by Contractor. Schedule improvement is always encouraged whenever possible. However, since interface with other parties performing work at Hartsfield-Jackson Atlanta International Airport (HJAIA) is necessary, the CITY and its representatives shall have no duty or obligation to agree to, or to cooperate with Contractor regarding any early completion plan or proposal by Contractor and shall not be liable for any damages of Contractor because of the rejection by the CITY of said plan.

2. Schedule Development, Submittal and Approval

2.1. Development of the Project Schedule is a multi-step process with each step requiring defined information and input of project team members. The development process includes the Preliminary Schedule, Schedule Orientation Session, Draft Schedule, and Final Schedule.

2.2. **Preliminary Schedule**: Contractor shall submit at the pre-construction meeting, a Project Schedule indicating detailed activities for the first sixty-days (60) of the Project and including general activities for the remaining operations. This Preliminary Schedule shall be a CPM Network displayed in the time scaled bar chart format showing, as a minimum, the following information: (a) Activity identification number of the task or event; (b) description of the task or event (c) duration of the task or event (d) earliest start and finish dates for the task or event (e) latest start and finish dates for the task or event; (f) Contract Milestones; (g) milestones for interface points with others.

2.3. Upon receipt by Contractor of the Notice to Proceed and until the Final Baseline Schedule is reviewed and accepted by the ENGINEER, Contractor shall proceed with its Work in accordance with the accepted Proposal Schedule which was submitted at the pre-construction meeting.

2.4. Contractor shall, within seven (7) calendar days of the Notice to Proceed submit a Primavera generated electronic back-up of the Preliminary Schedule on electronic media acceptable to the ENGINEER. This schedule shall be resourced and cost loaded.

2.5. **Schedule Orientation Session**: Contractor shall, upon notification from the ENGINEER, attend a Schedule Orientation Session relating to the Schedules and Reports requirements for this Project. The Schedule Orientation Session is designed to review in detail, the objectives of the Schedules and Reports requirements. Contractor shall arrange for its Project Manager, Superintendent, and Project Scheduler to attend the schedule orientation session. The following items will be discussed during the orientation session: (a) The procedures and requirements for the preparation of the Resource and Cost Loaded Project Schedule; (b) how the requirements of the Contract Documents

will be monitored and enforced by the ENGINEER (c) long-lead items and time requirements for the Work by Subcontractors will be identified and included in the schedule.

2.6. The ENGINEER will provide the format for the Project Schedule electronically at the Schedule Orientation Session, if required. Calendars, Activity Codes, and Work Breakdown Structure (WBS) dictionaries, tabular reports, graphic reports contained in the template may not be modified without the consent of the ENGINEER. The ENGINEER will also provide samples of schedule reports. The ENGINEER also reserves the right to request additional reports, change calendars and/or coding throughout the duration of the project at no additional cost to the CITY.

2.7. **Draft Baseline Schedule**: Within twenty-one (21) calendar days of the Schedule Orientation Session the Contractor shall complete and submit a draft of its Project Schedule (Draft Baseline Schedule).

2.8. The Draft Baseline Schedule shall represent the Contractor's best judgment and intended plan for completion of the Work in compliance with Contract Milestone Dates in the Contract Documents. The Contract Milestone Dates shall be included in the Draft Baseline Schedule as zero duration finish milestones. The Draft Baseline Schedule shall take into account all foreseeable activities to be accomplished by any separate Contractor, interface dates with utility owners, CITY's operations and others. The Draft Baseline Schedule shall anticipate all necessary manpower, by craft, and resources to accomplish the activities within the durations set forth in the schedule.

2.9. The ENGINEER shall have the right to require the Contractor to modify any Contractor data or any portion of the Contractor's Draft Baseline Schedule as herein required, with Contractor bearing the expense thereof, which the ENGINEER reasonably determines to be: (a) impracticable, (b) based upon erroneous calculations or estimates, (c) unreasonable, (d) required in order to ensure proper coordination by Contractor of the Work of its Subcontractors and with the work or services being provided by any separate CONTRACTORS, (e) necessary to avoid undue interference with the CITY's operations or those of any utility owners or adjoining property owners, (f) necessary to ensure completion of the Work by the Contract Milestone Dates set forth in the Contract Documents, (g) required in order for Contractor to comply with the requirements hereof or any other requirements of the Contract Documents or this Exhibit, (h) not in accordance with the Contractor's actual operations, unless the revision or modification will change the original scope of Work.

2.10. Along with the Draft Baseline Schedule submittal, Contractor shall submit to the ENGINEER a Schedule of Values for review and acceptance.

2.11. **Final Baseline Schedule:** No later than fourteen (14) calendar days after the Draft Baseline Schedule is returned with comments to the Contractor, by the ENGINEER, the Contractor shall complete and submit the Final Baseline Schedule to the ENGINEER, for acceptance.

2.12. Upon review of the Final Baseline Schedule by the ENGINEER, the Contractor will be notified in writing as to acceptance, reasons for rejection, or any revisions required.

2.13. The accepted Final Baseline Schedule will be “frozen” and shall become the **“Project Schedule”** for the Work and shall be used to monitor and record progress and evaluate revisions. This Final Baseline Schedule shall be established as the target schedule for the Contract and shall not be

changed, altered or revised. A copy of the accepted Final Baseline Schedule shall be used to establish progress reporting in accordance with Section 5.5 of this Exhibit. The CITY will not recognize or accept any other schedule.

2.14. Contractor shall include, as part of the Final Baseline Schedule submittal to the ENGINEER, a narrative report indicating anticipated allocation by Contractor of the following resources and work shifts for each activity which it proposes to be utilized on the Project, (a) Labor resources, (b) Equipment resources, and (c) Whether it proposes the Work to be performed on single, double or triple shifts, and whether it is to be done on a 5, 6, or 7-day work week basis. The ENGINEER may provide a template for the narrative if necessary.

2.15. For any sequence of work requiring the closure of designated areas in the Aircraft Movement Area, the CONTRACTOR shall be required to submit a detailed hourly baseline schedule in addition to the Final Baseline Schedule which further details specific activities in the affected areas. This hourly schedule shall conform to all other requirements specified in this exhibit and must be reviewed and accepted by the ENGINEER prior to commencement of the work. The hourly schedule shall be submitted ten (10) working days prior to the pre-activity meeting held for the specific closure.

3. Cost and Resource Loading

3.1. With each Schedule submittal, each weekly/monthly update, and each revision, the Contractor shall also submit a Project Resource Profile and Schedule of Cost Loading and Cash Flow, generated in Primavera, to the ENGINEER. There shall be a strict correlation between the sum of individual activity costs and the total values indicated for bid items. That is, each individual activity within the Project Schedule shall employ a code which, in summary, attaches its cost, if any, to the appropriate bid items. The sum of activity costs within a specific code, then, shall equal the cost of its corresponding bid items and approved Revisions and Change Orders.

3.2. The dollar value for the activity shall be the cost of the work, including labor and materials. General Conditions and site overheads shall be loaded on activities specifically included for this purpose. Stored materials, for which the Contractor will bill, shall be loaded on zero duration finish milestones called out as material delivery activities. The sum of all activity costs shall equal the total contract sum. The Contractor shall revise the Resource Profile and/or Schedule of Cost Loading and Cash Flow as necessary to gain the acceptance of the ENGINEER.

3.3. The Resource Profile and Cost Loading shall represent a fair, reasonable and equitable dollar (cost) allocation for activities on all Schedule submittals. The Resource Profile and Cost Loading in coordination with the monthly updated Schedule shall be used as a basis for the Contractor's application for payment. No construction installation activity or design activity on the Schedule shall exceed a value of $250,000 unless approved by the ENGINEER.

4. Schedule Content and Format

4.1. As discussed in paragraph 2.6 of this Exhibit the ENGINEER will provide the format, for the Project Schedule, if required, electronically at the Schedule Orientation Session. Calendars, Activity Codes, and Work Breakdown Structure (WBS) dictionaries contained in the template may not be modified without the consent of the ENGINEER.

4.2. Except for non-construction activities such as, procurement, delivery, or submittal development, Contractor shall differentiate activities of the schedule so that no single activity shown has a duration longer than fifteen (15) working days, unless the ENGINEER, in its sole discretion, shall approve a longer duration for certain activities.

4.3. The Draft Baseline Schedule and Final Baseline Schedule submittals shall consist of two (2) Primavera generated bar charts, representing all activities which are part of the Contractor's plan on 11" x 17" paper, in color, and a Primavera generated backup, XER file, of the schedule on electronic media acceptable to the ENGINEER.

4.4. The Draft Baseline Schedule and Final Baseline Schedule submittals must contain or be able to demonstrate that the following items have been addressed: (a) Project name; (b) Contractor name; (c) Revision or edition number; (d) activities of completed Work ready for use by next trade, CITY, etc.; (e) activities relating to different areas of responsibility, such as subcontracted Work which is distinctly separated from that being done by the Contractor directly; (f) different categories of Work as distinguished by craft or crew requirements; (g) different categories of Work as distinguished by equipment requirements; (h) different categories of Work as distinguished by materials; (i) distinct and identifiable subdivisions of Work such as structural slabs, beams, columns; (j) locations of Work within the Project that necessitates different times or crews to perform; (k) outage schedules for existing utility services that will be interrupted during the performance of the Work; (l) acquisition and installation of equipment and materials supplied and/or installed by CITY or separate CONTRACTORS; (m) material to be stored on site; and (n) Contract Milestone Dates, and (o) detailed breakdown of activities by discipline.

4.5. For all major equipment and materials to be fabricated or supplied for the Project, the Final Baseline Schedule shall show a sequence of activities including, (a) preparation of shop drawings and sample submissions, (b) a minimum of ten (10) working days for review of shop drawings and samples or such time as specified in the Contract Documents, (c) shop fabrication, delivery and storage per the contract documents, (d) erection; and, (e) testing of equipment and materials.

4.6. The Final Baseline Schedule shall include late completion dates for the Work that is no later than the required Contract Milestone Dates. The bar chart submittal shall be drawn based upon the early start dates of activities shown on the graphic.

4.7. Contractor shall develop and assign a Responsibility Code for each activity corresponding to Contractor or Subcontractor responsible for the work.

4.8. Contractor shall identify the activities, which constitute the controlling operations or critical path. No more than 10 % of the activities shall be critical. Critical is defined as total float less than one (1) working day.

4.9. All activity durations shall be given in working days.

5. Updating of Project Schedule/Progress Reports

5.1. At least once a month, the Contractor shall arrange for its Project Manager, and Superintendent to meet at the Project site with the ENGINEER to review Contractor's updated Project Schedule, prepared by Contractor. Said update shall show up-to-date and accurate progress data and shall be based upon Contractor's best judgment; and said update shall be prepared by Contractor in

consultation with all principal Subcontractors and Suppliers. The Contractor shall also submit with the each update an electronic copy, XER file, of the updated Project Schedule.

5.2. Contractor shall adjust the data date ("as of date") to reflect the current update period as required by the ENGINEER. The required monthly data date shall be the last Friday of every month. This shall also be consistent with the cutoff for the application for payment.

5.3. The updated Project Schedule shall show activity actual commencement and completion dates, remaining duration in workdays, and physical percent complete for those activities commenced and not complete. The Project Schedule shall also show a graphic comparison of the current status & baseline plan for each activity in the network.

5.4. **Monthly Progress Report:** Contractor shall submit, with the Monthly Application for Payment, a narrative report which shall include, but not be limited to, a description of problem areas, current and anticipated delaying factors and their impact, explanations of corrective actions taken or planned, any newly planned activities or changes in sequence, and proposed logic for a Recovery Schedule, if required, as further described herein. The report shall also include: (a) The updated Project Schedule updated as of the last Friday of the month; (b) A narrative describing actual Work accomplished during the reporting period; (c) A list of major construction equipment used on the Project during the reporting period and any construction equipment idle during the reporting period; (d) The total number of men by craft actually engaged in the Work during the reporting period, with such total stated separately as to office, supervisory, and field personnel; (e) A manpower and equipment forecast for the succeeding thirty (30) days, stating the total number of men by craft, and separately stating such total as to office, supervisory and field personnel; (f) A list of Contractor-supplied materials and equipment, indicating current availability and anticipated jobsite delivery dates; (g) Changes or additions to Contractor's supervisory personnel since the preceding progress report; (h) Value of Work in place to date (i) Value of Work in place since last report; and (j) Value of uncompleted Work.

5.4.1. The Contractor will provide initial computer reports and Monthly Progress Reports thereafter, in accordance with the Contract Document, and including as a minimum, the following:

5.5. **Schedule Reports:** The monthly Schedule Update Reports will contain the following minimum information for each activity: (a) Activity identification number, description and estimated original duration in workdays; (b) Calculated early and late finish dates; (c) Actual start and actual finish dates, and remaining duration, in workdays, for those activities started and not completed; (d) Days ahead and/or behind schedule of the milestones representing the Specified Milestone Dates. (e) Physical percent complete for each activity. (f) A float analysis of the longest path through the schedule detailing potential delays and areas for acceleration. Actual start and finish dates shall be indicated for each activity as appropriate. Completed activities will be omitted from remaining Float and Late Start Sorts.

5.6. **Application for Payment:** Contractor understands and agrees that the submission and acceptance of progress updates and the receipt of progress reports are an integral part and basic element of the Applications for Payment. The "accepted updated" Project Schedule, including the Schedule of Values, shall be required for each Application for Payment. However, 1 (one) initial provisional progress payment may be payable at the sole discretion of the ENGINEER if it determines the Contractor is complying with the requirements of this Exhibit during the

development of the Project Schedule. However, no more than one (1) Application for Payment will be approved until all of the requirements of this Scheduling and Reports Section have been met.

6. Recovery Schedule

6.1. Should the updated Project Schedule, at any time during Contractor's performance, show, in the sole opinion of the ENGINEER that the Contractor is 5% (Based on Phase or Project Total Float) or fourteen (14) or more calendar days behind schedule for any Contract Milestone Date, or should Contractor be required to undertake actions under Section 7.0 hereof, the Contractor shall prepare a Recovery Schedule at no additional cost to the CITY (unless the Owner is solely responsible for the event or occurrence which has caused the schedule slippage) explaining and displaying how Contractor intends to reschedule its Work in order to regain compliance with the Baseline Resource and Cost Loaded Design/Construction Schedule during the immediate subsequent pay period.

6.2. If the Contractor believes that all of the time can be recovered during the subsequent pay period the Contractor will be permitted to prepare a Recovery Schedule as set forth below. However, if the Contractor believes it will take more than thirty (30) calendar days to recover all of the lost time, it shall prepare and submit a request for revision to the "Baseline" Project Schedule and comply with all of the requirements of a Schedule Revision as set forth in this Exhibit.

6.2.1. The Contractor shall prepare and submit to the Owner's Representative a one-month maximum duration Recovery Schedule, incorporating the best available information from Subcontractors and others which will permit a return to the original accepted "Baseline Project Schedule" at the earliest possible time. The Contractor shall prepare a Recovery Schedule to same level of detail as the originally accepted "Baseline Project Schedule for a maximum duration of one month. This Recovery Schedule shall be prepared in coordination with other separate Contractors on the Project and shall not alter Contractor Milestone Dates.

6.2.2. Within two (2) working days after submission of Recovery Schedule to the ENGINEER, the Contractor shall participate in a conference with the ENGINEER to review and evaluate the Recovery Schedule. Within two (2) working days of conference, the Contractor shall submit the revisions necessitated by the review for the ENGINEER's review and acceptance. The Contractor shall use the approved Recovery Schedule as its plan for returning to the original accepted "Baseline Project Schedule".

6.2.3. During the period of time that the Recovery Schedule is in force, the Contractor shall prepare and submit to the ENGINEER weekly updates and shall confer continuously with the ENGINEER to assess the effectiveness of the Recovery Schedule. As a result of this conference, the ENGINEER will direct the Contractor as follows:

6.3. If the ENGINEER determines the Contractor is still behind schedule, the ENGINEER will direct the Contractor to prepare a Schedule Revision and comply with all of the requirements of a Schedule Revision as stated herein and the other requirements of the Contract Documents; provided, however, that nothing herein shall limit in any way the rights and remedies of the CITY as provided elsewhere in the Contract Documents; or

6.4. If the ENGINEER determines the Contractor has successfully complied with provisions of the Recovery Schedule, the ENGINEER will direct the Contractor to return to the use of the approved Resource and Cost Loaded Design/Construction Schedule.

7. Time Impacts Evaluation for Change Orders, and Other Delays

7.1. When the Contractor is directed to proceed with changed work, the Contractor shall prepare and submit, a Time Impact Evaluation (TIE), within ten (10) workdays, which includes both a written narrative and a schedule diagram depicting how the changed work affects other schedule activities. The schedule diagram shall show how the Contractor proposes to incorporate the changed work in the schedule, and how it impacts the current schedule update critical path. The Contractor is also responsible for requesting time extensions based on the TIE's impact on the critical path. The diagram must be tied to the main sequence of schedule activities to enable the ENGINEER to evaluate the impact of changed work to the scheduled critical path. Contractor shall be required to comply with the requirements of this Paragraph for all types of delays.

7.2. The Contractor shall be responsible for all costs associated with the preparation of Time Impact Evaluations, and the process of incorporating them into the current schedule update. The Contractor shall provide the ENGINEER with four (4) copies of each TIE.

7.3. Once agreement has been reached on a TIE, the Contract Times will be adjusted accordingly. If agreement is not reached on a TIE, the Contract Times may be extended in an amount the ENGINEER allows, and the Contractor may submit a claim for additional time.

8. Time Extensions

8.1. The Contractor is responsible for requesting time extensions for time impacts that, in the opinion of the Contractor, impact the critical path of the current schedule update. Notice of time impacts shall be given, in writing, within ten (10) workdays, of the occurrence of the event and in accord with the requirements of this Exhibit.

8.2. Where an event, for which the CITY is responsible, impacts the Contractual Substantial Completion date, the Contractor shall submit a written mitigation plan, including a schedule diagram, which explains how (e.g., increase crew size, overtime, etc.) the impact can be mitigated. The Contractor shall also include a detailed cost breakdown of the labor, equipment and material the Contractor would expend to mitigate the CITY caused time impact. The Contractor is responsible for the cost of preparing the mitigation plan.

8.3. Failure to request time, provide TIE, or provide the required mitigation plan within the required ten (10) workdays, will result in Contractor waiving its right to a time extension and cost to mitigate the delay.

8.4. No time will be granted under this Contract for cumulative effect of changes.

8.5. The CITY will not be obligated to consider any time extension request unless requirements of this Exhibit are complied with.

8.6. Failure of the Contractor to perform in accordance with the current schedule update shall not be excused by submittal of time extension requests.

9. Schedule Revisions

9.1. Schedule Revisions, as defined herein, shall refer to modifications made to activities in the Accepted Baseline Project Schedule in any of the following items: (a) Activity Original Duration; (b) changes in logical connections between activities; (c) changes in imposed constraints; (e) changes to activity descriptions.

9.2. Should Contractor desire to or be otherwise required under the Contract Documents to make modifications or changes in its method of operation, its sequence of Work, or the durations of the activities in its Resource and Cost Loaded Design/Construction Schedule, it shall do so in accordance with the requirements of this Scheduling and Reports Section and the Contract Documents. Revisions to the initial accepted Baseline Resource and Cost Loaded Design/Construction Schedule must be accepted in writing by the ENGINEER.

9.3. Contractor shall submit requests for revisions to the Project Schedule to the ENGINEER, together with written rationale for revisions and description of logic for rescheduling work and maintaining the Contract Milestone Dates listed in the Contract Documents. Proposed revisions acceptable to the ENGINEER will be incorporated into the next update of the Baseline Project Schedule.

9.4. Changes in activity description(s) may be done for clarification purpose only. If the proposed description change affects the Scope of Work covered by the activity, Contractor shall obtain approval of the ENGINEER before incorporating into schedule.

9.5. Contractor shall be solely responsible for expediting the delivery of all materials and equipment to be furnished by him so that the progress of construction shall be maintained according to the currently approved Project Schedule for the Work. Contractor shall notify the ENGINEER in writing, within ten (10) calendar days of the occurrence, whenever Contractor determines or anticipates that the delivery date of any material or equipment to be furnished by Contractor will be later than the delivery date indicated by the Project Schedule.

10. Float Time

10.1. Float or slack time, as calculated by Primavera using retained logic, associated with one chain of activities is defined as amount of time between earliest start date and latest start date or between earliest finish date and latest finish date for such activities, as calculated as part of the Project Schedule. Float or slack time shown on the Project Schedule is not for exclusive use or benefit of either the CITY or the Contractor and is available for use by either according to whichever first needs the use or benefit of the float to facilitate the effective use of available resources and to minimize the impact of Project problems, delays or Changes in the Work which may arise during performance. Contractor specifically agrees that float time may be used by the CITY in conjunction with their review activities or to resolve Project problems. Contractor agrees that there will be no basis for any modification of the Contract Milestone Dates or an extension of the Contract Time, or a claim for additional compensation as a result of any Project problem, Change Order or delay which only results in the loss of available positive float on the Project Schedule.

10.2. Float time shown on the Project Schedule shall not be used arbitrarily by Contractor in a manner which, in the opinion of the ENGINEER, unnecessarily delays separate Contractors from proceeding with their work in a way which is detrimental to the interests of the CITY. If Contractor

refuses to perform Work which is available and necessary to be performed in order not to delay any separate Contractors, the CITY may, regardless of the float shown on the Project Schedule to be available for the path of activities which encompasses said Work, terminate the Contractor for default.

11. Adverse Weather Delays

11.1. Contract time extensions for weather are based on the National Oceanic and Atmospheric Administration (NOAA) data for the project location. Delays will only be considered for such delays which impact activities on the critical path of the contract as defined by the schedule currently accepted by the ENGINEER at the time of the delay. Such time extensions, if approved by the ENGINEER, will be non-compensable. Weather delays may consist of days lost to adverse weather conditions, days lost to dry out of exposed soil, and or days lost to site clean-up due to adverse weather.

11.2. The following table below lists the typical number of work days lost to weather per month on critical path activities for this Contract. Working days lost due to weather in a given month in excess of those listed for that month, will be considered for a time extension. Days are not cumulative from month to month. Such time extension must be requested by the Contractor.

Month	# of Days
January	8
February	7
March	7
April	4
May	4
June	4
July	4
August	4
September	4
October	4
November	8
December	8

12. Default

12.1. Failure of the Contractor to substantially comply with the requirements of this Exhibit shall constitute a default by Contractor of its obligations under this Contract sufficient for termination of Contractor.

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

FC-8746, TAXIWAY PAVEMENT REPLACEMENT 2016

EXHIBIT "I", QUALITY CONTROL PROGRAM

1.1 Program Plan.

Prior to commencing work at any work site, Contractor shall prepare and submit a Project specific Quality Control Plan. This plan shall cover controls instituted to assure quality of the Work and the documenting of any other significant quality activities, materials certification and testing submittals, procedural direction, and specific technical instructions.

1.2 General.

The Contractor shall establish, provide, and maintain an effective Quality Control Program. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the Contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose. The intent of this section is to enable the Contractor to establish a necessary level of control that will:

(1) Adequately provide for the production of acceptable quality materials.

(2) Provide sufficient information to assure both the Contractor and the ENGINEER that the specification requirements can be met.

The Contractor shall be prepared to discuss and present, at the Pre-Construction Conference, his/her understanding of the quality control requirements. The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the Quality Control Program has been reviewed by the ENGINEER. No partial payment will be made for materials subject to specific quality control requirements until the Quality Control Program has been reviewed. The quality control requirements contained in this section and elsewhere in the Contract technical specifications are in addition to and separate from the acceptance testing requirements. Acceptance testing requirements are the responsibility of the ENGINEER.

1.2.1 Description of Program.

A. **General Description**. The Contractor shall establish a Quality Control Program to perform inspection of all items of work required by the technical specifications, including those performed by subcontractors. This Quality Control Program shall detail the methods and procedures that will be taken to ensure conformance to applicable specifications and Contract plans with respect to materials, workmanship, construction, finish, and functional performance. The Quality Control Program shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance required by the

technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of quality control.

B **Quality Control Program**. The Contractor shall describe the Quality Control Program in a written document, which shall be reviewed by the ENGINEER prior to the start of any production, construction, or offsite fabrication. The written Quality Control Program shall be submitted to the ENGINEER for review at least fifteen (15) calendar days before the mobilization.

The Quality Control Program shall be organized to address, at a minimum, the following items:

(1) Quality control organization;

(2) Submittals schedule;

(3) Inspection requirements;

(4) Quality Control Testing Plan;

(5) Documentation of quality control inspection activities; and

(6) Requirements for corrective action when quality assurance and/or acceptance criteria are not met. The Contractor is encouraged to add any additional elements to the Quality Control Program that he/she deems necessary to adequately control all production and/or construction processes required by this Contract.

(7) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by Section 1.2.

(8) Performance of all quality control tests as required by the technical specifications and Section 1.2. Certification at an equivalent level, by a state or nationally recognized organization will be acceptable.

1.2.2 Quality Control Organization. The Contractor's Quality Control Program shall be implemented by the establishment of a separate quality control organization. An organizational chart shall be developed to show all quality control personnel and how these personnel integrate with other management/production and construction functions and personnel. The organizational chart shall identify all quality control staff by name and function, and shall indicate the total staff required to implement all elements of the Quality Control Program, including inspection for each item of work. If necessary, different technicians can be utilized for specific inspection functions for different items of work. The quality control organization shall consist of the following minimum personnel:

A. **Program Administrator**. The Program Administrator shall be a full-time employee of the Contractor, or a consultant engaged by the Contractor. The Program Administrator shall have a minimum of five (5) years of experience in airport and/or highway construction and shall have had prior quality control experience on a project of comparable size and scope as the Contract.

The Program Administrator shall have full authority to institute any and all actions necessary for the successful implementation of the Quality Control Program to ensure compliance with the Contract plans and technical specifications. The Program Administrator shall report directly to a responsible officer of the construction firm. The Program Administrator may supervise the Quality Control Program on more than one project provided that person can be at the job site within two (2) hours after being notified of a problem.

B. **Quality Control Technicians**. A sufficient number of quality control technicians necessary to adequately implement the Quality Control Program shall be provided. These personnel shall be either ENGINEERS, engineering technicians, or experienced craftsman with qualifications in the appropriate field and shall have a minimum of two (2) years of experience in their area of expertise. The quality control technicians shall report directly to the Program Administrator and shall perform inspection of all materials, construction, and equipment for conformance to the technical specifications, and as required by Section 1.2.

C. **Staffing Levels**. The Contractor shall provide sufficient qualified quality control personnel to monitor each work activity at all times.

1.2.3 Submittals Schedule. The Contractor shall submit a detailed listing of all submittals (for example, mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include:

(1) Specification item number;

(2) Item description;

(3) Description of submittal;

(4) Specification paragraph requiring submittal; and

(5) Scheduled date of submittal.

1.2.4 Inspection Requirements. Quality control inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by Section 1.2. Inspections shall be performed daily to ensure continuing compliance with Contract

requirements until completion of the particular feature of work. These shall include the following minimum requirements:

A. During plant operation for material production, quality control test results and periodic inspections shall be utilized to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment utilized in proportioning and mixing shall be inspected to ensure its proper operating condition.

B. During field operations, quality control test results and periodic inspections shall be utilized to ensure the quality of all materials and workmanship. All equipment utilized in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified.

1.2.5 Quality Control Testing Plan. As a part of the overall Quality Control Program, the Contractor shall implement a quality control testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification Item, as well as any additional quality control tests that the Contractor deems necessary to adequately control production and/or construction processes. The testing plan can be developed in a spreadsheet fashion. All quality control test results shall be documented by the Contractor as required by Section 1.2.6.

1.2.6 Documentation. The Contractor shall maintain current quality control records of all inspections performed. These records shall include factual evidence that the required inspections have been performed, including type and number of inspections involved; results of inspections; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken. These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the Contract. Legible copies of these records shall be furnished to the ENGINEER daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the Contractor's Program Administrator. Specific Contractor quality control records required for the Contract shall include, but are not necessarily limited to, the following records:

1.2.6.1 <u>Daily Inspection Reports</u>. Each Contractor quality control technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations on a form acceptable to the ENGINEER. These technician's daily reports shall provide factual evidence that continuous

quality control inspections have been performed and shall, as a minimum, include the following:

(1) Technical specification item number and description;

(2) Compliance with approved submittals;

(3) Proper storage of materials and equipment;

(4) Proper operation of all equipment;

(5) Adherence to plans and technical specifications; and

(6) Safety inspection.

The daily inspection reports shall be signed by the responsible quality control technician and the Program Administrator. The ENGINEER shall be provided at least one copy of each daily inspection report on the workday following the day of record

1.2.6.2 Test Reports. The Contractor shall be responsible for establishing a system, which will record all quality control test results. Test results shall be submitted to the Engineer prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical quality control charts. The test reports shall be signed by the responsible quality control technician. Test reports shall document the following information:

(1) Technical specification item number and description;

(2) Test designation;

(3) Location;

(4) Date of test;

(5) Control requirements;

(6) Test results;

(7) Causes for rejection;

(8) Recommended remedial actions; and

(9) Retests.

1.2.7 Corrective Action Requirements. The Quality Control Program shall indicate the

appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the Quality Control Program as a whole, and for individual items of work contained in the technical specifications. The Quality Control Program shall detail how the results of quality control inspections and tests will be used for determining the need for corrective action and shall contain clear sets of rules to gauge when a process is out of control and the type of correction to be taken to regain process control. When applicable or required by the technical specifications, the Contractor shall establish and utilize statistical quality control charts for individual quality control tests. The requirements for corrective action shall be linked to the control charts.

The ENGINEER will notify the Contractor of any noncompliance with any of the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the ENGINEER or his designated representative to the Contractor or his/her authorized representative at the site of the work, shall be considered sufficient notice.

In cases where quality control activities do not comply with either the Contractor's Quality Control Program or the Contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the ENGINEER, the ENGINEER may:

(1) Order the Contractor to replace ineffective or unqualified quality control personnel or subcontractors.

(2) Order the Contractor to stop operations until an appropriate corrective action is taken.

1.2.8 Surveillance by the Engineer. All items of material and equipment shall be subject to surveillance by the CITY at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate quality control system in conformance with the requirements detailed herein and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to surveillance by the CITY at the site for the same purpose.

Surveillance by the ENGINEER does not relieve the Contractor of performing quality control inspections of either "on-site" or "off-site" Contractor's or subcontractor's work.

1.3 Plan Update.

The Quality Control Plan shall reflect the interfaces between CITY or its designated representatives, Contractor, and other relevant organizational entities. It shall contain all

appropriate interface control instructions. The plan shall be updated as necessary during this Contract to reflect any changes in the plan. The Quality Control Plan shall provide for the issuance of a "stop work" order by the Contractor or ENGINEER at any time during the Work when significant adverse quality trends and/or deviations from the approved Quality Control Program are found.

CITY OF ATLANTA

Kasim Reed
Mayor

SUITE 1700
55 TRINITY AVENUE, SW
ATLANTA, GA 30303
(404) 330-6010 Fax: (404) 658-7359
Internet Home Page: www.atlantaga.gov

OFFICE OF CONTRACT COMPLIANCE
Larry Scott
Director
lscott@atlantaga.gov

February 5, 2016

RE: Project No.: FC- 8746 Taxiway Pavement Replacement 2016

Dear Prospective City of Atlanta Bidder:

The Office of Contract Compliance (OCC) information is an integral part of every eligible City of Atlanta bid. All Bidders are required to make efforts to ensure that businesses are not discriminated against on the basis of their race, ethnicity or gender, and to demonstrate compliance with these program requirements at or prior to the time of Bid opening, or upon request by OCC. Bidders are required to ensure that prospective subcontractors, vendors, suppliers and other potential participants are not denied opportunities to compete for work on a City contract on the basis of their race, ethnicity, or gender, and must afford all firms, including those owned by racial or ethnic minorities and women, opportunities to participate in the performance of the business of the City to the extent of their availability, capacity and willingness to compete. Please read all of the information very carefully. Pay close attention to the specific goals for minority and female business enterprise participation for this project and the EBO program reminders listed on page 6.

If you have any questions about the information included in this section of the solicitation, please contact the City of Atlanta Office of Contract Compliance at (404) 330-6010.

The City of Atlanta looks forward to the opportunity to do business with your company.

TABLE OF CONTENTS

Policy Statement 1

Implementation of EBO Policy 2

Determination of Non-discrimination During Bid Process 2

OCC Review of Bidder Submissions..... 3

Equal Business Opportunity Program Bid RFP Submittals..... 4

Monitoring of EBO Policy..... 4

Implementation of EEO Policy..... 4

Monitoring of EEO Policy 4

Joint Venture Participation on City of Atlanta Projects..... 5

Equal Business Opportunity M/FBE Availability for This Project 6

Equal Business Opportunity Program Reminders 7

Covenant of Non-discrimination (EBO-1)..... 8

EBO Subcontractor Contact Form (EBO-2) 09-10

EBO Subcontractor Utilization Plan (EBO-3)..... 11

Letter of Intent 12-13

First Source Jobs Program Policy Statement..... 14

First Source Jobs Information Form (4)..... 15

First Source Agreement Form (5) 16

CITY OF ATLANTA

DISADVANTAGED BUSINESS ENTERPRISE

POLICY STATEMENT

It is the policy of the City of Atlanta to promote full and equal business opportunity for all persons doing business with the City. The City must ensure that firms seeking to participate in contracting and procurement activities with the City are not prevented from doing so on the basis of the race or gender of their owners. The City is committed to ensuring that it is not a passive participant in any private scheme of discrimination. To ensure that businesses are not discriminated against with regard to prime contracting, subcontracting or other partnering opportunities with the City, the City has developed an Equal Business Opportunity (EBO) Program. It is also the policy of the City of Atlanta to actively promote equal employment opportunities for minority and female workers and prohibit discrimination based upon race, religion, color, sex, national origin, marital status, physical handicap or sexual orientation through the City's Equal Employment Opportunity (EEO) Program. The purpose of the Equal Business Opportunity and Equal Employment Opportunity Programs is to mitigate the present and ongoing effects of the past and present discrimination against women and minority owned businesses and women and minority workers so that opportunity, regardless of race or gender, will become institutionalized in the Atlanta marketplace. It is important to note that all bidders, without exception, including minority and female owned business enterprises, must comply with the City of Atlanta's EBO and EEO Program requirements. Goals for minority and female business enterprises are set for this project on page 6.

Implementation of EBO Policy

The Office of Contract Compliance will review information submitted by Bidders pertaining to efforts to promote opportunities for diverse businesses, including M/FBEs, to compete for business as subcontractors and/or Suppliers. A Bidder is eligible to be further considered for award of a City contract upon a finding by OCC that the Bidder has engaged in, and provided with its bid submission documentation of efforts to ensure that its process of soliciting, evaluating and awarding subcontracts, placing orders, and partnering with other companies has been non-discriminatory. To assist prime contractors in this effort, the Office of Contract Compliance has set forth in this solicitation document the M/FBE goals within the relevant NAICS Codes, for this Project.

For subcontracting, the Subcontractor Project Plan must include **all** subcontractors (majority and minority owned) to be utilized on the project, detail the services to be performed, the dollar value of the work to be performed by each subcontractor, and the *City of Atlanta* M/FBE certification number and supplier id number as applicable.

For suppliers, the Subcontractor Project Plan must include **all** subcontractors (majority and minority owned), the supplies to be provided, including the dollar value of the supplies being provided and the *City of Atlanta* M/FBE certification number and supplier id number as applicable.

Determination of Non-discrimination During Bid Process

No Bidder shall be awarded a contract on an Eligible Project unless the Office of Contract Compliance determines that the Bidder has satisfied the non-discrimination requirements of section 2-1448 on such Eligible Project. Accordingly, each Bidder shall submit with each Bid the following

1. Covenant of Non Discrimination. Each Bidder shall submit with her/his Bid a Covenant of Non-Discrimination which is set forth herein as Exhibit EBO1.

2. Outreach efforts documentation. Each bidder shall submit with her/his bid written documentation demonstrating the bidder's outreach efforts to identify, contact, contract with, or utilize businesses, including certified M/FBEs as subcontractors or suppliers on the contract. This information shall be set forth on Exhibit EBO2, which is included herein.

3. Subcontractor project plan. Each bidder shall submit with her/his bid a completed and signed subcontractor project plan, in a form approved and provided by the office of contract compliance, which lists the name, address, telephone number and contact person of each subcontractor or other business to be used in the contract, the NAICS Code and the type of work or service each business will perform, the dollar value of the work and the scope of work, the ownership of each business by race and gender, if applicable the AABE, APABE, HABE, or FBE certification number of each business, and any other information requested by the office of contract compliance. In order for the office of contract compliance to officially consider a firm to be an M/FBE, the M/FBE firm must be certified by or have a certification application pending with the office of contract compliance prior to the bidder's submission of the bid. The subcontractor project plan shall not be changed or altered after approval of the plan and award of the contract without the written approval of the director of the office of contract compliance. A written letter to the director of the office of contract compliance requesting approval to change the subcontractor project plan must be submitted prior to any change in the plan or termination of an M/FBE's contract.

2

OCC Review of Bidder Submissions

The Office of Contract Compliance shall determine whether a Bidder has satisfied the non-discrimination requirements of section 2-1448 based on its review of the Covenant of Non Discrimination, the Outreach Efforts Documentation, the Subcontractor Project Plan, and its review of other relevant facts and circumstances, including complaints received as part of the bid process. In reviewing the documents submitted by a Bidder to determine whether the Bidder has satisfied the non-discriminatory practices requirement of this section, the Office of Contract Compliance will consider, among other things, the total project dollars subcontracted to or expended for services performed by other businesses, including certified M/FBEs, whether such businesses perform Commercially Useful Functions in the work of the contract based upon standard industry trade practices, whether any amounts paid to Supplier businesses are for goods customarily and ordinarily used based upon standard industry trade practices, and the availability of certified M/FBEs within the relevant NAICS Codes for such Eligible Project.

(a) Receipt of Complaint of Discrimination in the Bid Process

The office of contract compliance shall accept complaints of alleged discrimination during the bid process regarding any participant in the bid process. Where the complaint of discrimination is specific to the procurement which is under consideration by the city, the office of contract compliance may investigate said complaint, determine its validity, and determine whether the actions complained of impact the bidder's responsiveness on the specific procurement. Allegations of discrimination based on events, incidents or occurrences which are unrelated to the specific procurement will be placed in the bidder's file maintained in the vendor relations database and handled in accordance with the procedure established in the city's vendor relations subdivision, section 2-1465, et seq.

(b) Determination of Violation of EBO Process

Where the office of contract compliance investigates a complaint of discrimination that is related to the specific bid process, the details of that investigation, including findings, shall be recorded and maintained in the vendor relations database, pursuant to section 2-1471.

(c) Office of Contract Compliance Determination of Non-Compliance

When, based upon the totality of the circumstances, the office of contract compliance determines that a bidder fails to satisfy the requirements of section 2-1448(a) of a city bid solicitation, the director of the office of contract compliance shall present a written determination of non-compliance to the Chief Procurement Officer which states the determination and lists the reasons for the determination.

A bid that does not comply with the requirements set forth in section 2-1448(a) shall be deemed non-responsive and rejected.

3

Equal Business Opportunity Program Bid/RFP Submittals

The Office of Contract Compliance will make any determination of non-responsiveness. The covenant of non-discrimination, the outreach efforts documentation, the subcontractor project plan, and any other information required by OCC in the solicitation document pursuant to section 2-1448 must be completed in their entirety by each bidder and submitted with the other required bid documents in order for the bid to be considered as a responsive bid. Failure to timely submit these forms, fully completed, will result in the bid being considered as a non-responsive bid, and therefore, excluded from consideration.

Monitoring Of EBO Policy

Upon execution of a contract with the City of Atlanta, the successful bidder's Subcontractor Project Plan will become a part of the contract between the bidder and the City of Atlanta. The Subcontractor Project Plan will be monitored by the City of Atlanta's Office of Contract Compliance for adherence with the plan. The successful bidder will be required to provide specific EBO information on a monthly basis that demonstrates the use of subcontractors and suppliers as indicated on the Subcontractor Project Plan. The failure of the successful bidder to provide the specific EBO information by the specified date each month shall be sufficient cause for the City to withhold approval of the successful bidder's invoices for progress payments, increase the amount of the successful bidder's retainage, require joint check issuance, or evoke any other penalties as set forth in the City of Atlanta Code of Ordinances, Sections 2-1452 and 2-1456.

Implementation of EEO Policy

The City effectuates its EEO policy by adopting racial and gender work force availability for every contractor performing work for the City of Atlanta. These percentages are derived from the work force demographics set forth in the 2010 Census EEO file prepared by the United States Department of Commerce for the applicable labor pool normally utilized for the contract.

Monitoring of EEO Policy

Upon award of a contract with the City of Atlanta, the successful bidder must submit a Contract Employment Report (CER), describing the racial and gender make-up of the firm's work force. If the CER indicates that the firm's demographic composition does not meet the adopted EEO goals, the firm will be required to submit an affirmative action plan setting forth the steps to be taken to

reach the adopted goals. The CER and the affirmative action plan, if necessary, will become a part of the contract between the successful bidder and the City of Atlanta. Compliance with the EEO requirements will be monitored by the Office of Contract Compliance.

Joint Venture Participation on City of Atlanta Projects

The City of Atlanta encourages, where economically feasible, the establishment of joint ventures to ensure prime contracting opportunities for all businesses, including good faith outreach efforts to utilize certified minority and female business enterprises on Eligible Projects. On projects valued at five (5) million dollars or greater, the Office of Contract Compliance shall determine on a project-by-project basis whether non-discriminatory outreach efforts to enter into a joint venture shall be required. On such Eligible Projects, joint venture member businesses must have different race ownership, different gender ownership or both. The minority and female business enterprise members of the joint venture on projects on which a Joint Venture is required must be certified as such by the Office of Contract Compliance, and the joint venture team shall include in its bid submittal the MBE or FBE certification number of each MBE or FBE joint venture member. **OCC has made the determination non-discriminatory outreach efforts to enter into a joint venture are <u>required</u> for this solicitation.**

No bid on a City contract for an Eligible Project shall be accepted from a joint venture team unless each participant independently signs and submits a Covenant of non-discrimination (EBO-1)

A joint venture may submit its agreement to the Office of Contract Compliance for pre-approval no later than fourteen (14) calendar days prior to the date set for receipt of bids on an Eligible Project. Otherwise, agreements must be submitted on or before the date set for receipt of bids on an Eligible Project.

Components of a Joint Venture Agreement

The Joint Venture agreement should include at a minimum:

- The name of the Joint Venture
- Contact information of designated primary JV contact person
- Identification of <u>all</u> firms participating in the JV
- The initial capital investment of each venture partner
- Terms and conditions under which future contributions may be necessary
- The proportional allocation of profits and losses to each venture partner
- Description of proportion of work controlled by and management of the joint venture team members
- The method of, and responsibility for, accounting
- Frequency of JV meetings and method for minutes taking and storage
- The methods by which disputes are resolved.
- Provide the specific citation/section of your JV that speaks to the Contract's non-discrimination and assurance requirements
- All other pertinent factors of the joint venture.

Equal Business Opportunity M/FBE GOALS for this Project

Project No.: FC- 8746 Taxiway Pavement Replacement 2016

Phase 1 Part 1: All proponents must ensure that non-discriminatory practices are utilized to enter into a Joint Venture Agreement in accordance with the City of Atlanta's EBO/SBO Ordinance. The Joint Venture Agreement, at the very least, should reflect details of the member company's/companies' involvement in the **FC- 8746 Taxiway Pavement Replacement 2016** project throughout the life of the contract. (See Page 6)

Phase 1 Part 2: All proponents must ensure that non-discriminatory practices are utilized during efforts to engage minority and female subcontractors and suppliers throughout the life of the contract. All outreach efforts must be documented and included with this bid submittal.

The dominant NAICS code and trade to be engaged for the above referenced phase is:

238110- Concrete Repair

The availability of certified M/FBE firms for the procurement categories in the various scopes associated with this project is:

26.7% MBE (AABE, HABE, APABE) & 11.1% FBE

Please be reminded that no Bidder shall be awarded a contract on an Eligible Project unless the Office of Contract Compliance determines that the Bidder has satisfied the non-discrimination requirements of section 2-1448 on such Eligible Project. Details of the O.C.C. review process for determination of non-discrimination are outlined on page 3 of this document.

Note: Must use pre-qualified Portland cement concrete paving repair contractors.

OCC will count M/FBE participation in the form of a certified joint venture partner (self-performing a scope of work), and certified M/FBE subcontractor arrangements. The above referenced goal will be measured against **total contract value inclusive of any change orders and/or miscellaneous modifications** that may occur throughout the life of the project.

Equal Business Opportunity Program Reminders for This Solicitation

1. Certification. It is the prime contractor's responsibility to verify that MBEs and FBEs included on the Subcontractor Project Plan are certified by the City of Atlanta's Office of Contract Compliance, or have a certification application pending with the City of Atlanta's Office of Contract Compliance.

2. Joint Venture Agreements. The Joint Venture member businesses must have different race ownership, different gender ownership, or both. MFBE members of the Joint Venture must be certified as such by the Office of Contract Compliance. The Joint Venture team shall include in its submittal the MFBE certification number of each MFBE Joint Venture member.

3. Subcontractor Contact Form. It is required that bidders list and submit information on **all subcontractors** they solicit for quotes, all subcontractors who contact them with regard to the project, and all subcontractors they have discussions with regarding the project. Failure to provide complete information on this form will result in your bid being declared non-responsive.

4. Reporting. The successful bidder must submit monthly EBO participation reports to the Office of Contract Compliance in a manner as prescribed by the OCC contract monitor of record.

5. SBO/EBO Ordinance. The EBO Program is governed by the provisions of the SBO/EBO Ordinance set forth in the City of Atlanta Code Division 12, section 2 - 1356 through 2 -1480. The ordinance can be obtained from the City of Atlanta Clerk's Office at (404) 330-6032.

6. Supplier Participation. In order to receive full M/FBE credit, suppliers must manufacture or warehouse the materials, supplies, or equipment being supplied for use on the Eligible Project.

7. OCC Registry of Certified Firms. To access OCC's real time registry of vendors (certified or non-certified), visit our PRISM Compliance Management portal at: https://pro.prismcompliance.com/default.aspx. Next, click the drop down arrow under "Visit a Jurisdiction", select "City of Atlanta", and click "go!" Once there, you may search by Industry or Certification to obtain your desired results. You may also go to the website: www.atlantaga.gov/contractcompliance and scroll down to the section heading "Registry of Certified Firms" Click OCC's quarterly list to access the current directory of certified firms.

COVENANT OF NON-DISCRIMINATION

The undersigned understands that it is the policy of the City of Atlanta to promote full and equal business opportunity for all persons doing business with the City of Atlanta. The undersigned covenants that we have not discriminated, on the basis of race, gender or ethnicity, with regard to prime contracting, subcontracting or partnering opportunities. The undersigned further covenants that we have completed truthfully and fully the required forms EBO-2 and EBO-3. Set forth below is the signature of an officer of the bidding entity with the authority to bind the entity.

_____
Signature of Attesting Party

_____
Title of Attesting Party

On this _____ day of _____, 20___, before me appeared _____, the person who signed the above covenant in my presence.

_____
Notary Public

Seal

FORM EBO-1

SUBCONTRACTOR CONTACT FORM

List ***all subcontractors or suppliers*** (Majority, EBO and Non-EBO Certified) that were contacted regarding this project**.**

Name of Sub-contractor/ Supplier/JV Partner	Contact Name, Address and Phone Number	City Of Atlanta Business License? (Yes or No)	Type of Work Solicited for	Solicited for JV? (Yes or No)	Business Ownership (see code below)	Certification No. and Expiration Date	Results of Contact

FORM EBO-2 (Page 1 of 2)

Name of Sub-contractor/ Supplier/JV Partner	Contact Name, Address and Phone Number	City Of Atlanta Business License? (Yes or No)	Type of Work Solicited for	Solicited for JV? (Yes or No)	Business Ownership (see code below)	Certification No. and Expiration Date	Results of Contact

Business Ownership Code: AABE - African American Business Enterprise, HABE – Hispanic Business Enterprise, FBE – Female Business Enterprise, APABE – Asian (Pacific Islander) American Business Enterprise

Company Name: _____ **Project Name:** _____ **FC#:** _____

Printed Signature: _____ **Date:** _____

FORM EBO-2 (Page 2 of 2)

EQUAL BUSINESS OPPORTUNITY SUBCONTRACTOR PROJECT PLAN SUBCONTRACTOR/SUPPLIER UTILIZATION

List all Majority, EBO Certified, and Non-EBO Certified subcontractors/suppliers, including lower tiers, to be used on this project.

Name of Sub-contractor/ Supplier	Contact Name, Address and Phone Number	City of Atlanta Business License? (yes or no)	Joint Venture Partner? (yes or no)	NIAC Code	Type of Work to be Performed	Ethnicity of M/FBE Ownership (see code below)	M/FBE Certification No. and Expiration Date	Dollar ($) Value of Work and Scope of Work	Percentage (%) of Total Bid Amount

Total MBE%_____ Total FBE%_____ Total EBO%_____

Code: AABE - African American Business Enterprise, HABE – Hispanic American Business Enterprise, FBE – Female Business Enterprise, **APABE – Asian (Pacific Islander) American Business Enterprise**

Proponent's Company Name: _____ **Project Name: _____** **FC#: _____**

Proponent's Contact Number:_____ **Printed Signature:_____** **Date: _____**

EBO 3

LETTER OF INTENT

Minority or Female Business Enterprise

Proponent Name:_____

Address:_____

City:_____ State:_____ Zip:_____

M/FBE Firm: M/FBE Firm:_____

Address:_____

City:_____ State:_____ Zip:_____

M/FBE Contact Person: Name:_____ Phone: (____)_____

Expiration Date of M/FBE Certification:_____

M/FBE is performing as: ☐Prime Contractor ☐Sub contractor ☐Joint Venture Member

Work item(s) to be performed by M/FBE	Description of Work Item	Dollar(s) Value of Work and Scope of Work	Percentage (%) of Total Bid Amount
	TOTAL M/FBE		

The bidder/offeror is committed to utilizing the above-named M/FBE firm for the work described above. The estimated participation is as follows:

M/FBE contract amount: $_____ Percent of total contract:_____%

AFFIRMATION:
The above-named M/FBE firm affirms that it will perform the portion of the contract for the estimated dollar value as stated above.

By: _____
(Print name) *(Title)*

_____
(signature) *(date)*

* **In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.**

(THIS PAGE SHALL BE SUBMITTED FOR EACH M/FBE FIRM)

LETTER OF INTENT

Minority or Female Business Enterprise

Proponent Name:_____

Address:_____

City:_____ State:_____ Zip:_____

M/FBE Firm: M/FBE Firm:_____

Address:_____

City:_____ State:_____ Zip:_____

M/FBE Contact Person: Name:_____ Phone: (____)_____

Expiration Date of M/FBE Certification:_____

M/FBE is performing as: ☐Prime Contractor ☐Sub contractor ☐Joint Venture Member

Work item(s) to be performed by M/FBE	Description of Work Item	Dollar(s) Value of Work and Scope of Work	Percentage (%) of Total Bid Amount
	TOTAL M/FBE		

The bidder/offeror is committed to utilizing the above-named M/FBE firm for the work described above. The estimated participation is as follows:

M/FBE contract amount: $_____ Percent of total contract:_____%

AFFIRMATION:
The above-named M/FBE firm affirms that it will perform the portion of the contract for the estimated dollar value as stated above.

By: _____
(Print name) *(Title)*

_____
(signature) *(date)*

* **In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.**

First Source Jobs Program Policy Statement

It is the policy of the City of Atlanta to provide job opportunities to the residents of the City of Atlanta, whenever possible. Whereas every contract with the City of Atlanta creates a potential pool of new employment opportunities, the following program is applicable to **construction projects only** and is subject to review by AWDA on a case by case basis for applicability. Once AWDA has made the determination that the First Source Jobs Program is applicable, the successful prime contractor (and all subcontractors associated with the awarded project) is expected to work with the First Source Jobs Program to fill at least 50% of all new entry-level jobs, which arise from this project, with residents of the City of Atlanta. AWDA has determined that the first source Jobs program is applicable for this For more specific information about the First Source Jobs Program contact:

Michael Sterling
Executive Director
First Source Jobs Program
Atlanta Workforce Development Agency
818 Pollard Boulevard
Atlanta, GA 30315
(404) 546-3000

FIRST SOURCE JOBS INFORMATION FORM

Company Name: _____

FC Number: _____

Project Name: _____

The following entry-level positions will become available as a result of the above referenced contract with the City of Atlanta:

1.

2.

3.

4.

5.

Include a job description and all required qualifications for each position listed above.

Identify a company representative and contact phone number who will be responsible for coordinating with the First Source Jobs Program.

Company Representative: _____

Phone: _____

FORM 4

THIS AGREEMENT REGARDING THE USE OF THE FIRST SOURCE JOBS PROGRAM BY CONTRACTORS WITH THE CITY OF ATLANTA TO FILL ENTRY LEVEL JOBS is made and

entered into by _____
This_____ day of_____, 201__.

The City of Atlanta requires the immediate beneficiary or primary contractor for every eligible project to enter into a First Source Jobs employment agreement. The contractor agrees to the following terms and conditions:

- The first source for finding employees to fill all entry level jobs Created by the eligible project will be the First Source Program.
- The contractor will make every effort to fill 50% of the entry level jobs created by this eligible project with applicants from the First Source Program.
- The contractor shall make good faith effort to reach the goal of this employment agreement.
- Details as to the number and description of each entry level job must me provided with the bid.
- The contractor shall comply with the spirit of the First Source Jobs Policy beyond the duration of this agreement and continue to make good faith attempts to hire employees of similar backgrounds to those participating in the First Source Program.
- The contractor as a condition of transfer, assignment or otherwise shall require the transferee to agree in writing to the terms of the employment Agreement.

Upon a determination that a beneficiary or contractor has failed to comply with the terms of this Agreement, the City may impose the following penalties based on the severity of the non-compliance:

- The City of Atlanta may withhold payment from the contractor.
- The City of Atlanta may withhold 10 percent of all future payments on the contract until the contractor is in compliance
- The City of Atlanta may refuse all future bids on city projects or applications for financials assistance in any form from the City until the contractor demonstrated that the First Source requirements have been met, or cancellation of the eligible project.
- The City of Atlanta may cancel the eligible project.

All terms stated herein can be found in the City of Atlanta Code of Ordinances Sections 5-8002 through 5-8005.

The undersigned hereby agrees to the terms and conditions set forth in this agreement.

_____
Contractor

FORM 5

[END OF DOCUMENT]