

Solicitation 12161-283

Fort Lauderdale Executive Airport Taxiway Foxtrot Lighting Improvements (P12357)

Bid Designation: Public



City of Fort Lauderdale

Bid 12161-283

Fort Lauderdale Executive Airport Taxiway Foxtrot Lighting Improvements (P12357)

Bid Number 12161-283
 Bid Title Fort Lauderdale Executive Airport Taxiway Foxtrot Lighting Improvements (P12357)

Bid Start Date Jul 13, 2018 9:09:06 AM EDT
 Bid End Date Aug 14, 2018 2:00:00 PM EDT
 Question & Answer End Date Aug 7, 2018 7:00:00 AM EDT

Bid Contact Ginah Joseph
 Procurement Specialist II
 Finance
 954-828-4797
 gjoseph@fortlauderdale.gov

Contract Duration One Time Purchase
 Contract Renewal Not Applicable
 Prices Good for 120 days
 Pre-Bid Conference Jul 24, 2018 11:00:00 AM EDT
 Attendance is optional
 Location: Fort Lauderdale Executive Airport Administration Building,
 6000 NW 21st Avenue,
 Fort Lauderdale, Florida 33309

Bid Comments **Sealed bids will be received electronically until 2:00 p.m., local time, on TUESDAY AUGUST 14, 2018, and opened immediately thereafter in the 5th Floor Conference Room, City Hall, City of Fort Lauderdale, Florida, 100 North Andrews Avenue, Fort Lauderdale, Florida 33301, for BID NO., 12161-283, PROJECT NO., 12357, FORT LAUDERDALE EXECUTIVE AIRPORT TAXIWAY FOXTROT LIGHTING IMPROVEMENTS.**

This project consists of Drawing File No., 4-140-41, twenty (20) sheets including cover sheet.

This project is located at Fort Lauderdale Executive Airport. The work to be accomplished under this contract includes, but is not limited to, replacement of taxiway edge lighting with new LED elevated edge lights, removal and disposal of electrical pull-boxes, installation of junction can plazas, modifications to existing airfield guidance signs, remove and dispose of existing guidance signs and install new LED airfield guidance signs, conduits, and replacing existing cabling

The successful contractor shall comply with the requirements of FAA Advisory Circular A/C 150/5370-2F, Operational Safety on Airports during Construction, by preparing and submitting a Safety Plan Compliance Document (SPCD) for review and approval prior to issuance of a Notice-to-Proceed. A copy of the Airport's Construction Safety and Phasing Plan (CSPP) is included with these bid documents to assist the contractor with preparing the SPCD.

NOTE: Payment on this contract will be made by check.

Licensing Requirements: Possession of a Broward County (Florida) General Engineered Construction Builder Contractor (GITS) License and/or one that is appropriately issued by the State of Florida is required for this project.

The bidder shall familiarize himself with Article 16 - Liquidated Damages, contained within the Construction

Agreement.

Pre-Bid Meeting/Site visit: A pre-bid meeting and site visit will be held on **TUESDAY, JULY 24, 2018 at 11:00 a.m., local time**, at Fort Lauderdale Executive Airport Administration Building, 6000 NW 21st Avenue, Fort Lauderdale, Florida 33309.

While attendance is not mandatory, it is strongly suggested that all contractors attend the pre-proposal conference and site visit since tours at other times might not be available. It will be the sole responsibility of the bidder to inspect the City's location and become familiar with the scope of the City's requirements and systems prior to submitting a proposal. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a proposal will be considered evidence that the proposer has familiarized himself with the nature and extent of the work, equipment, materials, and labor required.

Bidding blanks may be obtained free of charge at BIDSINC.COM. Drawing Plans are on file in the Public Works Department, City of Fort Lauderdale at 100 North Andrews Avenue, 4th floor, (Monday through Friday, 8:00 am to 4:30 pm) at a NON-REFUNDABLE cost of \$50.00

(including sales tax per set) . Only cash or cashier's check made payable to the City of Fort Lauderdale are accepted.

It will be the sole responsibility of the bidder to ensure that his bid is submitted prior to the bid opening date and time listed. **PAPER BID SUBMITTALS WILL NOT BE ACCEPTED. BIDS MUST BE SUBMITTED ELECTRONICALLY VIA BIDSINC.COM**

Bid Security : A certified check, cashier's check, bank officer's check or bid bond for FIVE percent (5%) of the bid amount, made payable to the City of Fort Lauderdale, Florida, shall accompany each proposal.

Bid Bonds:

Bidders can submit bid bonds for projects four different ways:

- 1) BidSync allows bidders to submit bid bonds electronically directly through their system using Surety 2000 . For more information on this feature and to access it, contact BIDSINC customer care department.
- 2) Bidders may upload their original executed bid bond on BIDSINC to accompany their bids with the electronic proposal, and deliver the original, signed and sealed hard copy within five (5) business days after bid opening, with the company name, bid number and title clearly indicated.
- 3) Bidders can hand deliver their bid bond in a sealed envelope to the Finance Department/Procurement Services Division, 100 North Andrews Avenue, Room 619, Fort Lauderdale, FL 33301-1016, before time of bid opening, with the company name, bid number and title clearly indicated on the envelope.
- 4) Bidders can mail their bid bond to the Finance Department/Procurement Services Division, 100 North Andrews Avenue, Room 619, Fort Lauderdale, FL 33301-1016, before time of bid opening, with the company name, bid number and title clearly indicated on the envelope.

Certified Checks, Cashier's Checks and Bank Drafts

These cannot be submitted via BIDSINC, nor are their images allowed to be uploaded and submitted with your electronic bid. These forms of securities, as well as hard copy bid bonds, must be received on or before the Invitation to Bid (ITB) opening date and time, at the Finance Department, Procurement Services Division, 100 North Andrews Avenue, Room 619, Fort Lauderdale, FL 33301-1016, with the bid number and title clearly indicated on the envelope.

It is the bidder's sole responsibility to ensure that his bid bond or other bid security is received by the Procurement Services Division before time of bid opening. Failure to adhere to this requirement may be grounds to consider the bid as non-responsive.

The City of Fort Lauderdale reserves the right to waive any informality in any or all bids and to reject any or all bids.

For information concerning technical specifications, please utilize the question/answer feature provided by BIDSINC at www.bidsync.com . Questions of a material nature must be received prior to the cut-off date

specified in the solicitation. Material changes, if any, to the scope of services or bidding procedures, will only be transmitted by written addendum. (See addendum section of BIDS SYNC Site). **Contractors please note:** No part of your bid can be submitted via FAX. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a bid will be considered evidence that the Contractor has familiarized himself with the nature and extent of the work, equipment, materials, and labor required. The entire bid response must be submitted in accordance with all specifications contained in this solicitation.

Information on bid results and projects currently out to bid can be obtained on the City's website – <http://www.fortlauderdale.gov/departments/finance/procurement-services> . For general inquiries, please call (954) 828-5933.

Added on Jul 27, 2018:

Uploaded Pre-bid Sign-in sheet.

All other terms, conditions, and specifications remain unchanged.

Added on Aug 3, 2018:

This addendum is being issued to make the following change(s):

1. Update quantities for the following items:

- New L -858, size 1, 3 -4 Character LED guidance sign and concrete base installed in earth. Original quantity of 1 changed to 0
- New L -858, size 1, 5 -6 Character LED guidance sign and concrete base installed in earth. Original quantity of 1 changed to 0
- New L -858, size 1, 7 -8 Character LED guidance sign and concrete base installed in earth. Original quantity of 1 changed to 2
- New L -858, size 1, 1 -2 Character LED guidance sign on existing concrete pad, complete. Original quantity of 3 changed to 2
- New L -858, size 1, 3 -4 Character LED guidance sign on existing concrete pad, complete. Original quantity of 7 changed to 10
- New L -858, size 1, 5 -6 Character LED guidance sign on existing concrete pad, complete. Original quantity of 13 changed to 5
- New L -858, size 1, 7 -8 Character LED guidance sign on existing concrete pad, complete. Original quantity of 2 changed to 5

2. Replace Section L-126 with the attached Section L-126-REV. This section has been revised to reflect the above changes.

All other terms, conditions, and specifications remain unchanged.

Added on Aug 8, 2018:

Items that were inadvertently duplicated have been removed.

Items 12161-283--01-53 (New L-858, size 1, 3-4 Character LED guidance sign and concrete base installed in earth) AND 12161-283--01-55 (New L-858, size 1, 5-6 Character LED guidance sign and concrete base installed in earth), for which the quantities were changed from 1 to 0, have been removed.

Added on Aug 13, 2018:

Uploaded Addendum No. 2 form from 08/08/18

Addendum # 1

New Documents Addendum 1.pdf
12357-L-126 Airfield Signage Systems-rev_20180801.pdf

Changes were made to the following items:

- Mobilization
- Maintenance of air operations traffic
- Towable light towers
- Portable Runway Lighted Closure Markers
- Hand excavate minimum 8-inch Wide x 28-inch Deep in earth.
- Hand excavate minimum 18-inch Wide x 36-inch Deep in earth.
- Saw cut and hand excavate minimum 8-inch Wide x 28-inch Deep in existing full st
- 3/4-inch diameter x 20 foot long ground rods connected to counterpoise.
- 10-foot long additional ground rod sections.
- No. 6 bare solid AWG counterpoise conductor installed over conduit system.
- No.8, 5KV, L-824 conductor installed in new and existing conduit/ductbank/manhol
- One 2-inch schedule 40 PVC conduit direct buried in earth/new paved shoulder com

One 2-inch schedule 40 PVC conduit installed in existing full strength pavement
 One 2-inch HDPE/Schedule 40 PVC conduit directional bored 36-inch deep under exi
 Intercept existing conduit system and connect to new conduit system and extend c
 L-867 16-inch Diameter bottomless 2 can Junction can plaza installed in earth.
 L-867 16-inch Diameter bottomless 4 can Junction can plaza installed in earth.
 Intercept existing light base can in earth/existing pavement and connect to cond
 Removal of existing 3 can junction can plaza/mahole, complete.
 New L-861TL, LED taxiway elevated edge light installed on existing base can
 Intercept existing circuit conductors in existing base can/ manhole /junction ca
 Identification of cables, ductbanks and lighting fixtures per FAA specifications
 Removal of existing taxiway light on existing base can, complete.
 Abandon existing L-867 base can and install 1/2-inch L-867 cover in place.
 Remove existing sign and concrete base installed in earth.
 New L-858, size 1, 7-8 Character LED guidance sign and concrete base installed
 New L-858, size 1, 1-2 Character LED guidance sign on existing concrete pad, co
 New L-858, size 1, 3-4 Character LED guidance sign on existing concrete pad, co
 New L-858, size 1, 5-6 Character LED guidance sign on existing concrete pad, co
 New L-858, size 1, 7-8 Character LED guidance sign on existing concrete pad, co
 New L-858, size 1, 5-6 Character LED guidance sign on existing concrete pad, co
 New L-858, size 1, 7-8 Character LED guidance sign on existing concrete pad, co

Addendum # 2

Changes were made to the following items:

Mobilization
 Maintenance of air operations traffic
 Towable light towers
 Portable Runway Lighted Closure Markers
 Hand excavate minimum 8-inch Wide x 28-inch Deep in earth.
 Hand excavate minimum 18-inch Wide x 36-inch Deep in earth.
 Saw cut and hand excavate minimum 8-inch Wide x 28-inch Deep in existing full st
 3/4-inch diameter x 20 foot long ground rods connected to counterpoise.
 10-foot long additional ground rod sections.
 No. 6 bare solid AWG counterpoise conductor installed over conduit system.
 No.8, 5KV, L-824 conductor installed in new and existing conduit/ductbank/manhol
 One 2-inch schedule 40 PVC conduit direct buried in earth/new paved shoulder com
 One 2-inch schedule 40 PVC conduit installed in existing full strength pavement
 One 2-inch HDPE/Schedule 40 PVC conduit directional bored 36-inch deep under exi
 Intercept existing conduit system and connect to new conduit system and extend c
 L-867 16-inch Diameter bottomless 2 can Junction can plaza installed in earth.
 L-867 16-inch Diameter bottomless 4 can Junction can plaza installed in earth.
 Intercept existing light base can in earth/existing pavement and connect to cond
 Removal of existing 3 can junction can plaza/mahole, complete.
 New L-861TL, LED taxiway elevated edge light installed on existing base can
 Intercept existing circuit conductors in existing base can/ manhole /junction ca
 Identification of cables, ductbanks and lighting fixtures per FAA specifications
 Removal of existing taxiway light on existing base can, complete.
 Abandon existing L-867 base can and install 1/2-inch L-867 cover in place.
 Remove existing sign and concrete base installed in earth.
 New L-858, size 1, 3-4 Character LED guidance sign and concrete base installed
 New L-858, size 1, 5-6 Character LED guidance sign and concrete base installed
 New L-858, size 1, 7-8 Character LED guidance sign and concrete base installed
 New L-858, size 1, 1-2 Character LED guidance sign on existing concrete pad, co
 New L-858, size 1, 3-4 Character LED guidance sign on existing concrete pad, co

Item Response Form

Item 12161-283--01-01 - BASE BID TOTAL: Mobilization
Lot Description BASE BID TOTAL
Quantity 1 lump sum
Unit Price
Delivery Location City of Fort Lauderdale
[See ITB Specifications](#)
See ITB Specifications
Fort Lauderdale FL 33301
Qty 1

Description
Mobilization

Addendum # 1

Previous Title	New Title	Mobilization
Added Item		

Item 12161-283--01-02 - BASE BID TOTAL: Maintenance of air operations traffic
Lot Description BASE BID TOTAL
Quantity 1 lump sum
Unit Price
Delivery Location City of Fort Lauderdale
[See ITB Specifications](#)
See ITB Specifications
Fort Lauderdale FL 33301
Qty 1

Description
Maintenance of air operations traffic

Addendum # 1

Previous Title	New Title	Maintenance of air operations traffic
Added Item		

Item 12161-283--01-03 - BASE BID TOTAL: Towable light towers
Lot Description BASE BID TOTAL
Quantity 1 lump sum
Unit Price
Delivery Location City of Fort Lauderdale
[See ITB Specifications](#)
See ITB Specifications
Fort Lauderdale FL 33301
Qty 1

Description

Towable light towers (for night construction)

Addendum # 1

Previous Title	New Title	Towable light towers
Added Item		

Item **12161-283--01-04 - BASE BID TOTAL: Portable Runway Lighted Closure Markers**

Lot Description **BASE BID TOTAL**

Quantity **2 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
 Qty 2

Description

Portable Runway Lighted Closure Markers.

Addendum # 1

Previous Title	New Title	Portable Runway Lighted Closure Markers
Added Item		

Item **12161-283--01-05 - BASE BID TOTAL: Hand excavate minimum 8-inch Wide x 28-inch Deep in earth.**

Lot Description **BASE BID TOTAL**

Quantity **50 linear foot**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
 Qty 50

Description

Hand excavate minimum 8-inch Wide x 28-inch Deep in earth.

Addendum # 1

Previous Title	New Title	Hand excavate minimum 8-inch Wide x 28-inch Deep in earth.
Added Item		

Item **12161-283--01-06 - BASE BID TOTAL: Hand excavate minimum 18-inch Wide x 36-inch Deep in earth.**

Lot Description **BASE BID TOTAL**

Quantity **50 linear foot**

Unit Price

Delivery Location

City of Fort Lauderdale[See ITB Specifications](#)

See ITB Specifications

Fort Lauderdale FL 33301

Qty 50

Description

Hand excavate minimum 18-inch Wide x 36-inch Deep in earth.

Addendum # 1

Previous Title

New Title

Hand excavate minimum 18-inch Wide x 36-inch Deep in earth.

Added Item

Item

12161-283--01-07 - BASE BID TOTAL: Saw cut and hand excavate minimum 8-inch Wide x 28-inch Deep in existing full st

Lot Description

BASE BID TOTAL

Quantity

50 linear foot

Unit Price

Delivery Location

City of Fort Lauderdale[See ITB Specifications](#)

See ITB Specifications

Fort Lauderdale FL 33301

Qty 50

Description

Saw cut and hand excavate minimum 8-inch Wide x 28-inch Deep in existing full strength pavement.

Addendum # 1

Previous Title

New Title

Saw cut and hand excavate minimum 8-inch Wide x 28-inch Deep in existing full st

Added Item

Item

12161-283--01-08 - BASE BID TOTAL: 3/4-inch diameter x 20 foot long ground rods connected to counterpoise.

Lot Description

BASE BID TOTAL

Quantity

10 each

Unit Price

Delivery Location

City of Fort Lauderdale[See ITB Specifications](#)

See ITB Specifications

Fort Lauderdale FL 33301

Qty 10

Description

3/4-inch diameter x 20-foot long ground rods connected to counterpoise.

Addendum # 1

Previous Title	New Title	3/4-inch diameter x 20 foot long ground rods connected to counterpoise.
Added Item		

Item **12161-283--01-09 - BASE BID TOTAL: 10-foot long additional ground rod sections.**

Lot Description **BASE BID TOTAL**

Quantity **10 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
Qty 10

Description

10-foot long additional ground rod sections.

Addendum # 1

Previous Title	New Title	10-foot long additional ground rod sections.
Added Item		

Item **12161-283--01-10 - BASE BID TOTAL: No. 6 bare solid AWG counterpoise conductor installed over conduit system.**

Lot Description **BASE BID TOTAL**

Quantity **1650 linear foot**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
Qty 1650

Description

No. 6 bare solid AWG counterpoise conductor installed over conduit system.

Addendum # 1

Previous Title	New Title	No. 6 bare solid AWG counterpoise conductor installed over conduit system.
Added Item		

Item **12161-283--01-11 - BASE BID TOTAL: No.8, 5KV, L-824 conductor installed in new and existing conduit/ductbank/manhol**

Lot Description **BASE BID TOTAL**

Quantity **19000 linear foot**

Unit Price Delivery Location **City of Fort Lauderdale**[See ITB Specifications](#)[See ITB Specifications](#)

Fort Lauderdale FL 33301

Qty 19000

Description

No. 8, 5KV, L-824 conductor installed in new and existing conduit/ductbank/manhole system.

Addendum # 1

Previous Title	New Title	No.8, 5KV, L-824 conductor installed in new and existing conduit/ductbank/manhol
Added Item		

Item **12161-283--01-12 - BASE BID TOTAL: One 2-inch schedule 40 PVC conduit direct buried in earth/new paved shoulder com**

Lot Description **BASE BID TOTAL**

Quantity **1200 linear foot**

Unit Price

Delivery Location **City of Fort Lauderdale**

[See ITB Specifications](#)

[See ITB Specifications](#)

Fort Lauderdale FL 33301

Qty 1200

Description

One 2-inch schedule 40 PVC conduit direct buried in earth/new paved shoulder complete in place.

Addendum # 1

Previous Title	New Title	One 2-inch schedule 40 PVC conduit direct buried in earth/new paved shoulder com
Added Item		

Item **12161-283--01-13 - BASE BID TOTAL: One 2-inch schedule 40 PVC conduit installed in existing full strength pavement**

Lot Description **BASE BID TOTAL**

Quantity **100 linear foot**

Unit Price

Delivery Location **City of Fort Lauderdale**

[See ITB Specifications](#)

[See ITB Specifications](#)

Fort Lauderdale FL 33301

Qty 100

Description

One 2-inch schedule 40 PVC conduit installed in existing full strength pavement complete in place.

Addendum # 1

Previous Title	New Title	One 2-inch schedule 40 PVC conduit installed in existing full strength pavement
Added Item		

Item	12161-283--01-14 - BASE BID TOTAL: One 2-inch HDPE/Schedule 40 PVC conduit directional bored 36-inch deep under exi	
Lot Description	BASE BID TOTAL	
Quantity	1500 each	
Unit Price	<input type="text"/>	
Delivery Location	City of Fort Lauderdale See ITB Specifications See ITB Specifications Fort Lauderdale FL 33301 Qty 1500	

Description

One 2-inch HDPE/Schedule 40 PVC conduit directional bored 36-inch deep under existing pavement/earth complete in place.

Addendum # 1

Previous Title	New Title	One 2-inch HDPE/Schedule 40 PVC conduit directional bored 36-inch deep under exi
Added Item		

Item	12161-283--01-15 - BASE BID TOTAL: Intercept existing conduit system and connect to new conduit system and extend c	
Lot Description	BASE BID TOTAL	
Quantity	15 each	
Unit Price	<input type="text"/>	
Delivery Location	City of Fort Lauderdale See ITB Specifications See ITB Specifications Fort Lauderdale FL 33301 Qty 15	

Description

Intercept existing conduit system and connect to new conduit system and extend circuit.

Addendum # 1

Previous Title	New Title	Intercept existing conduit system and connect to new conduit system and extend c
Added Item		

Item **12161-283--01-16 - BASE BID TOTAL: L-867 16-inch Diameter bottomless 2 can Junction can plaza installed in earth.**

Lot Description **BASE BID TOTAL**

Quantity **2 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
Qty 2

Description

L-867 16-inch Diameter bottomless 2 can Junction can plaza installed in earth.

Addendum # 1

Previous Title	New Title	L-867 16-inch Diameter bottomless 2 can Junction can plaza installed in earth.
Added Item		

Item **12161-283--01-17 - BASE BID TOTAL: L-867 16-inch Diameter bottomless 4 can Junction can plaza installed in earth.**

Lot Description **BASE BID TOTAL**

Quantity **3 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
Qty 3

Description

L-867 16-inch Diameter bottomless 4 can Junction can plaza installed in earth.

Addendum # 1

Previous Title	New Title	L-867 16-inch Diameter bottomless 4 can Junction can plaza installed in earth.
Added Item		

Item **12161-283--01-18 - BASE BID TOTAL: Intercept existing light base can in earth/existing pavement and connect to cond**

Lot Description **BASE BID TOTAL**

Quantity **5 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications

Fort Lauderdale FL 33301

Qty 5

Description

Intercept existing light base can in earth/existing pavement and connect to conduit system.

Addendum # 1

Previous Title	New Title	Intercept existing light base can in earth/existing pavement and connect to cond
Added Item		

Item **12161-283--01-19 - BASE BID TOTAL: Removal of existing 3 can junction can plaza/mahole, complete.**

Lot Description **BASE BID TOTAL**

Quantity **7 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
Qty 7

Description

Removal of existing 3 can junction can plaza/mahole, complete.

Addendum # 1

Previous Title	New Title	Removal of existing 3 can junction can plaza/mahole, complete.
Added Item		

Item **12161-283--01-20 - BASE BID TOTAL: New L-861TL, LED taxiway elevated edge light installed on existing base can**

Lot Description **BASE BID TOTAL**

Quantity **195 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
Qty 195

Description

New L-861TL, LED taxiway elevated edge light installed on existing base can

Addendum # 1

Previous Title	New Title	New L-861TL, LED taxiway elevated edge light installed on existing base can
Added Item		

Item	12161-283--01-21 - BASE BID TOTAL: Intercept existing circuit conductors in existing base can/ manhole /junction ca
Lot Description	BASE BID TOTAL
Quantity	45 each
Unit Price	<input type="text"/>
Delivery Location	City of Fort Lauderdale
	See ITB Specifications
	See ITB Specifications
	Fort Lauderdale FL 33301
	Qty 45

Description

Intercept existing circuit conductors in existing base can/ manhole /junction can and extend circuits accordingly.

Addendum # 1

Previous Title	New Title	Intercept existing circuit conductors in existing base can/ manhole /junction ca
Added Item		

Item	12161-283--01-22 - BASE BID TOTAL: Identification of cables, ductbanks and lighting fixtures per FAA specifications
Lot Description	BASE BID TOTAL
Quantity	1 lump sum
Unit Price	<input type="text"/>
Delivery Location	City of Fort Lauderdale
	See ITB Specifications
	See ITB Specifications
	Fort Lauderdale FL 33301
	Qty 1

Description

Identification of cables, ductbanks and lighting fixtures per FAA specifications.

Addendum # 1

Previous Title	New Title	Identification of cables, ductbanks and lighting fixtures per FAA specifications
Added Item		

Item	12161-283--01-23 - BASE BID TOTAL: Removal of existing taxiway light on existing base can, complete.
Lot Description	BASE BID TOTAL
Quantity	195 each
Unit Price	<input type="text"/>
Delivery Location	City of Fort Lauderdale
	See ITB Specifications

See ITB Specifications
Fort Lauderdale FL 33301
Qty 195

Description

Removal of existing taxiway light on existing base can, complete.

Addendum # 1

Previous Title	New Title	Removal of existing taxiway light on existing base can, complete.
Added Item		

Item **12161-283--01-24 - BASE BID TOTAL: Abandon existing L-867 base canand install 1/2-inch L-867 cover in place.**

Lot Description **BASE BID TOTAL**

Quantity **8 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
 Qty 8

Description

Abandon existing L-867 base canand install 1/2-inch L-867 cover in place.

Addendum # 1

Previous Title	New Title	Abandon existing L-867 base canand install 1/2-inch L-867 cover in place.
Added Item		

Item **12161-283--01-25 - BASE BID TOTAL: Remove existing sign and concrete base installed in earth.**

Lot Description **BASE BID TOTAL**

Quantity **4 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
 Qty 4

Description

Remove existing sign and concrete base installed in earth.

Addendum # 1

Previous Title	New Title	Remove existing sign and concrete base installed in earth.
Added Item		

Item **12161-283--01-26 - BASE BID TOTAL: New L-858, size 1, 7-8 Character LED guidance sign and concrete base installed**

Lot Description **BASE BID TOTAL**

Quantity **2 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
 Qty 2

Description

New L-858, size 1, 7-8 Character LED guidance sign and concrete base installed in earth.

Addendum # 1

Previous Title	New Title	New L-858, size 1, 7-8 Character LED guidance sign and concrete base installed
Added Item		

Item **12161-283--01-27 - BASE BID TOTAL: New L-858, size 1, 1-2 Character LED guidance sign on existing concrete pad, co**

Lot Description **BASE BID TOTAL**

Quantity **2 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
 Qty 2

Description

New L-858, size 1, 1-2 Character LED guidance sign on existing concrete pad, complete.

Addendum # 1

Previous Title	New Title	New L-858, size 1, 1-2 Character LED guidance sign on existing concrete pad, co
Added Item		

Item **12161-283--01-28 - BASE BID TOTAL: New L-858, size 1, 3-4 Character LED guidance sign on existing concrete pad, co**

Lot Description **BASE BID TOTAL**

Quantity **10 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)

See ITB Specifications
Fort Lauderdale FL 33301
Qty 10

Description

New L-858, size 1, 3-4 Character LED guidance sign on existing concrete pad, complete.

Addendum # 1

Previous Title	New Title	New L-858, size 1, 3-4 Character LED guidance sign on existing concrete pad, co
Added Item		

Item **12161-283--01-29 - BASE BID TOTAL: New L-858, size 1, 5-6 Character LED guidance sign on existing concrete pad, co**

Lot Description **BASE BID TOTAL**

Quantity **5 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
 Qty 5

Description

New L-858, size 1, 5-6 Character LED guidance sign on existing concrete pad, complete.

Addendum # 1

Previous Title	New Title	New L-858, size 1, 5-6 Character LED guidance sign on existing concrete pad, co
Added Item		

Item **12161-283--01-30 - BASE BID TOTAL: New L-858, size 1, 7-8 Character LED guidance sign on existing concrete pad, co**

Lot Description **BASE BID TOTAL**

Quantity **5 each**

Unit Price

Delivery Location **City of Fort Lauderdale**
[See ITB Specifications](#)
 See ITB Specifications
 Fort Lauderdale FL 33301
 Qty 5

Description

New L-858, size 1, 7-8 Character LED guidance sign on existing concrete pad, complete.

Addendum # 1

Previous Title	New Title	New L-858, size 1, 7-8 Character LED guidance sign on existing concrete pad,
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CO

Added Item

**CITY OF FORT LAUDERDALE
CONTRACT AND SPECIFICATIONS PACKAGE**

BID NO. 12161-283

PROJECT NO. 12357

**FORT LAUDERDALE EXECUTIVE
AIRPORT TAXIWAY FOXTROT
LIGHTING IMPROVEMENTS**



**Issued on Behalf of: The Public Works Department
100 North Andrews Avenue
Fort Lauderdale, Florida 33301**

**Drawings and Specifications by:
HDR Engineering, Inc.
&
Hillers Electrical Engineering, Inc.**

**FERNANDO BLANCO
AIRPORT ENGINEER/PROJECT MANAGER II**

**GINAH JOSEPH
PROCUREMENT SPECIALIST II
Telephone: (954) 828-4797; E-mail: gjospeh@fortlauderdale.gov**

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The following FAA Advisory Circulars are available on-line at the FAA web-site

A/C No: 150/5200-18C "Airport Safety Self Inspection"
A/C No: 150/5370-2F "Operational Safety on Airports during Construction"

Note: The following documents are available electronically for completion and **must** be returned with your bid along with your bid security, proof of insurance, and proof of required licenses/certifications.

CITB Prime Contractor ID
CITB Questionnaire Sheets
CITB Non-Collusion Statement
Non-Discrimination Certification
CITB Construction Bid Certification

INVITATION TO BID

Sealed bids will be received electronically until 2:00 p.m., local time, on **TUESDAY AUGUST 14TH, 2018**, and opened immediately thereafter in the 5th Floor Conference Room, City Hall, City of Fort Lauderdale, Florida, 100 North Andrews Avenue, Fort Lauderdale, Florida 33301, for **BID NO., 12161-283 PROJECT NO., 12357, FORT LAUDERDALE EXECUTIVE AIRPORT TAXIWAY FOXTROT LIGHTING IMPROVEMENTS.**

This project consists of Drawing File No., 4-140-01, twenty **(20)** sheets, including cover.

The City of Fort Lauderdale, Florida (City) is seeking bids from qualified bidders, hereinafter referred to as the Contractor, to provide construction services for the City's Public Works Department, in accordance with the terms, conditions, and specifications contained in this Invitation To Bid (ITB).

This project is located at Fort Lauderdale Executive Airport. The work to be accomplished under this contract includes, but is not limited to, replacement of taxiway edge lighting with new LED elevated edge lights, removal and disposal of electrical pull-boxes, installation of junction can plazas, modifications to existing airfield guidance signs, remove and dispose of existing guidance signs and install new LED airfield guidance signs, conduits, and replacing existing cabling.

NOTE: Payment on this contract will be made by check.

Licensing Requirements: Possession of a Broward County (Florida) General Engineered Construction Builder Contractor (GITS) License and/or one that is appropriately issued by the State of Florida is required for this project.

The successful contractor shall comply with the requirements of FAA Advisory Circular A/C 150/5370-2F, Operational Safety on Airports during Construction, by preparing and submitting a Safety Plan Compliance Document (SPCD) for review and approval prior to issuance of a Notice-to-Proceed. A copy of the Airport's Construction Safety and Phasing Plan (CSPP) is included with these bid documents to assist the contractor with preparing the SPCD.

The bidder shall familiarize himself with Article 16 - Liquidated Damages, contained within the Construction Agreement.

Pre-Bid Meeting/Site visit: A pre-bid meeting and site visit will be held on **TUESDAY JULY 24th, 2018 at 11:00 a.m.**, local time, at the Fort Lauderdale Executive Airport Administration Building, 6000 NW 21st Avenue, Fort Lauderdale, Florida 33309

While attendance is not mandatory, it is strongly suggested that all contractors attend the pre-proposal conference and site visit since tours at other times might not be available. It will be the sole responsibility of the bidder to inspect the City's location and become familiar with the scope of the City's requirements and systems prior to submitting a proposal. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a proposal will be considered evidence that the proposer has familiarized himself with the nature and extent of the work, equipment, materials, and labor required.

Bidding blanks may be obtained **free of charge** at BIDSYNC.COM. Drawing Plans are on file in the Public Works Department, City of Fort Lauderdale at 100 North Andrews Avenue, 4th floor,

(Monday through Friday, 8:00 am to 4:30 pm) at a **NON-REFUNDABLE cost of \$50.00 (including sales tax per set)**. Only cash or cashier's check made payable to the City of Fort Lauderdale are accepted.

It will be the sole responsibility of the bidder to ensure that his bid is submitted prior to the bid opening date and time listed. **PAPER BID SUBMITTALS WILL NOT BE ACCEPTED. BIDS MUST BE SUBMITTED ELECTRONICALLY VIA BIDSYNC.COM**

Bid Security: A certified check, cashier's check, bank officer's check or bid bond for **FIVE percent (5%)** of the bid amount, made payable to the City of Fort Lauderdale, Florida, shall accompany each proposal.

Bid Bonds:

Bidders can submit bid bonds for projects four different ways:

- 1) BidSync allows bidders to submit bid bonds electronically directly through their system using **Surety 2000**. For more information on this feature and to access it, contact BIDSYNC customer care department.
- 2) Bidders may **upload** their original executed bid bond on BIDSYNC to accompany their bids with the electronic proposal, and deliver the original, signed and sealed hard copy within five (5) business days after bid opening, with the company name, bid number and title clearly indicated.
- 3) Bidders can **hand deliver** their bid bond in a sealed envelope to the Finance Department/Procurement Services Division, 100 North Andrews Avenue, Room 619, Fort Lauderdale, FL 33301-1016, before time of bid opening, with the company name, bid number and title clearly indicated on the envelope.
- 4) Bidders can **mail** their bid bond to the Finance Department/Procurement Services Division, 100 North Andrews Avenue, Room 619, Fort Lauderdale, FL 33301-1016, before time of bid opening, with the company name, bid number and title clearly indicated on the envelope.

Certified Checks, Cashier's Checks and Bank Drafts

These **cannot** be submitted via BIDSYNC, nor are their images allowed to be uploaded and submitted with your electronic bid. These forms of securities, as well as hard copy bid bonds, must be received on or before the Invitation to Bid (ITB) opening date and time, at the Finance Department, Procurement Services Division, 100 North Andrews Avenue, Room 619, Fort Lauderdale, FL 33301-1016, with the bid number and title clearly indicated on the envelope.

It is the bidder's sole responsibility to ensure that his bid bond or other bid security is received by the Procurement Services Division before time of bid opening. Failure to adhere to this requirement may be grounds to consider the bid as non-responsive.

The City of Fort Lauderdale reserves the right to waive any informality in any or all bids and to reject any or all bids.

For information concerning technical specifications, please utilize the question/answer feature provided by BIDSYNC at www.bidsync.com. Questions of a material nature must be received prior to the cut-off date specified in the solicitation. Material changes, if any, to the scope of services or bidding procedures, will only be transmitted by written addendum. (See addendum section of BIDSYNC Site). **Contractors please note:** No part of your bid can be submitted via FAX. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a bid will be considered evidence that the Contractor has familiarized himself with the nature and extent of the work, equipment, materials, and labor required. The entire bid response must be submitted in accordance with all specifications contained in this solicitation.

Information on bid results and projects currently out to bid can be obtained on the City's website – <http://www.fortlauderdale.gov/departments/finance/procurement-services>. For general inquiries, please call (954) 828-5933.

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ITB-4

INSTRUCTIONS TO BIDDERS (continued)

INSTRUCTIONS TO BIDDERS

The following instructions are given for the purpose of guiding bidders in properly preparing their bids or proposals. These directions have equal force and weight with the specifications and strict compliance is required with all of these provisions.

QUALIFICATIONS OF BIDDERS – No proposal will be accepted from, nor will any contract be awarded to, any person who is in arrears to the CITY OF FORT LAUDERDALE, upon any debt or contract, or who has defaulted, as surety or otherwise, upon any obligation to the City, or who is deemed irresponsible or unreliable by the City Commission of Fort Lauderdale.

PERSONAL INVESTIGATION - Bidders shall satisfy themselves by personal investigation, and by such other means as they may think necessary or desirable, as to the conditions affecting the proposed work and the cost. No information derived from maps, plans, specifications, or from the Engineer, City Manager, or their assistants shall relieve the Contractor from any risk or from fulfilling all terms of the contract.

INCONSISTENCIES – Any seeming inconsistency between different provisions of the plans, specifications, proposal or contract, or any point requiring explanation must be inquired into by the bidder, in writing, at least ten (10) days prior to the time set for opening proposals. After proposals are opened, the bidders shall abide by the decision of the Engineer as to such interpretation.

ADDENDA AND INTERPRETATIONS - No interpretations of the meaning of the plans, specifications or other contract documents will be made orally to any bidder. Prospective bidders must request such interpretation in writing as instructed in the bid package. To be considered, such request must be received by the Questions and Answers deadline as indicated in BIDSYNC.COM. Material changes, if any, to the scope of services or bidding procedures will only be transmitted by written addendum. **It is the bidder's responsibility to verify if addendums have been issued in BIDSYNC.COM.** Failure of any bidder to receive any such addenda or interpretation shall not relieve any bidder from any obligation under his bid as submitted. All addenda so issued shall become a part of the contract document. **Bidder** shall verify **in BIDSYNC.COM** that he has all addenda before submitting a bid.

LEGAL CONDITIONS - Bidders are notified to familiarize themselves with the provisions of the laws of the State of Florida relating to hours of labor on municipal work, and with the provisions of the laws of the State of Florida and the Charter and the ordinances of the City of Fort Lauderdale.

PUBLIC ENTITY CRIMES - A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a Contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for CATEGORY TWO for a period of thirty-six (36) months from the date of being placed on the convicted vendor list.

FORMS OF PROPOSALS - Each proposal and its accompanying statements must be made on the blanks provided. **THE FORMS MUST BE SUBMITTED ELECTRONICALLY, IN GOOD**

INSTRUCTIONS TO BIDDERS (continued)

ORDER WITH ALL BLANKS COMPLETED, and must show the name of the bidder and a statement as to its contents. The proposal must be signed by one duly authorized to do so, and in case signed by a deputy or subordinate, the principal's properly written authority to such deputy or subordinate must accompany the proposal. No proposal will be accepted, for any reason whatsoever, which is not submitted to the City as stated above, within the specified time.

INSURANCE - Contractor shall provide and shall require all of its sub-contractors to provide, pay for, and maintain in force at all times during the term of the Agreement, such insurance, including Property Insurance (Builder's Risk), Commercial General Liability Insurance, Business Automobile Liability Insurance, Workers' Compensation Insurance, Employer's Liability Insurance, and Umbrella/Excess Liability, as stated below. Such policy or policies shall be issued by companies authorized to do business in the State of Florida and having agents upon whom service of process may be made in the State of Florida.

BID BOND - A certified check, cashier's check or bank officer's check, for the sum set forth in the advertisement, made payable to the City of Fort Lauderdale, Florida, or bid bond in such amount, shall accompany each proposal as evidence of the good faith and responsibility of the bidder. The check or bond shall be retained by the City as liquidated damages should the bidder refuse to or fail to enter into a contract for the execution of the work embraced in this proposal, in the event the proposal of the bidder is accepted. Retention of such amount shall not be construed as a penalty or forfeiture.

The above bond or check shall be a guarantee that the bidder will, if necessary, promptly execute a satisfactory contract and furnish good and sufficient bonds. As soon as a satisfactory contract has been executed and the bonds furnished and accepted, the check or bond accompanying the proposal of the successful bidder will be returned to him. The certified or other checks or bid bonds of the unsuccessful bidders will be returned to them upon the acceptance of the bid of the successful bidder. If the successful bidder shall not enter into, execute, and deliver such a contract and furnish the required bonds within ten (10) days after receiving notice to do so, the certified or other check or bid bond shall immediately become the property of the City of Fort Lauderdale as liquidated damages. Retention of such amount shall not be construed as a penalty or forfeiture.

FILLING IN BIDS - All prices must be electronically submitted in the proposal pages, and all proposals must fully cover all items for which proposals are asked and no other. Bidders are required to state the names and places of residence of all persons interested, and if no other person is interested, the bidder shall distinctly state such fact and shall state that the proposal is, in all respects, fair and without collusion or fraud. Where more than one person is interested, it is required that all persons interested or their legal representative make all verification and subscribe to the proposal.

PRICES QUOTED: Deduct any discount offered and quote firm net unit prices. In the case of a discrepancy in computing the amount of the bid, the unit price quoted will govern. All prices quoted shall be F.O.B. destination, freight prepaid (Bidder pays and bears freight charges, Bidder owns goods in transit and files any claims), unless otherwise stated in Special Conditions. Each item must be bid separately. No attempt shall be made to tie any item or items contained in the ITB with any other business with the City.

BIDS FIRM FOR ACCEPTANCE: Bidder warrants, by virtue of bidding, that his bid and the prices quoted in his bid will be firm for acceptance by the City for a period of one hundred and

INSTRUCTIONS TO BIDDERS (continued)

twenty (120) days from the date of bid opening unless otherwise stated in the ITB. The City shall award contract within this time period or shall request to the recommended awarded vendor an extension to hold pricing, until products/services have been awarded.

ADDITIONAL ITEMS OR SERVICES: The City may require additional items or services of a similar nature, but not specifically listed in the contract. The Contractor agrees to provide such items or services, and shall provide the City prices on such additional items or services. If the price(s) offered are not acceptable to the City, and the situation cannot be resolved to the satisfaction of the City, the City reserves the right to procure those items or services from other vendors, or to cancel the contract upon giving the Contractor thirty (30) days written notice.

DELETION OR MODIFICATION OF SERVICES: The City reserves the right to delete any portion of the Contract at any time without cause, and if such right is exercised by the City, the total fee shall be reduced in the same ratio as the estimated cost of the work deleted bears to the estimated cost of the work originally planned. If work has already been accomplished on the portion of the Contract to be deleted, the Contractor shall be paid for the deleted portion on the basis of the estimated percentage of completion of such portion.

If the Contractor and the City agree on modifications or revisions to the task elements, after the City has approved work to begin on a particular task or project, and a budget has been established for that task or project, the Contractor will submit a revised budget to the City for approval prior to proceeding with the work.

CAUSES FOR REJECTION - No proposal will be canvassed, considered or accepted which, in the opinion of the City Commission, is informal or unbalanced, or contains inadequate or unreasonable prices for any items; each item must carry its own proportion of the cost as nearly as is practicable. Any alteration, erasure, interlineation, or failure to specify bids for all items called for in the schedule shall render the proposal informal.

REJECTION OF BIDS - The City reserves the right to reject any bid if the evidence submitted by the bidder, or if the investigation of such bidder, fails to satisfy the City that such bidder is properly qualified to carry out the obligations and to complete the work contemplated. Any or all proposals will be rejected, if there is reason to believe that collusion exists among bidders. A proposal will be considered irregular and may be rejected, if it shows serious omissions, alterations in form, additions not called for, conditions or unauthorized alternates, or irregularities of any kind. The City reserves the right to reject any or all proposals and to waive such technical errors as may be deemed best for the interests of the City.

BID PROTEST PROCEDURE: Any proposer or bidder who is not recommended for award of a contract and who alleges a failure by the City to follow the City's procurement ordinance or any applicable law may protest to the Procurement Division – Deputy Director of Finance, by delivering a letter of protest within five (5) days after a Notice of Intent to award is posted on the City's website at the following link: http://www.fortlauderdale.gov/purchasing/notices_of_intent.htm. The complete protest ordinance may be found on the City's website at the following link: <http://www.fortlauderdale.gov/purchasing/protestordinance.pdf>

WITHDRAWALS - Any bidder may, without prejudice to himself, withdraw his proposal at any time prior to the expiration of the time during which proposals may be submitted. Such request for withdrawal must be in writing and signed in the same manner and by the same person who

INSTRUCTIONS TO BIDDERS (continued)

signed the proposal. After expiration of the period for receiving proposals, no proposal can be withdrawn, modified, or explained.

CONTRACT - The bidder to whom award is made shall execute a written contract to do the work and maintain the same in good repair until final acceptance by the proper authorities, and shall furnish good and sufficient bonds as specified within ten (10) days after receiving such contract for execution. If the bidder to whom the first award is made fails to enter into a contract as provided, the award may be annulled and the contract let to the next lowest bidder who is reliable, responsible, and responsive in the opinion of the City Commission, and that bidder shall fulfill every stipulation and obligation as if such bidder were the original party to whom award was made.

The contract shall provide that the Contractor agrees to correct any defective or faulty work or material, which may appear within one (1) year after completion of the work and receipt of final payment.

ENFORCEMENT OF SPECIFICATIONS - Copies of the specifications will be placed in the hands of all the assistants to the Engineer and Inspectors employed on the work, who shall enforce each and every requirement of the contract. Such assistants shall have no authority to vary from such requirements.

COPIES OF DRAWING PLANS - Copies of the drawing plans are on file in the Public Works Department, City Hall, 4th Floor, 100 N. Andrews Avenue, Fort Lauderdale, Florida 33301.

SURETY BOND – The Contractor shall execute and record in the public records of Broward County, Florida, a payment and performance bond in an amount at least equal to the Contract Price with a surety insurer authorized to do business in the State of Florida as surety, ("Bond"), in accordance with Section 255.05, Florida Statutes (2014), as may be amended or revised, as security for the faithful performance and payment of all of the Contractor's obligations under the Contract Documents.

The successful bidder shall furnish a performance and payment bond in compliance with Section 255.05, Florida Statutes, written by a Corporate Surety company, holding a Certificate of Authority from the Secretary of the Treasury of the United States as acceptable sureties on federal bonds, in an amount equal to the total amount payable by the terms of the contract, executed and issued by a Resident Agent licensed by and having an office in the State of Florida, representing such Corporate Surety, conditioned for the due and faithful performance of the work, and providing in addition to all other conditions, that if the Contractor, or his or its subcontractors, fail to duly pay for any labor, materials, or other supplies used or consumed by such Contractor, or his or its subcontractor or subcontractors, in performance of the work contracted to be done, the Surety will pay the same in the amount not exceeding the sum provided in such bonds, together with interest at the rate of fifteen percent (15%) per annum, and that they shall indemnify and save harmless the City of Fort Lauderdale to the extent of any and all payments in connection with carrying out of the contract, which the City may be required to make under the law.

The Contractor is required at all times to have a valid surety bond in force covering the work being performed. A failure to have such bond in force at any time shall constitute a default on the part of the Contractor. A bond written by a surety, which becomes disqualified to do business in the State of Florida, shall automatically constitute a failure on the part of the Contractor to meet the above requirements.

INSTRUCTIONS TO BIDDERS (continued)

Such bond shall continue in effect for one (1) year after completion and acceptance of the work with liability equal to at least twenty-five percent (25%) of contract price, or an additional bond shall be conditioned that the Contractor will correct any defective or faulty work or material which appear within one (1) year after completion of the contract, upon notification by the City, except in contracts which are concerned solely with demolition work, in which cases twenty-five percent (25%) liability will not be applicable.

AUDIT OF CONTRACTOR'S RECORDS - Upon execution of the Contract, the City reserves the right to conduct any necessary audit of the Contractor's records. Such an audit, or audits, may be conducted by the City or its representatives at any time prior to final payment, or thereafter, for a period up to three (3) years. The City may also require submittal of the records from either the Contractor, the Subcontractor, or both. For the purpose of this Section, records shall include all books of account, supporting documents and papers deemed necessary by the City to assure compliance with the contract provisions.

Failure of the Contractor or Subcontractor to comply with these requirements may result in disqualification or suspension from bidding for future contracts or disapproval as a Subcontractor at the option of the City.

The Contractor shall assure that each of its Subcontractors will provide access to its records pertaining to the project upon request by the City.

PERIODIC ESTIMATE FOR PARTIAL PAYMENT - After the Contractor has submitted a periodic estimate for partial payment, approved and certified by the Public Works Department, the City shall make payment in the manner provided in the Contract Documents and in accordance with Florida's Prompt Payment Act, Section 218, Florida Statutes.

RESERVATION FOR AWARD AND REJECTION OF BIDS - The City reserves the right to accept or reject any or all bids, part of bids, and to waive minor irregularities or variations to specifications contained in bids, and minor irregularities in the bidding process. The City also reserves the right to award the contract on a split order basis, lump sum basis, individual item basis, or such combination as shall best serve the interest of the City. The City reserves the right to make an award to the responsive and responsible bidder whose product or service meets the terms, conditions, and specifications of the ITB and whose bid is considered to best serve the City's interest. In determining the responsiveness of the offer and the responsibility of the Bidder, the following shall be considered when applicable: the ability, capacity and skill of the Bidder to perform as required; whether the Bidder can perform promptly, or within the time specified, without delay or interference; the character, integrity, reputation, judgment, experience and efficiency of the Bidder; the quality of past performance by the Bidder; the previous and existing compliance by the Bidder with related laws and ordinances; the sufficiency of the Bidder's financial resources; the availability, quality and adaptability of the Bidder's supplies or services to the required use; the ability of the Bidder to provide future maintenance, service or parts; the number and scope of conditions attached to the bid.

MINORITY AND WOMEN BUSINESS ENTERPRISE PARTICIPATION AND BUSINESS - It is the desire of the City of Fort Lauderdale to increase the participation of minority (MBE) and women-owned (WBE) businesses in its contracting and procurement programs. While the City does not have any preference or set aside programs in place, it is committed **to a policy of equitable participation for these firms**. The City of Fort Lauderdale wants to increase the participation of Minority Business Enterprises (MBE), Women Business Enterprises (WBE), and

INSTRUCTIONS TO BIDDERS (continued)

Small Business Enterprises (SBE) in its procurement activities. If your firm qualifies in accordance with the below definitions please indicate in the space provided in this ITB.

Minority Business Enterprise (MBE) "A Minority Business" is a business enterprise that is owned or controlled by one or more socially or economically disadvantaged persons. Such disadvantage may arise from cultural, racial, chronic economic circumstances or background or other similar cause. Such persons include, but are not limited to: Blacks, Hispanics, Asian Americans, and Native Americans.

The term "Minority Business Enterprise" means a business at least 51 percent of which is owned by minority group members or, in the case of a publicly owned business, at least 51 percent of the stock of which is owned by minority group members. For the purpose of the preceding sentence, minority group members are citizens of the United States who include, but are not limited to: Blacks, Hispanics, Asian Americans, and Native Americans.

Women Business Enterprise (WBE) a "Women Owned or Controlled Business" is a business enterprise at least fifty-one percent (51%) of which is owned by females or, in the case of a publicly owned business, at least fifty-one percent (51%) of the stock of which is owned by females. Small Business Enterprise (SBE) "Small Business" means a corporation, partnership, sole proprietorship, or other legal entity formed for the purpose of making a profit, which is independently owned and operated, has either fewer than 100 employees or less than \$1,000,000 in annual gross receipts.

BLACK includes persons having origins in any of the Black racial groups of Africa.

WHITE includes persons whose origins are Anglo-Saxon and Europeans and persons of Indo-European decent including Pakistani and East Indian.

HISPANIC includes persons of Mexican, Puerto Rican, Cuban, Central and South American, or other Spanish culture or origin, regardless of race.

NATIVE AMERICAN includes persons whose origins are American Indians, Eskimos, Aleuts, or Native Hawaiians.

ASIAN AMERICAN includes persons having origin in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands.

DEBARRED OR SUSPENDED BIDDERS OR PROPOSERS - The bidder or proposer certifies, by submission of a response to this solicitation, that neither it nor its principals and subcontractors are presently debarred or suspended by any Federal department or agency.

LOBBYING ACTIVITIES - ALL CONTRACTORS PLEASE NOTE: Any contractor submitting a response to this solicitation must comply, if applicable, with City of Fort Lauderdale Ordinance No. C-00-27 & Resolution No. 07-101, Lobbying Activities. Copies of Ordinance No., C-00-27, and Resolution No. 07-101, may be obtained from the City Clerk's Office on the 7th Floor of City Hall, 100 N. Andrews Avenue, Fort Lauderdale, Florida 33301. The ordinance may also be viewed on the City's website at http://www.fortlauderdale.gov/clerk/LobbyistDocs/lobbyist_ordinance.pdf.

INSTRUCTIONS TO BIDDERS (continued)

TITLE VI SOLICITATION NOTICE - City, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

FEDERAL FAIR LABOR STANDARDS ACT (FLSA) - All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR Part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part time workers.

Contractor has full responsibility to monitor compliance to the referenced statute or regulation. The Contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 - All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. Contractor must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. Contractor retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). Contractor must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

INSTRUCTIONS TO BIDDERS (continued)

SPECIAL CONDITIONS**01. PURPOSE**

The City of Fort Lauderdale, Florida (City) is seeking bids from qualified bidders, hereinafter referred to as the Contractor, to provide construction services for the City's Public Works Department, in accordance with the terms, conditions, and specifications contained in this Invitation To Bid (ITB).

02. TRANSACTION FEES

The City of Fort Lauderdale uses BidSync (www.bidsync.com) to distribute and receive bids and proposals. There is no charge to vendors/contractors to register and participate in the solicitation process, nor will any fees be charged to the awarded contractor.

03. SUBMISSION OF BIDS

It is the sole responsibility of the Contractor to ensure that their bid is submitted electronically through BidSync at www.bidsync.com and that any bid security not submitted via BidSync reaches the City of Fort Lauderdale City Hall, Procurement Services Division, 6th floor, Room 619, 100 N. Andrews Avenue, Fort Lauderdale, FL 33301, in a sealed envelope marked on the outside with the ITB solicitation number and Contractor's name, no later than the time and date specified in this solicitation. **PAPER BID SUBMITALS WILL NOT BE ACCEPTED. PLEASE SUBMIT YOUR BID RESPONSE ELECTRONICALLY.**

04. INFORMATION OR CLARIFICATION

For information concerning procedures for responding to this solicitation, contact **Ginah Joseph, Procurement Specialist II**, at (954) 828-4797 or email at gjoseph@fortlauderdale.gov. Such contact shall be for clarification purposes only.

For information concerning technical specifications please utilize the question/answer feature provided by BidSync at www.bidsync.com. Questions of a material nature must be received prior to the cut-off date specified in the solicitation. Material changes, if any, to the scope of services or bidding procedures will only be transmitted by written addendum. (See addendum section of BidSync Site). **Contractors please note:** No part of your bid can be submitted via FAX. No variation in price or conditions shall be permitted based upon a claim of ignorance. Submission of a bid will be considered evidence that the Contractor has familiarized himself with the nature and extent of the work, and the equipment, materials, and labor required. The entire bid response must be submitted in accordance with all specifications contained in this solicitation. The questions and answers submitted in BidSync shall become part of any contract that is created from this ITB.

05. CONTRACT PERIOD

- 5.1 The Contractor recognizes that TIME IS OF THE ESSENCE. The Work shall commence within **63** calendar days (**45** working days) of the date of the Notice to Proceed. During this period contractor shall submit shop

INSTRUCTIONS TO BIDDERS (continued)

drawings, procure materials, establish staging area, coordinate and attend airfield security/badging classes, and begin mobilization.

5.2 The Work shall be Substantially Completed within **102** calendar days (**73** working days) after the date when the Contract Time commences to run as provided in the Notice to Proceed.

5.3 The Work shall be finally completed on the Final Completion Date and ready for final payment in accordance with this Agreement within **144** calendar days (**103** working days) after the date when the Contract Time commences to run as provided in the Notice to Proceed.

The City of Fort Lauderdale reserves the right to waive any informality in any bid and to reject any or all bids. The City of Fort Lauderdale reserves the right to reduce or delete any of the bid items.

At time of award of contract, the City reserves the right to set a maximum dollar limit that may be expended on this project. Contract quantities of any or all items may be increased, reduced, or eliminated to adjust the contract amount to coincide with the amount of work necessary or to bring the contract value to within the established limit. All quantities are estimated and the City reserves the right to increase, reduce, or eliminate the contract quantities in any amount.

The undersigned bidder affirms that he has or will obtain all equipment necessary to complete the work described, that he has or will obtain all required permits and licenses from the appropriate agencies, and that his firm is authorized to do business in the State of Florida.

06. BID SECURITY

A certified check, cashier's check, bank officer's check or bid bond for **FIVE percent (5%)** of the bid amount, made payable to the City of Fort Lauderdale, Florida, shall accompany each proposal.

07. REQUIRED LICENSES/CERTIFICATIONS

Contractor must possess the following licenses/certifications to be considered for award.

Broward County (Florida) General Engineered Construction Builder Contractor (GITS) License and/or one that is appropriately issued by the State of Florida.

Note: Contractor must have proper licensing and be able to provide evidence of same, if requested, at time of award.

08. SPECIFIC EXPERIENCE REQUIRED

The following expertise is required to be considered for this contract. Specific references attesting to this expertise must be submitted with bid.

Contractor shall provide, at a minimum, three (3) prior projects in which the contractor has performed similar type of work, and scale (or larger) and shall, for each project listed, identify location; dates of construction; project name and overall scope; scope of work that was Prime by Contractor; and client's name, address, telephone number and e-mail address.

INSTRUCTIONS TO BIDDERS (continued)

NOTE: REFERENCES SHALL NOT INCLUDE ONLY CITY OF FORT LAUDERDALE EMPLOYEES OR WORK PERFORMED FOR THE CITY. THE CITY IS ALSO INTERESTED IN WORK EXPERIENCE AND REFERENCES FROM ENTITIES OTHER THAN THE CITY OF FORT LAUDERDALE.

By signing this bid solicitation, contractor is affirming that this expertise will be provided for this contract at no additional charge.

09. BID ALLOWANCE

Allowance	\$
Additional labor allowance	\$10,000
Additional material allowance	\$10,000
TOTAL	\$20,000

Note: The City will add this allowance to your bid.

10. INSURANCE REQUIREMENTS (See Article 10, Bonds and Insurance, of the Contract for details)

General Information

As a condition precedent to the effectiveness of this Agreement, during the term of this Agreement and during any renewal or extension term of this Agreement, the Contractor, at the Contractor's sole expense, shall provide insurance of such types and with such terms and limits as noted below. Providing proof of and maintaining adequate insurance coverage are material obligations of the Contractor. The Contractor shall provide the City a certificate of insurance evidencing such coverage. The Contractor's insurance coverage shall be primary insurance for all applicable policies. The limits of coverage under each policy maintained by the Contractor shall not be interpreted as limiting the Contractor's liability and obligations under this Agreement. All insurance policies shall be from insurers authorized to write insurance policies in the State of Florida and that possess an A.M. Best rating of A-, VII or better. All insurance policies are subject to approval by the City's Risk Manager.

The coverages, limits, and endorsements required herein protect the interests of the City, and these coverages, limits, and endorsements may not be relied upon by the Contractor for assessing the extent or determining appropriate types and limits of coverage to protect the Contractor against any loss exposure, whether as a result of this Agreement or otherwise. The requirements contained herein, as well as the City's review or acknowledgement, are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by the Contractor under this Agreement.

The following insurance policies and coverages are required:

Commercial General Liability

Coverage must be afforded under a Commercial General Liability policy with limits not less than:

- \$1,000,000 each occurrence and \$2,000,000 aggregate for Bodily Injury, Property Damage, and Personal and Advertising Injury

INSTRUCTIONS TO BIDDERS (continued)

- \$1,000,000 each occurrence and \$2,000,000 aggregate for Products and Completed Operations

Policy must include coverage for Contractual Liability and Independent Contractors.

The City and the City's officers, employees, and volunteers are to be covered as additional insureds with a CG 20 26 04 13 Additional Insured – Designated Person or Organization Endorsement or similar endorsement providing equal or broader Additional Insured Coverage with respect to liability arising out of activities performed by or on behalf of the Contractor. The coverage shall contain no special limitation on the scope of protection afforded to the City or the City's officers, employees, and volunteers.

Business Automobile Liability

Coverage must be afforded for all Owned, Hired, Scheduled, and Non-Owned vehicles for Bodily Injury and Property Damage in an amount not less than \$1,000,000 combined single limit each accident.

If the Contractor does not own vehicles, the Contractor shall maintain coverage for Hired and Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

Workers' Compensation and Employer's Liability

Coverage must be afforded per Chapter 440, Florida Statutes. Any person or entity performing work for or on behalf of the City must provide Workers' Compensation insurance. Exceptions and exemptions will be allowed by the City's Risk Manager, if they are in accordance with Florida Statute.

The Contractor waives, and the Contractor shall ensure that the Contractor's insurance carrier waives, all subrogation rights against the City and the City's officers, employees, and volunteers for all losses or damages. The City requires the policy to be endorsed with WC 00 03 13 Waiver of our Right to Recover from Others or equivalent.

The Contractor must be in compliance with all applicable State and federal workers' compensation laws, including the U.S. Longshore Harbor Workers' Act and the Jones Act, if applicable.

Insurance Certificate Requirements

- a. The Contractor shall provide the City with valid Certificates of Insurance (binders are unacceptable) no later than thirty (30) days prior to the start of work contemplated in this Agreement.
- b. The Contractor shall provide to the City a Certificate of Insurance having a thirty (30) day notice of cancellation; ten (10) days' notice if cancellation is for nonpayment of premium.
- c. In the event that the insurer is unable to accommodate the cancellation notice requirement, it shall be the responsibility of the Contractor to provide the proper notice. Such notification will be in writing by registered mail, return receipt requested, and addressed to the certificate holder.
- d. In the event the Agreement term goes beyond the expiration date of the insurance policy, the Contractor shall provide the City with an updated Certificate of Insurance no later than ten (10) days prior to the expiration of the insurance

INSTRUCTIONS TO BIDDERS (continued)

- e. currently in effect. The City reserves the right to suspend the Agreement until this requirement is met.
- f. The Certificate of Insurance shall indicate whether coverage is provided under a claims-made or occurrence form. If any coverage is provided on a claims-made form, the Certificate of Insurance must show a retroactive date, which shall be the effective date of the initial contract or prior.
- g. The City shall be named as an Additional Insured on all liability policies, with the exception of Workers' Compensation.
- h. The City shall be granted a Waiver of Subrogation on the Contractor's Workers' Compensation insurance policy.
- i. The title of the Agreement, Bid/Contract number, event dates, or other identifying reference must be listed on the Certificate of Insurance.

The Certificate Holder should read as follows:

City of Fort Lauderdale
100 N. Andrews Avenue
Fort Lauderdale, FL 33301

The Contractor has the sole responsibility for the payment of all insurance premiums and shall be fully and solely responsible for any costs or expenses as a result of a coverage deductible, co-insurance penalty, or self-insured retention; including any loss not covered because of the operation of such deductible, co-insurance penalty, self-insured retention, or coverage exclusion or limitation. Any costs for adding the City as an Additional Insured shall be at the Contractor's expense.

If the Contractor's primary insurance policy/policies do not meet the minimum requirements, as set forth in this Agreement, the Contractor may provide evidence of an Umbrella/Excess insurance policy to comply with this requirement.

The Contractor's insurance coverage shall be primary insurance as applied to the City and the City's officers, employees, and volunteers. Any insurance or self-insurance maintained by the City covering the City, the City's officers, employees, or volunteers shall be non-contributory.

Any exclusion or provision in the insurance maintained by the Contractor that excludes coverage for work contemplated in this Agreement shall be unacceptable and shall be considered breach of contract.

All required insurance policies must be maintained until the contract work has been accepted by the City, or until this Agreement is terminated, whichever is later. Any lapse in coverage shall be considered breach of contract. In addition, Contractor must provide to the City confirmation of coverage renewal via an updated certificate should any policies expire prior to the expiration of this Agreement. The City reserves the right to review, at any time, coverage forms and limits of Contractor's insurance policies.

The Contractor shall provide notice of any and all claims, accidents, and any other occurrences associated with this Agreement shall be provided to the Contractor's insurance company or companies and the City's Risk Management office as soon as practical.

INSTRUCTIONS TO BIDDERS (continued)

It is the Contractor's responsibility to ensure that any and all of the Contractor's independent contractors and subcontractors comply with these insurance requirements. All coverages for independent contractors and subcontractors shall be subject to all of the applicable requirements stated herein. Any and all deficiencies are the responsibility of the Contractor.

Crane and Rigging Liability

Coverage must be afforded for any crane operations under the Commercial General or Business Automobile Liability policy as necessary, in line with the limits of the associated policy.

Umbrella/Excess Liability:

The Contractor shall provide umbrella/excess coverage with limits of no less than \$2,000,000 excess of Commercial General Liability, Automobile Liability and Employer's Liability.

Professional Liability and/or Errors and Omissions

Coverage must be afforded for Wrongful Acts in an amount not less than \$1,000,000 each claim and \$2,000,000 aggregate.

Contractor must keep insurance in force until the third anniversary of expiration of this Agreement or the third anniversary of acceptance of work by the City.

Property Coverage (Builder's Risk)

Coverage must be afforded in an amount not less than 100% of the total project cost, including soft costs, with a deductible of no more than \$25,000 each claim. Coverage form shall include, but not be limited to:

- All Risk Coverage including Flood and Windstorm with no coinsurance clause
- Guaranteed policy extension provision
- Waiver of Occupancy Clause Endorsement, which will enable the City to occupy the facility under construction/renovation during the activity
- Storage and transport of materials, equipment, supplies of any kind whatsoever to be used on or incidental to the project
- Equipment Breakdown for cold testing of all mechanized, pressurized, or electrical equipment

This policy shall insure the interests of the owner, contractor, and subcontractors in the property against all risk of physical loss and damage, and name the City as a loss payee. This insurance shall remain in effect until the work is completed and the property has been accepted by the City.

NOTE: CITY PROJECT NUMBER AND NAME MUST APPEAR ON EACH CERTIFICATE, AND THE CITY OF FORT LAUDERDALE MUST BE NAMED ON THE CERTIFICATE AS AN "ADDITIONAL INSURED".

A Sample Insurance Certificate shall be included with the proposal to demonstrate the firm's ability to comply with insurance requirements. Provide a previous certificate or other evidence listing the insurance companies' names for all required coverage, and the dollar amounts of the coverage.

INSTRUCTIONS TO BIDDERS (continued)

Compliance with the foregoing requirements shall not relieve the Contractor of their liability and obligation under this section or under any other section of this Agreement.

11. **PERFORMANCE AND PAYMENT BOND:** 100%
Number of awards anticipated: One

12. **CITY PROJECT MANAGER**

The Project Manager is hereby designated by the City as **Fernando Blanco**, whose address is **100 North Andrews, 5th Floor, Fort Lauderdale, FL 33301**, telephone number: **(954) 828-6536**, and e-mail address is **fblanco@fortlauderdale.gov**. The Project Manager will assume all duties and responsibilities and will have the rights and authorities assigned to the Project Manager in the Contract Documents in connection with completion of the Work in accordance with this Agreement.

13. **LIQUIDATED DAMAGES** (See Article 16, Liquidated Damages, of the Contract for details)

Upon failure of the Contractor to complete the Work within the time specified for completion, the Contractor shall pay to the City the sum of **Five Hundred Dollars (\$500.00)** for each and every calendar day that the completion of the Work is delayed beyond the time specified in this Agreement for completion, as fixed and agreed liquidated damages and not as a penalty, so long as the delay is caused by the Contractor. (See Article 16, Liquidated Damages Clause, of the Contract)

In addition, for work beyond the time (hour and minute) established for opening the taxiway/runway, following each closure of that taxiway/runway in accordance with the phasing plans, the City will charge the Contractor a rental fee for the Contractor's use of the taxiway/runway. The parties agree that the sum of **\$500** for the first minute and **\$50** for every minute thereafter shall be fixed as the rental rates for continuing a taxiway/runway closure beyond the time provided for opening the taxiway during each phase of work that requires taxiway/runway closure.

The Contractor shall pay to the City, or have withheld from monies due the Contractor, the rental sum of **\$500** per the first minute and **\$50** for every minute thereafter that the Contractor continues a taxiway/runway closure beyond the specified time provided for opening the taxiway/runway during each phase of work that requires closure.

Time for opening of the taxiway/runway and rental fee determinations shall be based upon the City's inspector's time keeping, not the Contractor. Contractor may request the inspector to advise him of remaining time periodically prior to opening, but inspector's time keeping shall be the sole determining factor as to whether the taxiway/runway reopened as scheduled without appeal.

14. **PAYMENT** (See Article 7, Payment, of the Contract for other details)
15. **WORK SCHEDULE (including overtime hours):** As detailed on the plans

Regular work hours: **7:30 am to 4:30 pm, Monday through Friday.**

City Inspector Hours: **8:00 am to 4:30 pm, Monday through Friday.**

Any inspection requested by the contractor outside those hours will be considered overtime to be paid by the Contractor.

16. **INSPECTION OVERTIME COST:** \$80.00/hr.

SC-7

CITY OF FORT LAUDERDALE
CONSTRUCTION AGREEMENT

THIS AGREEMENT made and entered into this _____ day of _____, 2018, by and between the City of Fort Lauderdale, a Florida municipal corporation (City) and _____, (Contractor), (parties);

WHEREAS, the City desires to retain a contractor for the Project as expressed in its Invitation to Bid No., _____, Project Number, _____ which was opened on _____; and,

WHEREAS, the Contractor has expressed its willingness and capability to perform the necessary work to accomplish the Project.

NOW, THEREFORE, the City and the Contractor, in consideration of the mutual covenants and conditions contained herein and for other good and valuable consideration, the receipt and sufficiency is hereby acknowledged, agree as follows:

ARTICLE 1 – DEFINITIONS

Whenever used in this Agreement or in other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural forms:

- 1.1 Agreement – This written Agreement between the City and the Contractor covering the work to be performed including other Contract Documents that are attached to or incorporated in the Agreement.
- 1.2 Application for Payment – The form accepted by the City which is to be used by the Contractor in requesting progress or final payment and which is to include such supporting documentation as is required by the Contract Documents.
- 1.3 Approve – The word approve is defined to mean review of the material, equipment or methods for general compliance with design concepts and with the information given in the Contract Documents. It does not imply a responsibility on the part of the City to verify in every detail conformance with plans and specifications.
- 1.4 Bid – The offer or Bid of the Contractor submitted on the prescribed form setting forth the total prices for the Work to be performed.
- 1.5 Bid Documents – This Agreement, advertisement for Invitation to Bids, the Instructions to Bidders, the Bid Form (with supplemental affidavits and agreements), the Contract Forms, General Conditions, the Supplementary Conditions, the Specifications, and the Plans, which documents all become an integral part of the Contract Documents.

- 1.6 Certificate of Substantial Completion - Certificate provided by the City certifying that all Work, excluding the punch list items, has been completed, inspected, and accepted by the City.
- 1.7 Change Order - A change order is defined as a written order to a contractor approved by the City, authorizing a revision of an underlying agreement between the City and a contractor that is directly related to the original scope of work or an adjustment in the original contract price or the contract time directly related to the original scope of work, issued on or after the effective date of the contract.
- 1.8 City – The City of Fort Lauderdale, Florida including but not limited to its employees, agents, officials, representatives, contractors, subcontractors, volunteers, successors and assigns, with whom the Contractor has entered into the Agreement and for whom the Work is to be provided.
- 1.9 Contract Documents – The Contract Documents shall consist of this Agreement, Exhibits to this Agreement, Public Construction Bond, Performance Bond, Payment Bond and Certificates of Insurance, Notice of Award and Notice to Proceed, General Conditions as amended by the Special Conditions, Technical Specifications, Plans/Drawings, Addenda, Bid Form and supplement Affidavits and Agreements, all applicable provisions of State and Federal Law and any modification, including Change Orders or written amendments duly delivered after execution of Agreement, Invitation to Bid, Instructions to Bidders and Bid Bond, Contractor's response to the City's Invitation to Bid, Schedule of Completion, Schedule of Values, all amendments, modifications and supplements, change orders and work directive changes issued on or after the Effective Date of the Agreement, as well as any additional documents that are required to be submitted under the Agreement.
- Permits on file with the City and or those permits to be obtained shall be considered directive in nature and will be considered a part of this Agreement. A copy of all permits shall be given to the City for inclusion in the Contract Documents. Terms of permits shall be met prior to acceptance of the Work and release of the final payment.
- 1.10 Contract Price – The monies payable to the Contractor by the City under the Contract Documents and in accordance with the line item unit prices listed in the Bid.
- 1.11 Contract Time – The number of calendar days stated in the Agreement for the completion of the Work. The dates on which the work shall be started and shall be completed as stated in the Notice to Proceed.
- 1.12 Contractor – The person, firm, company, or corporation with whom the City has entered into the Agreement, including but not limited to its employees, agents,

representatives, contractors, subcontractors, their subcontractors and their other successors and assigns.

- 1.13 Day – A calendar day of twenty-four (24) hours ending at midnight.
- 1.14 Defective – An adjective which when modifying the word “Work” refers to work that is unsatisfactory, faulty, or deficient, or does not conform to the Contract Documents or does not meet the requirements of any inspection, test or approval referred to in the Contract Documents, or has been damaged prior to the Project Manager’s recommendation of final payment.
- 1.15 Effective Date of the Agreement – The effective date of the agreement shall be the date the City Commission approves the work. The contractor shall provide all required payment and performance bonds and insurances to the City within ten (10) Calendar days following the City Commission approval. Upon verification of all bonds and insurances, the City will issue a notice to proceed (NTP) to the Contractor. Contract time will commence on the date when the Notice to Proceed is issued. The Contractor shall commence the work immediately upon receipt of the Notice to Proceed. Failure of the contractor to proceed with the work will constitute non-performance of the Contractor and would be ground for termination of the contract per ARTICLE 17 of the Agreement.
- 1.16 Final Completion Date – The date the Work is completed, including completion of the final punch list, and delivered along with those items specified in the Contract Documents and is accepted by the City.
- 1.17 Hazardous Materials (HAZMAT) - Any solid, liquid, or gaseous material that is toxic, flammable, radioactive, corrosive, chemically reactive, or unstable upon prolonged storage in quantities that could pose a threat to life, property, or the environment defined in Section 101(14) of Comprehensive Environmental Response, Compensation and Liability Act of 1980 and in 40 CFR 300.6. Also defined by 49 CFR 171.8 as a substance or material designated by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce and which has been so designated.
- 1.18 Hazardous Substance - As defined by Section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act; any substance designated pursuant to Section 311(b) (2) (A) of the Clean Water Act; any element, compound, mixture, solution or substance designated pursuant to Section 102 identified under or listed pursuant to Section 3001 of the Solid Waste Disposal Act {but not including any waste listed under Section 307[a] of the Clean Water Act}; any hazardous air pollutant listed under Section 112 of the Clean Air Act; and any imminently hazardous chemical substance or mixture pursuant to Section 7 of the Toxic Substances Control Act. The term does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance in the first sentence of this paragraph, and the term does not include natural gas, natural

gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

- 1.19 Hazardous Waste - Those solid wastes designated by OSHA in accordance with 40 CFR 261 due to the properties of ignitability, corrosivity, reactivity, or toxicity. Any material that is subject to the Hazardous Waste Manifest requirements of the EPA specified in 40 CFR Part 262.
- 1.20 Holidays - Those designated non-work days as established by the City Commission of the City of Fort Lauderdale.
- 1.21 Inspection – The term “inspection” and the act of inspecting as used in this Agreement is defined to mean the examination of construction to ensure that it conforms to the design concept expressed in the plans and specifications. This term shall not be construed to mean supervision, superintending and/or overseeing.
- 1.22 Notice of Award - The written notice by City to the Contractor stating that upon compliance by the Contractor with the conditions precedent enumerated therein, within the time specified that the City will sign and deliver this Agreement.
- 1.23 Notice to Proceed – A written notice given by the City to the Contractor fixing the date on which the Contract Time will commence to run and on which the Contract Time will end.
- 1.24 Plans - The drawings which show the character and scope of the work to be performed and which have been prepared or approved by the City and are referred to in the Contract Documents.
- 1.25 Premises (otherwise known as Site or Work Site) – means the land, buildings, facilities, etc. upon which the Work is to be performed.
- 1.26 Project – The total construction of the Work to be provided as defined in the Contract Documents.
- 1.27 Project Manager - The employee of the City, or other designated individual who is herein referred to as the Project Manager, will assume all duties and responsibilities and will have the rights and authorities assigned to the Project Manager in the contract Documents in connection with completion of the Work in accordance with this Agreement. The Project Manager, or designee, shall be the authorized agent for the City unless otherwise specified.
- 1.28 Punch List - The City's list of Work yet to be done or be corrected by the Contractor, before the Final Completion date can be determined by the City.

- 1.29 Record Documents - A complete set of all specifications, drawings, addenda, modifications, shop drawings, submittals and samples annotated to show all changes made during the construction process.
- 1.30 Record Drawings or "As-Builts" - A set of drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor. These documents will be signed and sealed by a Professional Engineer or a Professional Land Surveyor licensed in the State of Florida, hired by the Contractor at no additional expense to the City.
- 1.31 Substantially Completed Date – A date when the Contractor has requested in writing, stating that the Work is substantially completed and is ready for an inspection and issuance of a final punch list for the Project. The date will be determined by the City after a substantial completion walk-thru has been conducted.
- 1.32 Work – The entire completed delivered product or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating material and equipment into the product, all as required by the Contract Documents.

ARTICLE 2 – SCOPE OF WORK

- 2.1 The Contractor shall complete all work as specified or indicated in the Contract Documents. The Project for which the Work under the Contract Documents may be the whole or only part is generally described as follows:

FORT LAUDERDALE EXECUTIVE AIRPORT
TAXIWAY FOXTROT LIGHTING IMPROVEMENTS
ITB 12161-283 PROJECT 12357

- 2.2 All Work for the Project shall be constructed in accordance with the Drawings and Specifications. The Work generally involves:

PROJECT DESCRIPTION

This project is located at Fort Lauderdale Executive Airport. The work to be accomplished under this contract includes, but is not limited to, replacement of taxiway edge lighting with new LED elevated edge lights, removal and disposal of electrical pull-boxes, installation of junction can plazas, modifications to existing airfield guidance signs, remove and dispose of existing guidance signs and install new LED airfield guidance signs, conduits, and replacing existing cabling.

- 2.3 Within ten (10) days of the execution of this Agreement, the Contractor shall submit a Construction Schedule, Schedule of Values and a listing of those subcontractors that will be utilized by the Contractor. The general sequence of the work shall be submitted by the Contractor and approved by the City before any work commences. The City reserves the right to issue construction directives necessary to facilitate the Work or to minimize any conflict with operations.

ARTICLE 3 – PROJECT MANAGER

- 3.1 The Project Manager is hereby designated by the City as **Fernando Blanco**, whose address is **100 N. Andrews Avenue, 5th Floor, Fort Lauderdale, FL 33301**, telephone number: **(954) 828-6536**, and email address is **fblanco@fortlauderdale.gov**. The Project Manager will assume all duties and responsibilities and will have the rights and authorities assigned to the Project Manager in the Contract Documents in connection with completion of the Work in accordance with this Agreement.

ARTICLE 4 – CONTRACT DOCUMENTS

The Contract Documents which comprise the entire Agreement between the City and Contractor are attached to this Agreement, are made a part hereof and consist of the following:

- 4.1 This Agreement.
- 4.2 The Contract Documents may only be altered, amended, or repealed in accordance with the specific provisions of the terms of this Agreement.
- 4.3 Exhibits to this Agreement: (Plans sheets [] to [] inclusive).
- 4.4 Public Construction Bond, Performance Bond, Payment Bond and Certificates of Insurance.
- 4.5 Notice of Award and Notice to Proceed.
- 4.6 General Conditions as amended by the Special Conditions.
- 4.7 Technical Specifications.
- 4.8 Plans/Drawings.
- 4.9 Addenda number _____ through _____, inclusive.
- 4.10 Bid Form and supplement Affidavits and Agreements.

- 4.11 All applicable provisions of State and Federal Law.
- 4.12 Invitation to Bid No., _____, Instructions to Bidders, and Bid Bond.
- 4.13 Contractor's response to the City's Invitation to Bid No., _____, dated _____.
- 4.14 Schedule of Completion and Schedule of Values.
- 4.15 All amendments, modifications and supplements, change orders and work directive changes issued on or after the Effective Date of the Agreement.
- 4.16 Any additional documents that are required to be submitted under the Agreement.
- 4.17 Permits on file with the City and or those permits to be obtained shall be considered directive in nature and will be considered a part of this Agreement. A copy of all permits shall be given to the City for inclusion in the Contract Documents. Terms of permits shall be met prior to acceptance of the Work and release of the final payment.

In the event of any conflict between the documents or any ambiguity or missing specification or instruction, the following priority is established:

- a. Specific direction from the City Manager (or designee).
- b. Approved change orders, addenda or amendments.
- c. Specifications (quality) and Drawings (location and quantity).
- d. Supplemental conditions or special terms.
- e. General Terms and Conditions.
- f. This Agreement dated _____, and any attachments.
- g. Invitation to Bid No., _____, and the specifications prepared by the City.
- h. Contractor's response to the City's Invitation to Bid No., _____, dated _____.
- i. Schedule of Values.
- j. Schedule of Completion.

If during the performance of the Work, Contractor finds a conflict, error or discrepancy in the Contract Documents, Contractor shall so report to the Project Manager, in writing, at once and before proceeding with the Work affected shall obtain a written interpretation or clarification from the City.

It is the intent of the specifications and plans to describe a complete Project to be constructed in accordance with the Contract Documents. Any Work that may reasonably be inferred from the specifications or plans as being required to produce the intended result shall be supplied whether or not it is specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials, or equipment, such works shall be interpreted in accordance with such meaning. Reference to standard specifications, manuals or codes of any technical society, organization or associations, or to the code of any governmental authority whether such reference be specific or implied, shall mean the latest standard specification, manual or code in effect as of the Effective Date of this Agreement, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of the City, the Contractor, or any of their agents or employees from those set forth in the Contract Documents.

ARTICLE 5 – CONTRACT TIME

- 5.1 The Contractor recognizes that **TIME IS OF THE ESSENCE**. The Work shall commence within **63** calendar days (**45** working days) of the date of the Notice to Proceed. During this period contractor shall submit shop drawings, procure materials, establish staging area, obtain permits, coordinate and attend airfield security/badging classes, and begin mobilization.
- 5.2 The Work shall be Substantially Completed within **102** calendar days (**73** working days) after the date when the Contract Time commences to run as provided in the Notice to Proceed.
- 5.3 The Work shall be finally completed on the Final Completion Date and ready for final payment in accordance with this Agreement within **144** calendar days (**103** working days) after the date when the Contract Time commences to run as provided in the Notice to Proceed.

ARTICLE 6 – CONTRACT PRICE

- 6.1 City shall pay Contractor for performance of the Work in accordance with Article 7, subject to additions and deletions by Change Order, as provided for in this Agreement.

- 6.2 The parties expressly agree that the Contract Price, which shall not exceed the amount of \$_____, constitutes the total maximum compensation payable to Contractor for performing the Work, plus any Work done pursuant to a Change Order. The Contract Price is in accordance with the line item unit prices listed in the Bid. Line items are based on a unit price cost multiplied by a defined quantity. Any additional duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at Contractor's expense without change to the Contract Price.
- 6.3 The Contract Price constitutes the compensation payable to Contractor for performing the Work plus any Work done pursuant to a Change Order. All duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at Contractor's expense without change in the Contract price.

ARTICLE 7 – PAYMENT

- 7.1 Contractor shall submit Applications for Payment in accordance with the Contract Documents. Applications for Payment will be processed by City as provided in the General Conditions.
- 7.2 Progress Payments. City shall make progress payments on account of the Contract Price on the basis of Contractor's monthly Applications for Payment, which shall be submitted by the Contractor between the first (1st) and the tenth (10th) day after the end of each calendar month for which payment is requested. All progress payments will be made on the basis of the progress of the Work completed.
- 7.3 Prior to Final Completion, progress payments will be made in an amount equal to ninety percent (90%) of the value of Work completed less in each case the aggregate of payments previously made.
- 7.4 Final Payment. Upon final completion of the Work in accordance with the General Conditions, as may be supplemented, the City shall pay Contractor an amount sufficient to increase total payments to one-hundred percent (100%) of the Contract Price. However, not less than ten percent (10%) of the Contract Price shall be retained until Record Drawings (as-builts), specifications, addenda, modifications and shop drawings, including all manufacturers' instructional and parts manuals are delivered to and accepted by the City.
- 7.5 City may withhold, in whole or in part, payment to such extent as may be necessary to protect itself from loss on account of:
- 7.5.1 Defective work not remedied.
- 7.5.2 Claims filed or reasonable evidence indicating probable filing of claims by other parties against Contractor or City because of Contractor's performance.

- 7.5.3 Failure of Contractor to make payments properly to Subcontractors or for material or labor.
- 7.5.4 Damage to another contractor not remedied.
- 7.5.5 Liquidated damages and costs incurred by Consultant for extended construction administration, if applicable.
- 7.5.6 Failure of Contractor to provide any and all documents required by the Contract Documents.

When the above grounds are removed or resolved satisfactory to the Project Manager, payment shall be made in whole or in part.

- 7.6 The City shall make payment to the Contractor in accordance with the Florida Prompt Payment Act, Section 218.70, Florida Statutes.
- 7.7 The City shall make payment to the Contractor by check.

ARTICLE 8 – CONTRACTOR’S REPRESENTATIONS

In order to induce the City to enter into this Agreement, Contractor makes the following representations upon which the City has relied:

- 8.1 Contractor is qualified in the field of public construction and in particular to perform the Work and services set forth in this Agreement.
- 8.2 Contractor has visited the Work Site, has conducted extensive tests, examinations and investigations and represents and warrants a thorough familiarization with the nature and extent of the Contract Documents, the Work, locality, soil conditions, moisture conditions and all year-round local weather and climate conditions (past and present), and, in reliance on such tests, examination and investigations conducted by Contractor and the Contractor's experts, has determined that no conditions exist that would in any manner affect the Proposed Price and that the project can be completed for the Proposed Price submitted within the Contract Time as defined in this Agreement. Furthermore, Contractor warrants and confirms that he is totally familiar with, understands and obligates Contractor to comply with all federal, state and local laws, ordinances, rules, regulations and all market conditions that affect or may affect the cost and price of materials and labor needed to fulfill all provisions of this Agreement or that in any manner may affect cost, progress or performance of the Work.
- 8.3 The Contractor has satisfied itself as to the nature and location of the Work under the Contract Documents, the general and local conditions of the Project, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, and roads, the conformation and conditions at the ground based on City provided reports, the type of equipment and facilities needed preliminary to and during the

prosecution of the Work and all other matters which can in any way affect the Work or the cost thereof under the Contract Documents.

- 8.4 The Contractor has also studied carefully all reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Works, and finds and has further determined that no conditions exist that would in any manner affect the Proposed Price and that the project can be completed for the Proposed Price submitted.
- 8.5 Contractor has made or caused to be made examinations, investigations, tests and studies of such reports and related data in addition to those referred to in Paragraphs 8.2, 8.3 and 8.4 above as he deems necessary for the performance of the Work at the Contract Prices, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are, or will be, required by Contractor for such purposes.
- 8.6 Contractor has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.
- 8.7 Contractor has given City written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution by City is acceptable to the Contractor.
- 8.8 Labor
- 8.8.1 The Contractor shall provide competent, suitable qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. The Contractor shall at all times maintain good discipline and order at the site.
- 8.8.2 The Contractor shall, at all times, have a competent superintendent, capable of reading and thoroughly understanding the drawings and specifications, as the Contractor's agent on the Work, who shall, as the Contractor's agent, supervise, direct and otherwise conduct the Work.
- 8.8.3 The Contractor shall designate the superintendent on the job to the City, in writing, immediately after receipt of the Notice to Proceed. The Contractor understands and agrees that the superintendent's physical presence on the job site is indispensable to the successful completion of the Work. If the superintendent is frequently absent from the job site, the Project Manager may deliver written notice to the Contractor to stop work or terminate the Contract in accordance with Article 17.

8.8.4 The Contractor shall assign personnel to the job site that have successfully completed training programs related to trench safety, confined space and maintenance of traffic. A certified "competent person" shall be assigned to the job site. Personnel certified by the International Municipal Signal Associations with Florida Department of Transportation qualifications are required relative to maintenance of traffic. Failure to pursue the Work with the properly certified supervisory staff may result in notice to stop work or terminate the Contract in accordance with Article 17.

8.9 Materials:

8.9.1 The Contractor shall furnish all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities and all other facilities and incidentals necessary for the execution, testing, initial operation and completion of Work.

8.9.2 All material and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. Suppliers shall be selected and paid by the Contractor; the City reserves the right to approve all suppliers and materials.

8.10 Work Hours: Except in connection with the safety or protection of persons, or the Work, or property at the site or adjacent thereto, and except as otherwise indicated in the Supplementary Conditions, all work at the site shall be performed during regular working hours between 7 a.m. and 6:00 p.m., Monday through Friday. The Contractor will not permit overtime work or the performance of work on Saturday, Sunday or any legal holiday (designated by the City of Fort Lauderdale) without the Project Manager's written consent at least seventy-two (72) hours in advance of starting such work. If the Project Manager permits overtime work, the Contractor shall pay for the additional charges to the City with respect to such overtime work. Such additional charges shall be a subsidiary obligation of the Contractor and no extra payment shall be made to the Contractor for overtime work. It shall be noted that the City's Inspector work hours are from 8:00 a.m. to 4:30 p.m. and any work requiring inspection oversight being performed outside of this timeframe shall be paid for by the Contractor as Inspector overtime. The cost to the Contractor to reimburse the City for overtime inspection is established at direct-labor and overtime costs for each person or inspector required. Incidental overtime costs for engineering, testing and other related services will also be charged to the Contractor at the actual rate accrued.

8.11 Patent Fee and Royalties: The Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work, or any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. The Contractor hereby expressly binds himself or itself to indemnify and save harmless the City

from all such claims and fees and from any and all suits and action of every name and description that may be brought against City on account of any such claims, fees, royalties, or costs for any such invention or patent, and from any and all suits or actions that may be brought against said City for the infringement of any and all patents or patent rights claimed by any person, firm corporation or other entity.

- 8.12 Permits: The Contractor shall obtain and pay for all permits and licenses. There shall be no allowance for Contractor markup, overhead or profit for permits and licenses. The Contractor shall pay all government charges which are applicable at the time of opening of proposals. It shall be the responsibility of the Contractor to secure and pay for all necessary licenses and permits of a temporary nature necessary for the prosecution of Work.
- 8.13 Law and Regulations: The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations applicable to the Work. If the Contractor observes that the specifications or plans are at variance therewith, the Contractor shall give the Project Manager prompt written notice thereof, and any necessary changes shall be adjusted by any appropriate modifications. If the Contractor performs any work knowing or having reason to know that it is contrary to such laws, ordinances, rules and regulations, and without such notice to the Project Manager, the Contractor shall bear all costs arising therefrom; however, it shall not be the Contractor's primary responsibility to make certain that the specifications and plans are in accordance with such laws, ordinances, rules and regulations.
- 8.14 Taxes: The Contractor shall pay all sales, consumer, use and other similar taxes required to be paid by him in accordance with the laws of the City of Fort Lauderdale, County of Broward, State of Florida.
- 8.15 Contractor Use of Premises: The Contractor shall confine construction equipment, the storage of materials and equipment and the operations of workmen to areas permitted by law, ordinances, permits and/or the requirements of the Contract Documents, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment.

The Contractor shall not enter upon private property for any purpose without first securing the permission of the property owner in writing and furnishing the Project Manager with a copy of said permission. This requirement will be strictly enforced, particularly with regard to such vacant properties as may be utilized for storage or staging by the Contractor.

The Contractor shall conduct his work in such a manner as to avoid damage to adjacent private or public property. Any damage to existing structures of work of any kind, including permanent reference markers or property corner markers, or

the interruption of a utility service, shall be repaired or restored promptly at no expense to the City or property owner.

The Contractor will preserve and protect all existing vegetation such as trees, shrubs and grass on or adjacent to the site which do not reasonably interfere with the construction, as determined by the Project Manager. The Contractor will be responsible for repairing or replacing any trees, shrubs, lawns and landscaping that may be damaged due to careless operation of equipment, stockpiling of materials, tracking of grass by equipment or other construction activity. The Contractor will be liable for, or will be required to replace or restore at no expense to the City all vegetation not protected or preserved as required herein that may be destroyed or damaged.

During the progress of the work, the Contractor shall keep the premises free from accumulations of waste materials, rubbish and debris resulting from the Work. At the completion of the Work, the Contractor shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials and shall leave the site clean and ready for occupancy by the City. The Contractor shall restore to their original condition those portions of the site not designated for alteration by the Contract Documents at no cost to the City.

- 8.16 Project Coordination: The Contractor shall provide for the complete coordination of the construction effort. This shall include, but not necessarily be limited to, coordination of the following:

8.16.1 Flow of material and equipment from suppliers.

8.16.2 The interrelated work with affected utility companies.

8.16.3 The interrelated work with the City where tie-ins to existing facilities are required.

8.16.4 The effort of independent testing agencies.

8.16.5 Notice to affected property owners as may be directed by the Project Manager.

- 8.17 Project Record Documents and Final As-Builts (Record Drawings): Contractor shall be responsible for maintaining up-to-date redline as-built drawings, on site, at all times during construction. All as-built information shall be surveyed and verified by a professional land surveyor registered in the State of Florida. Contractor shall provide the City with a minimum of three (3) sets of signed and sealed record drawings (Final As-Builts) and a CD of the electronic drawings files created in AutoCad 2014 or later. All costs associated with survey work required for construction layout and as-built preparation shall be the responsibility of the Contractor.

- 8.18 Safety and Protection:

8.18.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

- 8.18.1.1 All employees working on the project and other persons who may be affected thereby.
- 8.18.1.2 All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site.
- 8.18.1.3 Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

8.18.2 The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. The Contractor shall notify owners of adjacent property and utilities when execution of the Work may affect them at least seventy-two (72) hours in advance (unless otherwise required). All damage, injury or loss to any property caused, directly or indirectly, in whole or in part by the Contractor, any subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by the Contractor. The Contractor's duties and responsibilities for safety and protection of the Work shall continue until such time as all the Work is completed and accepted by the City.

8.19 Emergencies: In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the City is obligated to act to prevent threatened damage, injury or loss. The Contractor shall give the Project Manager prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby.

8.20 Risk of Loss: The risk of loss, injury or destruction shall be on the Contractor until acceptance of the Work by the City. Title to the Work shall pass to the City upon acceptance of the Work by the City.

8.21 Environmental: The Contractor has fully inspected the Premises and agrees, except as to the presence of any asbestos, to accept the Premises in an "as is" physical condition, without representation or warranty by the City of any kind, including, without limitation, any and all existing environmental claims or obligations that may arise from the presence of any "contamination" on, in or about the Premises. Further, Contractor and all entities claiming by, through or

under the Contractor, releases and discharges the City, from any claim, demand, or cause of action arising out of or relating to the Contractor's use, handling, storage, release, discharge, treatment, removal, transport, decontamination, cleanup, disposal and/or presence of any hazardous substances including asbestos on, under, from or about the Premises. The Contractor shall have no liability for any pre-existing claims or "contamination" on the Premises.

The Contractor shall not use, handle, store, discharge, treat, remove, transport, or dispose of Hazardous Substances including asbestos at, in, upon, under, to or from the Premises until receipt of instructions from the City. At such time, a City approved Change Order, which shall not include any profit, shall authorize the Contractor to perform such services.

The Contractor shall immediately deliver to the Project Manager complete copies of all notices, demands, or other communications received by the Contractor from any governmental or quasi-governmental authority or any insurance company or board of fire underwriters or like or similar entities regarding in any way alleged violations or potential violations of any Environmental Law or otherwise asserting the existence or potential existence of any condition or activity on the Premises which is or could be dangerous to life, limb, property, or the environment.

For other and additional consideration, the Contractor hereby agrees, at its sole cost and expense, to indemnify and protect, defend, and hold harmless the City and its respective employees, agents, officials, officers, representatives, contractors and subcontractors, successors, and assigns (hereafter the "City") from and against any and all claims, demands, losses, damages, costs, expenses, including but not limited to mitigation, restoration, and natural restoration expenses, liabilities, assessments, fines, penalties charges, administrative and judicial proceedings and orders, judgments, causes of action, in law or in equity, remedial action requirements and/or enforcement actions of any kind (including, without limitation, attorneys' fees and costs) directly or indirectly arising out of or attributable to, in whole or in part, the Contractor's use, handling, storage, release, threatened release, discharge, treatment, removal, transport, decontamination, cleanup, disposal and/or presence of a Hazardous Substance (excluding asbestos) on, under, from, to or about the Premises or any other activity carried on or undertaken on or off the Premises by the Contractor or its employees, agents or subcontractors, in connection with the use, handling, storage, release, threatened release, discharge, treatment, mitigation, natural resource restoration, removal, transport, decontamination, cleanup, disposal and/or presence or any Hazardous Substance including asbestos located, transported, or present on, under, from, to, or about the Premises. This indemnity is intended to be operable under 42 U.S.C. sections 9607, as amended, and any successor section.

The scope of the indemnity obligations includes, but is not limited to: (a) all consequential damages; (b) the cost of any required or necessary repair, cleanup, or detoxification of the applicable real estate and the preparation and implementation of any closure, remedial or other required plan, including without limitation; (i) the costs of removal or remedial action incurred by the United States government or the State of Florida or response costs incurred by any other person, or damages from injury to destruction of, or loss of, natural resources, including the cost of assessing such injury, destruction, or loss, incurred pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, as amended; (ii) the clean-up costs, fines, damages, or penalties incurred pursuant to any applicable provisions of Florida law; and (iii) the cost and expenses of abatement, correction or cleanup, fines, damages, response costs, or penalties which arise from the provisions of any other statute, law, regulation, code ordinance, or legal requirement state or federal; and (c) liability for personal injury or property damage arising under any statutory or common law tort theory, including damages assessed for the maintenance of a public private nuisance, response costs, or for the carrying on of an abnormally dangerous activity.

8.22 No Extended Damages: For other and additional good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Contractor covenants and agrees that in the event of any delay of construction or for any other reason or allegation or claim, and notwithstanding the reason of the delay, reason, claim or allegation or who caused them or the construction delay or whether they were caused by the City, that there will be no entitlement to Contractor to or for any direct or indirect financial damages or losses for extended corporate overhead impact, extended project overhead impacts, project support services, mobilization or demobilization or by whatever other label or legal concept or theory and types of names or labels or basis such claims may have, or any business damages or losses of whatever type or nature, and Contractor hereby waives any right to make any such claim or claims. This provision will have application and effect when construction delays are anticipated and agreed upon by both the City and the Contractor.

8.23 No Liens: If any Subcontractor, supplier, laborer, or materialmen of Contractor or any other person directly or indirectly acting for or through Contractor files or attempts to file a mechanic's or construction lien against the real property on which the work is performed or any part or against any personal property or improvements or claim against any monies due or to become due from the City to Contractor or from Contractor to a Subcontractor, for or on account of any work, labor, services, material, equipment, or other items furnished in connection with the Work or any Change Order, Contractor agrees to satisfy, remove, or discharge such lien or claim at its own expense by bond, payment, or otherwise within twenty (20) days of the filing or from receipt of written notice from the City.

Additionally, until such time as such lien or claim is satisfied, removed or discharged by Contractor, all monies due to Contractor, or that become due to Contractor before the lien or claim is satisfied, removed or otherwise discharged, shall be held by City as security for the satisfaction, removal and discharge of such lien and any expense that may be incurred while obtaining such. If Contractor shall fail to do so, City shall have the right, in addition to all other rights and remedies provided by this Agreement or by law, to satisfy, remove, or discharge such lien or claim by whatever means City chooses at the entire and sole cost and expense of Contractor which costs and expenses shall, without limitation, include attorney's fees, litigation costs, fees and expenses and all court costs and assessments.

- 8.24 Weather Emergencies: Upon issuance of a Hurricane Watch by the National Weather Service, the Contractor shall submit to the City a plan to secure the work area in the event a Hurricane Warning is issued. The plan shall detail how the Contractor will secure the Premises, equipment and materials in a manner as to prevent damage to the Work and prevent materials and equipment from becoming a hazard to persons and property on and around the Premises. The plan shall include a time schedule required to accomplish the hurricane preparations and a list of emergency contacts that will be available and in the City before, during and immediately after the storm.

Upon issuance of a Hurricane Warning by the National Weather Service, if the Contractor has not already done so, the Contractor shall implement its hurricane preparedness plan. Cost of development and implementation of the hurricane preparedness plan shall be considered as incidental to construction. Cost of any clean up and rework required after the storm will be considered normal construction risk within Florida and shall not entitle the Contractor to any additional compensation. Contractor shall be entitled to request an extension in time for completion of the Work, in accordance with the provisions of Article 15 of this Agreement, equal to the time he is shut down for implementation of the preparedness plan, the duration of the storm and a reasonable period to restore the Premises.

- 8.25 Force Majeure: No Party shall hold the other responsible for damages or for delays in performance caused by force majeure, acts of God, or other acts or circumstances beyond the control of the other party or that could not have been reasonably foreseen and prevented. For this purposes, such acts or circumstances shall include, but not be limited to weather conditions affecting performance, floods, epidemics, war, riots, strikes, lockouts, or other industrial disturbances, or protest demonstrations. Should such acts or circumstances occur, the parties shall use their best efforts to overcome the difficulties arising therefrom and to resume the Work as soon as reasonably possible with the normal pursuit of the Work.

Inclement weather, continuous rain for less than three (3) days or the acts or omissions of subcontractors, third-party contractors, materialmen, suppliers, or their subcontractors, shall not be considered acts of force majeure.

No Party shall be liable for its failure to carry out its obligations under the Agreement during a period when such Party is rendered unable by force majeure to carry out its obligation, but the obligation of the Party or Parties relying on such force majeure shall be suspended only during the continuance of the inability and for no longer period than the unexpected or uncontrollable event.

The Contractor further agrees and stipulates, that its right to excuse its failure to perform by reason of force majeure shall be conditioned upon giving written notice of its assertion that a Force Majeure delay has commenced within 96 hours after such an occurrence. The CONTRACTOR shall use its reasonable efforts to minimize such delays. The CONTRACTOR shall promptly provide an estimate of the anticipated additional time required to complete the Project.

- 8.26 Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assisted Contracts: The recipient shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any DOT-assisted contract or in the administration of its DBE program or the requirements of 49 CFR part 26. The recipient shall take all necessary and reasonable steps under 49 CFR part 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts. The recipient's DBE program, as required by 49 CFR part 26 and as approved by DOT, is incorporated by reference in this agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the recipient of its failure to carry out its approved program, the Department may impose sanctions as provided for under Part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. 3801 *et seq.*).

Additionally, the contractor assures that they, the sub recipient or the subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate. (This additional language must be included in each subcontract the prime contractor signs with a subcontractor.)

ARTICLE 9 – CITY’S RESPONSIBILITIES

- 9.1 The City shall furnish the data required of the City under the Contract Documents promptly and shall make payments to the Contractor promptly after they are due as provided in Article 7.
- 9.2 The City's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in the Contract Documents.
- 9.3 Technical Clarifications and Interpretations:
- 9.3.1 The City shall issue, with reasonable promptness, such written clarifications or interpretations of the Contract Documents as it may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. Should the Contractor fail to request interpretation of questionable items in the Contract Documents, the City shall not entertain any excuse for failure to execute the Work in a satisfactory manner.
- 9.3.2 The City shall interpret and decide matters concerning performance under the requirements of the Contract Documents, and shall make decisions on all claims, disputes or other matters in question. Written notice of each claim, dispute or other matter will be delivered by claimant to the other Party but in no event later than five (5) days after the occurrence of event, and written supporting data will be submitted to the other Party within five (5) days after such occurrence. All written decisions of the City on any claim or dispute will be final and binding.
- 9.4 The Contractor shall perform all Work to the reasonable satisfaction of the City in accordance with the Contract Documents. In cases of disagreement or ambiguity, the City shall decide all questions, difficulties, and disputes of whatever nature, which may arise under or by reason of this Agreement or the quality, amount and value of the Work, and the City's decisions on all claims, questions and determination are final.

ARTICLE 10 – BONDS AND INSURANCE

- 10.1 Public Construction and Other Bonds: The Contractor shall furnish Public Construction or Performance and Payment Bonds ("Bond"), each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all the Contractor's obligations under the Contract Documents. These Bonds shall remain in effect until at least one (1) year after the date of final payment, except as otherwise provided by law. All Bonds shall be furnished and provided by the surety and shall be in substantially the same form as prescribed by the Contract Documents and be executed by such sureties as (i) are licensed to conduct business in the State of Florida, and (ii) are named in the current list of Companies Holding Certificates of Authority as Acceptable Sureties

on Federal Bonds and as Acceptable Reinsuring Companies as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department and (iii) otherwise meet the requirements set forth herein that apply to sureties. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.

10.1.1 Performance Bond: The Contractor shall execute and record in the public records of Broward County, Florida, a payment and performance bond in an amount at least equal to the Contract Price with a surety insurer authorized to do business in the State of Florida as surety, ("Bond"), in accordance with Section 255.05, Florida Statutes (2014), as may be amended or revised, as security for the faithful performance and payment of all of the Contractor's obligations under the Contract Documents.

A Corporate Surety Bond legally issued, meeting the approval of, and running to the City in an amount not less than the Contract Price of such improvements, conditioned that the Contractor shall maintain and make all repairs to the improvements constructed by the Contractor at their own expense and free of charge to the City, for the period of one (1) year after the date of acceptance of the Work within such period by reason of any imperfection of the material used or by reason of any defective workmanship, or any improper, imperfect or defective preparation of the base upon which any such improvement shall be laid.

10.2 Disqualification of Surety: If the Surety on any Bond furnished by the Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in the State of Florida or it ceases to meet the requirements of clauses (i) and (ii) of Paragraph 10.1, the Contractor shall within five (5) days thereafter substitute another Bond and Surety, both of which shall be acceptable to the City.

10.3 Insurance

As a condition precedent to the effectiveness of this Agreement, during the term of this Agreement and during any renewal or extension term of this Agreement, the Contractor, at the Contractor's sole expense, shall provide insurance of such types and with such terms and limits as noted below. Providing proof of and maintaining adequate insurance coverage are material obligations of the Contractor. The Contractor shall provide the City a certificate of insurance evidencing such coverage. The Contractor's insurance coverage shall be primary insurance for all applicable policies. The limits of coverage under each policy maintained by the Contractor shall not be interpreted as limiting the Contractor's liability and obligations under this Agreement. All insurance policies shall be from insurers authorized to write insurance policies in the State of Florida and that possess an A.M. Best rating of A-, VII or better. All insurance policies are subject to approval by the City's Risk Manager.

The coverages, limits, and endorsements required herein protect the interests of the City, and these coverages, limits, and endorsements may not be relied upon by the

Contractor for assessing the extent or determining appropriate types and limits of coverage to protect the Contractor against any loss exposure, whether as a result of this Agreement or otherwise. The requirements contained herein, as well as the City's review or acknowledgement, are not intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by the Contractor under this Agreement.

The following insurance policies and coverages are required:

Commercial General Liability

Coverage must be afforded under a Commercial General Liability policy with limits not less than:

- \$1,000,000 each occurrence and \$2,000,000 aggregate for Bodily Injury, Property Damage, and Personal and Advertising Injury
- \$1,000,000 each occurrence and \$2,000,000 aggregate for Products and Completed Operations

Policy must include coverage for Contractual Liability and Independent Contractors.

The City and the City's officers, employees, and volunteers are to be covered as additional insureds with a CG 20 26 04 13 Additional Insured – Designated Person or Organization Endorsement or similar endorsement providing equal or broader Additional Insured Coverage with respect to liability arising out of activities performed by or on behalf of the Contractor. The coverage shall contain no special limitation on the scope of protection afforded to the City or the City's officers, employees, and volunteers.

Business Automobile Liability

Coverage must be afforded for all Owned, Hired, Scheduled, and Non-Owned vehicles for Bodily Injury and Property Damage in an amount not less than \$1,000,000 combined single limit each accident.

If the Contractor does not own vehicles, the Contractor shall maintain coverage for Hired and Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

Workers' Compensation and Employer's Liability

Coverage must be afforded per Chapter 440, Florida Statutes. Any person or entity performing work for or on behalf of the City must provide Workers' Compensation insurance. Exceptions and exemptions will be allowed by the City's Risk Manager, if they are in accordance with Florida Statute.

The Contractor waives, and the Contractor shall ensure that the Contractor's insurance carrier waives, all subrogation rights against the City and the City's officers, employees, and volunteers for all losses or damages. The City requires the policy to be endorsed with WC 00 03 13 Waiver of our Right to Recover from Others or equivalent.

The Contractor must be in compliance with all applicable State and federal workers' compensation laws, including the U.S. Longshore Harbor Workers' Act and the Jones Act, if applicable.

Crane and Rigging Liability

Coverage must be afforded for any crane operations under the Commercial General or Business Automobile Liability policy as necessary, in line with the limits of the associated policy.

Umbrella/Excess Liability:

The Contractor shall provide umbrella/excess coverage with limits of no less than \$2,000,000 excess of Commercial General Liability, Automobile Liability and Employer's Liability.

Professional Liability and/or Errors and Omissions

Coverage must be afforded for Wrongful Acts in an amount not less than \$1,000,000 each claim and \$2,000,000 aggregate.

Contractor must keep insurance in force until the third anniversary of expiration of this Agreement or the third anniversary of acceptance of work by the City.

Property Coverage (Builder's Risk)

Coverage must be afforded in an amount not less than 100% of the total project cost, including soft costs, with a deductible of no more than \$25,000 each claim. Coverage form shall include, but not be limited to:

- All Risk Coverage including Flood and Windstorm with no coinsurance clause
- Guaranteed policy extension provision
- Waiver of Occupancy Clause Endorsement, which will enable the City to occupy the facility under construction/renovation during the activity
- Storage and transport of materials, equipment, supplies of any kind whatsoever to be used on or incidental to the project
- Equipment Breakdown for cold testing of all mechanized, pressurized, or electrical equipment

This policy shall insure the interests of the owner, contractor, and subcontractors in the property against all risk of physical loss and damage, and name the City as a loss payee. This insurance shall remain in effect until the work is completed and the property has been accepted by the City.

Insurance Certificate Requirements

- j. The Contractor shall provide the City with valid Certificates of Insurance (binders are unacceptable) no later than thirty (30) days prior to the start of work contemplated in this Agreement.
- k. The Contractor shall provide to the City a Certificate of Insurance having a thirty (30) day notice of cancellation; ten (10) days' notice if cancellation is for nonpayment of premium.
- l. In the event that the insurer is unable to accommodate the cancellation notice requirement, it shall be the responsibility of the Contractor to provide the proper notice. Such notification will be in writing by registered mail, return receipt requested, and addressed to the certificate holder.
- m. In the event the Agreement term goes beyond the expiration date of the insurance policy, the Contractor shall provide the City with an updated Certificate of Insurance no later than ten (10) days prior to the expiration of the insurance currently in effect. The City reserves the right to suspend the Agreement until this requirement is met.

- n. The Certificate of Insurance shall indicate whether coverage is provided under a claims-made or occurrence form. If any coverage is provided on a claims-made form, the Certificate of Insurance must show a retroactive date, which shall be the effective date of the initial contract or prior.
- o. The City shall be named as an Additional Insured on all liability policies, with the exception of Workers' Compensation.
- p. The City shall be granted a Waiver of Subrogation on the Contractor's Workers' Compensation insurance policy.
- q. The title of the Agreement, Bid/Contract number, event dates, or other identifying reference must be listed on the Certificate of Insurance.

The Certificate Holder should read as follows:

City of Fort Lauderdale
100 N. Andrews Avenue
Fort Lauderdale, FL 33301

The Contractor has the sole responsibility for the payment of all insurance premiums and shall be fully and solely responsible for any costs or expenses as a result of a coverage deductible, co-insurance penalty, or self-insured retention; including any loss not covered because of the operation of such deductible, co-insurance penalty, self-insured retention, or coverage exclusion or limitation. Any costs for adding the City as an Additional Insured shall be at the Contractor's expense.

If the Contractor's primary insurance policy/policies do not meet the minimum requirements, as set forth in this Agreement, the Contractor may provide evidence of an Umbrella/Excess insurance policy to comply with this requirement.

The Contractor's insurance coverage shall be primary insurance as applied to the City and the City's officers, employees, and volunteers. Any insurance or self-insurance maintained by the City covering the City, the City's officers, employees, or volunteers shall be non-contributory.

Any exclusion or provision in the insurance maintained by the Contractor that excludes coverage for work contemplated in this Agreement shall be unacceptable and shall be considered breach of contract.

All required insurance policies must be maintained until the contract work has been accepted by the City, or until this Agreement is terminated, whichever is later. Any lapse in coverage shall be considered breach of contract. In addition, Contractor must provide to the City confirmation of coverage renewal via an updated certificate should any policies expire prior to the expiration of this Agreement. The City reserves the right to review, at any time, coverage forms and limits of Contractor's insurance policies.

The Contractor shall provide notice of any and all claims, accidents, and any other occurrences associated with this Agreement shall be provided to the Contractor's insurance company or companies and the City's Risk Management office as soon as practical.

It is the Contractor's responsibility to ensure that any and all of the Contractor's independent contractors and subcontractors comply with these insurance requirements. All coverages for independent contractors and subcontractors shall be subject to all of

the applicable requirements stated herein. Any and all deficiencies are the responsibility of the Contractor.

NOTE: CITY PROJECT NUMBER AND NAME MUST APPEAR ON EACH CERTIFICATE, AND THE CITY OF FORT LAUDERDALE MUST BE NAMED ON THE CERTIFICATE AS AN "ADDITIONAL INSURED".

The Contractor shall be responsible for assuring that the insurance certificates required in conjunction with this Section remain in force for the duration of the Project. If insurance certificates are scheduled to expire during the contractual period, the Contractor shall be responsible for submitting new or renewed insurance certificates to the City at a minimum of thirty (30) calendar days in advance of such expiration. In the event that expired certificates are not replaced with new or renewed certificates that cover the contractual period, the City shall:

- A. Suspend the Agreement until such time as the new or renewed certificates are received by the City.
- B. The City may, at its sole discretion, terminate the Agreement for cause and seek damages from the Contractor in conjunction with the violation of the terms and conditions of the Agreement.

ARTICLE 11- WARRANTY AND GUARANTEE, TESTS AND INSPECTIONS, CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

11.1 Warranty: The Contractor warrants and guarantees to the City that all Work will be in accordance with the Contract Documents and will not be defective. Prompt notice of all defects shall be given to the Contractor. All defective work, whether or not in place, may be rejected, corrected or accepted as provided in this Article.

11.1.1 Warranty of Title: The Contractor warrants to the City that it possesses good, clear and marketable title to all equipment and materials provided and that there are no pending liens, claims or encumbrances against the equipment and materials.

11.1.2 Warranty of Specifications: The Contractor warrants that all equipment, materials and workmanship furnished, whether furnished by the Contractor, its subcontractors or suppliers, will comply with the specifications, drawings and other descriptions supplied or adopted and that all services will be performed in a workmanlike manner.

11.1.3 Warranty of Merchantability: The Contractor warrants that any and all equipment to be supplied pursuant to this Agreement is merchantable, free from defects, whether patent or latent in material or workmanship, and fit for the ordinary purposes for which it is intended.

- 11.2 Tests and Inspections: Contractor shall retain the services of an independent, certified, testing lab to perform all testing as required by the specifications, Contract drawings, and any applicable permitting agency. Contractor shall provide evidence of certification to the City before the work and testing is done. Testing results shall be submitted to the Engineer for review and approval at the time the results are provided to the Contractor. The Contractor shall give the Project Manager and City Inspector a minimum of twenty-four (24) hours' advanced notice of readiness of the Work for all required inspections, tests, or approvals and shall notify all applicable permitting agencies in a timely manner based on requirements set forth in the permit documents.

11.2.1 Neither observations by the Project Manager nor inspections, tests or approvals by others shall relieve the Contractor from its obligations to perform the Work in accordance with the Contract Documents.

- 11.3 Uncovering Work: If any work that is to be inspected, tested or approved is covered without approval or consent of the Project Manager, it must, if requested by the Project Manager, be uncovered for observation and/or testing. Such uncovering and replacement shall be at the Contractor's sole expense unless the Contractor has given the Project Manager timely notice of the Contractor's intention to cover such Work and the Project Manager has not acted with reasonable promptness in response to such notice.

11.3.1 If the Project Manager considers it necessary or advisable that Work covered in accordance with Paragraph 11.2.1, 11.2.2 and 11.2.3 be observed by the City or inspected or tested by others, the Contractor at the City's request, shall uncover, expose or otherwise make available for observation, inspection or testing as the Project Manager may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, the Contractor shall bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate deductive Change Order shall be issued. If, however, such work is not found to be defective, the Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection testing and reconstruction if he makes a claim therefore as provided in Articles 14 and 15.

- 11.4 City May Stop the Work: If the Work is defective, or the Contractor fails to supply sufficient skilled supervisory personnel or workmen or suitable materials or equipment or the work area is deemed unsafe, the City may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of the City to stop the Work shall not give rise to any duty on the part of the City to exercise this right for the benefit of the

Contractor or any other party. The City will not award any increase in Contract Price or Contract Time if the Work is stopped due to the circumstances described herein.

- 11.5 Correction or Removal of Defective Work Before Final Payment: If required by the Project Manager, the Contractor shall promptly, without cost to the City and as Specified by the Project Manager, either correct any defective Work, whether or not fabricated, installed or completed, or if the Work has been rejected by the City remove it from the site and replace it with non-defective Work.

- 11.6 One Year Correction Period After Final Payment: If within one (1) year after the date of final acceptance, or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any work is found to be defective, the Contractor shall promptly, without cost to the City and in accordance with the City's written instructions, either correct such defective Work, or, if it has been rejected by the City, remove it from the site and replace it with non-defective Work.

If The Contractor does not promptly comply with the terms of such instructions or in an emergency where delay would cause serious risk of loss or damage, the City may have the defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs for such removal and replacement, including compensation for additional professional services, shall be paid by the Contractor.

- 11.7 Acceptance of Defective Work, Deductions: If, instead of requiring correction or removal and replacement of defective Work, the City, at the city's sole option, prefers to accept it, the City may do so. In such a case, if acceptance occurs prior to the Project Manager's recommendation of final payments, a Change Order shall be issued incorporating the necessary revisions in the Contracts Documents, including appropriate reduction in the Contract Price; or if the acceptance occurs after such recommendation, an appropriate amount shall be paid by the Contractor to the City.

- 11.8 City May Correct Defective Work: If the Contractor fails within a reasonable time after written notice of the Project Manager to proceed to correct defective Work or to remove and replace rejected Work as required by the Project Manager in accordance with Paragraph 11.5, or if the Contractor fails to perform the Work in accordance with the Contract Documents, the City may, after seven (7) days written notice to the Contractor, correct and remedy any such deficiency. In exercising its rights under this paragraph, the City shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, the City may exclude the Contractor from all or part of the site, take possession of all or part of the Work, suspend the Contractor's services related thereto and take possession of the Contractor's tools, construction equipment and materials stored at the site or elsewhere. The Contractor shall allow the City's representative agents and

employees such access to the site as may be necessary to enable the City to exercise its rights under this paragraph. All direct and indirect costs of the City in exercising such rights shall be charged against the Contractor in an amount verified by the Project Manager, and a Change Order shall be issued incorporating the necessary revisions in the Contract Documents and a reduction in the Contract Price. Such direct and indirect costs shall include, in particular but without limitation, compensation for additional professional services required and costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of the Contractor's defective Work. The Contractor shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by the City of the City's right hereunder.

ARTICLE 12 – INDEMNIFICATION

12.1 Disclaimer of Liability: The City shall not at any time, be liable for injury or damage occurring to any person or property from any cause, whatsoever, arising out of Contractor's construction and fulfillment of this agreement.

12.2 Indemnification: For other, additional good valuable consideration, the receipt and sufficiency of which is hereby acknowledged:

12.2.1 Contractor shall, at its sole cost and expense, indemnify and hold harmless the City, its representatives, employees and elected and appointed officials from or on account of all claims, damages, losses, liabilities and expenses, direct, indirect or consequential including but not limited to fees and charges of engineers, architects, attorneys, consultants and other professionals and court costs arising out of or in consequence of the performance of this Agreement at all trial and appellate levels. Indemnification shall specifically include but not be limited to claims, damages, losses, liabilities and expenses arising out of or from (a) the negligent or defective design of the project and Work of this Agreement; (b) any act, omission or default of the Contractor, its Subcontractors, agents, servants or employees; (c) any and all bodily injuries, sickness, disease or death; (d) injury to or destruction of tangible property, including any resulting loss of use; (e) other such damages, liabilities, or losses received or sustained by any person or persons during or on account of any operations connected with the construction of this Project including the warranty period; (f) the use of any improper materials; (g) any construction defect including both patent and latent defects; (h) failure to timely complete the work; (i) the violation of any federal, state, county or city laws, ordinances or regulations by Contractor, its subcontractors, agents, servants, independent contractors or employees; (j) the breach or alleged breach by Contractor of any term of the Agreement, including the breach or alleged breach of any warranty or guarantee.

12.2.2 Contractor agrees to indemnify, defend, save and hold harmless the City, its officers, agents and employees, from all damages, liabilities, losses, claims, fines and fees, and from any and all suits and actions of every name and description that may be brought against City, its officers, agents and employees, on account of any claims, fees, royalties, or costs for any invention or patent and/or for the infringement of any and all copyrights or patent rights claimed by any person, firm, or corporation.

12.2.3 Contractor shall pay all claims, losses, liens, settlements or judgments of any nature in connection with the foregoing indemnifications including, but not limited to, reasonable attorney's fees and costs for trials and appeals.

12.2.4 If any Subcontractor, supplier, laborer, or materialmen of Contractor or any other person directly or indirectly acting for or through Contractor files or attempts to file a mechanic's or construction lien against the real property on which the work is performed or any part or against any personal property or improvements thereon or make a claim against any monies due or to become due from the City to Contractor or from Contractor to a Subcontractor, for or on account of any work, labor, services, material, equipment, or other items furnished in connection with the Work or any change order, Contractor agrees to satisfy, remove, or discharge such lien or claim at its own expense by bond, payment, or otherwise within five (5) days of the filing or from receipt of written notice from the City.

Additionally, until such time as such lien or claim is satisfied, removed or discharged by Contractor, all monies due to Contractor, or that become due to Contractor before the lien or claim is satisfied, removed or otherwise discharged, shall be held by City as security for the satisfaction, removal and discharge of such lien and any expense that may be incurred while obtaining the discharge. If Contractor shall fail to do so, City shall have the right, in addition to all other rights and remedies provided by this Agreement or by law, to satisfy, remove, or discharge such lien or claim by whatever means City chooses at the entire and sole cost and expense of Contractor which costs and expenses shall, without limitation, include attorney's fees, litigation costs, fees and expenses and all court costs and assessments, and which shall be deducted from any amount owing to Contractor. In the event the amount due Contractor is less than the amount required to satisfy Contractor's obligation under this, or any other article, paragraph or section of this Agreement, the Contractor shall be liable for the deficiency due the City.

12.2.5 The Contractor and the City agree that Section 725.06(2), Florida Statutes controls the extent and limits of the indemnification and hold harmless

provisions of this Agreement, if any, and that the parties waive any defects in the wording of this Article that runs afoul of said statutory section.

ARTICLE 13 – CHANGES IN THE WORK

- 13.1 Without invalidating this Agreement, the City may, at any time or from time to time order additions, deletions or revisions in the Work through the issuance of Change Orders. Upon receipt of a Change Order, the Contractor shall proceed with the Work involved. All Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided in Article 14 or Article 15 on the basis of a claim made by either Party.
- 13.2 The Project Manager may authorize minor changes in the work not involving an adjustment in the Contract Price or the Contract Time, which are consistent with the overall intent of the Contract Documents. Such changes must be in writing and signed by the City and the Contractor.
- 13.3 If notice of any change affecting the general scope of the Work or change in the Contract Price is required by the provisions of any Bond to be given to the Surety, it will be the Contractor's responsibility to so notify the Surety, and the amount of each applicable Bond shall be adjusted accordingly. The Contractor shall furnish proof of such adjustment to the City.

ARTICLE 14 – CHANGE OF CONTRACT PRICE

Change of Contract Price, approved by City, shall be computed as follows:

- 14.1 Cost of the Work: The term "Cost of the Work" means the sum of all direct costs necessarily incurred and paid by Contractor in the proper performance of the Work.

Except as otherwise may be agreed to in writing by the City, these costs shall be in amounts no higher than those prevailing in the City and shall include only the following items and shall not include any of the costs itemized in Paragraph 14.3:

- 14.1.1 Payroll costs for employees in the direct employ of the Contractor in the performance of the Work under schedules of job classifications agreed upon by the City and the Contractor. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus and cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, worker's compensation, health and retirement benefits, bonuses, sick leave, vacation and applicable holiday pay.

14.1.2 Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage, and required suppliers and field services. All cash discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to the City, and the Contractor shall make provisions so that they may be obtained.

14.1.3 Supplemental costs including the following:

- 14.1.3.1 Cost, including transportation and maintenance of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work.
- 14.1.3.2 Rentals of all construction equipment and machinery and the parts whether rented from the Contractor or others in accordance with rental agreements approved by the City, and the costs of transporting, loading, unloading, installation, dismantling and removal. The rental of any such equipment, machinery or parts shall cease when the use is no longer necessary for the Work.
- 14.1.3.3 Sales, consumer, use or similar taxes related to the Work and for which the Contractor is liable, imposed by laws and regulations.
- 14.1.3.4 Royalty payments and fees for permits and licenses.
- 14.1.3.5 The cost of utilities, fuel and sanitary facilities at the Work site.
- 14.1.3.6 Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.
- 14.1.3.7 Cost of premiums for additional bonds and insurance required because of changes in the Work.

14.2 The Contract Price may only be increased by a Change Order when Work is modified in accordance with Article 13 and approved by the City in writing. Any claim for an increase in the Contract Price resulting from a Change Order shall be based on written notice delivered to the Project Manager within ten (10) days of the occurrence of the Change Order giving rise to the claim. Notice of the amount of the claim with supporting data shall be included in the Change Order and delivered within twenty (20) days of such occurrence unless Project Manager allows an additional period of time to ascertain accurate cost data. Any change in

the Contract Price resulting from any such claim shall be incorporated in the Change Order. **IT IS EXPRESSLY AND SPECIFICALLY AGREED THAT ANY AND ALL CLAIMS FOR CHANGES TO THE CONTRACT PRICE SHALL BE WAIVED IF NOT SUBMITTED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION.**

14.3 Not Included in the Cost of the Work: The term “cost of the Work” shall not include any of the following:

14.3.1 Payroll costs and other compensation of the Contractor’s officers executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditor, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by the Contractor whether at the site or in the Contractor’s principal or branch office for general administration of the work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 14.1.1, all of which are to be considered administrative costs covered by the Contractor’s fee.

14.3.2 Expenses of the Contractor’s principal and branch offices other than the Contractor’s office at the site.

14.3.3 Any part of the Contractor’s capital expenses, including interest on the Contractor’s capital employed for the Work and charges against the Contractor for delinquent payments.

14.3.4 Cost of premiums for all bonds and for all insurance whether or not the Contractor is required by the Contract Documents to purchase and maintain the same.

14.3.5 Costs due to the negligence of the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

14.3.6 Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 14.1

14.4 Basis of Compensation: The Contractor’s compensation, allowed to the Contractor for overhead and profit, shall be determined as follows:

14.4.1 A mutually acceptable negotiated fee:

14.4.1.1 For costs incurred under Paragraphs 14.1.1 and 14.1.2, the Contractor’s fee shall not exceed five percent (5%).

14.4.1.2 No fee shall be payable on the basis of costs itemized under Paragraphs 14.1.3.1, 14.1.3.2, 14.1.3.3, 14.1.3.4, 14.1.3.5, 14.1.3.6, 14.1.3.7, 14.3.1, 14.3.2, 14.3.3, 14.3.4, 14.3.5 and 14.3.6.

14.4.1.3 The amount of credit to be allowed by the Contractor to the City for any such change which results in a net decrease plus a deduction in the Contractor's fee by an amount equal to five percent (5%) for the net decrease.

14.4.1.4 When both additions and credits are involved in any one change the combined overhead and profit shall be figured on the basis of net increase if any, however, not to exceed five percent (5%) of the agreed compensation. Profit will not be paid on any Work not performed.

14.5 Cost Breakdown Required: Whenever the cost of any Work is to be determined pursuant to this Article, the Contractor will submit in form acceptable to the City an itemized cost breakdown together with supporting documentation. Whenever a change in the Work is to be based upon mutual acceptance of a lump sum, whether the amount is an addition, credit, or no-charge-in-cost, the Contractor shall submit an estimate substantiated by a complete itemized breakdown:

14.5.1 The breakdown shall list quantities and unit prices for materials, labor, equipment and other items of cost.

14.5.2 Whenever a change involves the Contractor and one (1) or more subcontractors and the change is an increase in the agreed compensation, the overhead and profit percentage for the Contractor and each subcontractor shall be itemized separately.

14.6 Time for the City to Approve Extra Work: Any Extra Work in an amount up to and not exceeding a cumulative amount of \$25,000 for a specific project can be approved by the City Manager and shall require a written Change Order proposal to be submitted to the Public Works Director for submittal and approval by the City Manager. Extra Work exceeding the cumulative amount of \$25,000 for a specific project must be approved by the City Commission and a written Change Order proposal must be submitted to the Public Works Director for submittal and approval by the City Manager and City Commission. No financial or time claim for delay to the project resulting from the Change Order approval process outlined above under Section 14.6 will be allowed.

ARTICLE 15 – CHANGE OF THE CONTRACT TIME

- 15.1 The Contract Time may only be changed by a Change Order. Any claim for an extension in the Contract Time shall be based on written notice delivered to the Project Manager within five (5) days of the occurrence of the event giving rise to the claim. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.
- 15.2 The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of the Contractor if a claim is made there for as provided in Paragraph 15.1. Such delays shall include but not be limited to, acts or neglect by the City, or to fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God.
- 15.3 All time limits stated in the Contract Documents are of the essence. The provisions of this Article 15 shall not exclude recovery for damages for delay by the Contractor.
- 15.4 Delays caused by or resulting from entities, contractors or subcontractors who are not affiliated with the CONTRACTOR (non-affiliated Contractors) shall not give rise to a claim by the CONTRACTOR for damages for increases in material and/or labor costs. Such entities, contractors and subcontractors include, but are not limited to, the City's contractors and subcontractors, Florida Power and Light Company, AT&T and Florida East Coast Railway, LLC.
- 15.5 Rights of Various Interests: Whenever work being done by City's forces or by other contractors is contiguous to or within the limits of work covered by this Contract, the respective rights of the various interests involved shall be established by the Project Manager to secure the completion of the various portions of the work in general harmony.

ARTICLE 16 – LIQUIDATED DAMAGES

- 16.1 Upon failure of the Contractor to complete the Work within the time specified for completion, the Contractor shall pay to the City the sum of **Five Hundred Dollars (\$500.00)** for each and every calendar day that the completion of the Work is delayed beyond the time specified in this Agreement for completion, as fixed and agreed liquidated damages and not as a penalty, so long as the delay is caused by the Contractor. Should an act of God or the acts or omissions of the City, its agents or representatives, in derogation to the terms of this Agreement cause the delay, the Contractor shall not be responsible for the delay nor liquidated damages. Liquidated damages are fixed and agreed upon between the Parties, recognizing the impossibility of precisely ascertaining the amount of damages that will be sustained by the City as a consequence of such delay and both parties desiring to obviate any question of dispute concerning the amount of damages and the cost and effect of the failure of the Contractor to complete the Work on time. Liquidated damages shall apply separately to each portion of the Work for which a time of completion is given. The City shall have

the right to deduct from or retain any compensation which may be due or which may become due and payable to the Contractor the amount of liquidated damages, and if the amount retained by the City is insufficient to pay in full such liquidated damages, the Contractor shall pay all liquidated damages in full. The Contractor shall be responsible for reimbursing the City, in addition to liquidated damages or other damages for delay, for all costs of engineering, architectural fees, and inspection and other costs incurred in administering the construction of the Project beyond the completion date specified or beyond an approved extension of time granted to the Contractor whichever is later. Delays caused by or resulting from entities, contractors or subcontractors who are not affiliated with the Contractor shall not give rise to a claim by Contractor for damages for increase in material and/or labor costs. Such entities, contractors and subcontractors include, but are not limited to, the City's contractors and subcontractors, Florida Power and Light Company, AT&T, and Florida East Coast Railway, LLC.

In addition, for work beyond the time (hour and minute) established for opening the taxiway/runway, following each closure of that taxiway/runway in accordance with the phasing plans, the City will charge the Contractor a rental fee for the Contractor's use of the taxiway/runway. The parties agree that the sum of **Five Hundred Dollars (\$500)** for the first minute and **Fifty Dollars (\$50)** for every minute thereafter shall be fixed as the rental rates for continuing a taxiway/runway closure beyond the time provided for opening the taxiway/runway during each phase of work that requires taxiway/runway closure.

The Contractor shall pay to the City, or have withheld from monies due the Contractor, the rental sum of **Five Hundred Dollars (\$500)** per the first minute and **Fifty Dollars (\$50)** for every minute thereafter that the Contractor continues a taxiway/runway closure beyond the specified time provided for opening the taxiway/runway during each phase of work that requires closure.

Time for opening of the taxiway/runway and rental fee determinations shall be based upon the City's inspector's time keeping, not the Contractor. Contractor may request the inspector to advise him of remaining time periodically prior to opening, but inspector's time keeping shall be the sole determining factor as to whether the taxiway/runway reopened as scheduled without appeal.

16.2 No Extended Damages: For other and additional good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Contractor covenants and agrees that in the event of any delay of construction or for any reason, allegation or claim, and notwithstanding the reason of the delay, reason, claim or allegation or who caused them or the construction delay or whether they were caused by the City, that there will be no entitlement to Contractor to or for any direct or indirect financial damages or losses for extended corporate overhead impact, extended project overhead impacts, project support services, mobilization or demobilization or by whatever other label or

legal concept or theory and types of names or labels or basis such claims may have, or any business damages or losses of whatever type or nature, and Contractor hereby waives any right to make any such claim or claims. This provision will have application and effect when construction delays are anticipated and agreed upon by both the City and the Contractor.

ARTICLE 17 – SUSPENSION OF WORK AND TERMINATION

- 17.1 City May Suspend Work: The City may, at any time and without cause, suspend the Work or any portion of the Work for a period of not more than ninety (90) days by notice in writing to the Contractor which shall fix the date on which Work shall be resumed. The Contractor shall resume the Work on the date fixed. The Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension, if the Contractor makes a claim as provided in Articles 14 and 15.
- 17.2 City's Right to Terminate Contract: The City may terminate this Agreement upon fifteen (15) calendar days' written notice upon the occurrence of any one or more of the following events:
- 17.2.1 If the Contractor commences a voluntary case or a petition is filed against the Contractor, under any chapter of the Bankruptcy Code, or if the Contractor takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency.
- 17.2.2 If the Contractor makes a general assignment for the benefit of creditors.
- 17.2.3 If a trustee, receiver, custodian or agent of the Contractor is appointed under applicable law or under Contract, whose appointment or authority to take charge of property of the Contractor is for the purpose of enforcing a lien against such property or for the purpose of general administration of such property for the benefit of the Contractor's creditors.
- 17.2.4 If Contractor fails to begin the Work within fifteen (15) calendar days after the Project Initiation Date, or fails to perform the Work with sufficient workers and equipment or with sufficient materials to ensure the prompt completion of the Work, or shall perform the Work unsuitably, or cause it to be rejected as defective and unsuitable, or shall discontinue the prosecution of the Work pursuant to the accepted schedule or if Contractor shall fail to perform any material term set forth in the Contract Documents, or from any other cause whatsoever shall not carry on the Work in an acceptable manner, Project Manager may give notice in writing to Contractor and its Surety of such delay, neglect or default, specifying the same.

- 17.2.5 If the Contractor repeatedly fails to make prompt payments to subcontractors or for labor, material or equipment.
- 17.2.6 If the Contractor repeatedly disregards proper safety procedures.
- 17.2.7 If the Contractor disregards any local, state or federal laws or regulations.
- 17.2.8 If the Contractor otherwise violates any provisions of this Agreement.
- 17.3 If Contractor, within a period of ten (10) calendar days after such notice, shall not proceed in accordance therewith, the City may exclude the Contractor from the Work site and take the prosecution of the Work out of the hands of the Contractor, and take possession of the Work and all of the Contractor's tools, appliances, construction equipment and machinery at the site and use them without liability to the City for trespass or conversion, incorporate in the Work all materials and equipment stored at the site or for which the City has paid the Contractor but which are stored elsewhere, and finish the Work as the City may deem expedient. In this instance, the Contractor shall not be entitled to receive any further compensation until the Work is finished.
- 17.3.1 If after notice of termination of Contractor's right to proceed, it is determined for any reason that Contractor was not in default, the rights and obligations of City and Contractor shall be the same as if the notice of termination had been issued pursuant to the Termination for Convenience clause as set forth in Section 17.5 below.
- 17.3.2 Upon receipt of Notice of Termination pursuant to Sections 17.2 or 17.5, Contractor shall promptly discontinue all affected work unless the Notice of Termination directs otherwise and deliver or otherwise make available to City all data, drawings, specifications, reports, estimates, summaries and such other information as may have been required by the Contract Documents whether completed or in process.
- 17.4 If the Contractor commits a default due to its insolvency or bankruptcy, the following shall apply:
- 17.4.1 Should this Agreement be entered into and fully executed by the parties, funds released and the Contractor (Debtor) files for bankruptcy, the following shall occur:
- 17.4.1.1 In the event the Contractor files a voluntary petition under 11 U.S.C. 301 or 302, or an order for relief is entered under 11 U.S.C. 303, the Contractor shall acknowledge the extent, validity, and priority of the lien recorded in favor of the City. The Contractor further agrees that in the event of this default, the City shall, at its option, be entitled to seek relief from the automatic stay pursuant to 11 U.S.C. 362. The City shall be entitled to

relief from the automatic stay pursuant to 11 U.S.C. 362(d) (1) or (d) (2), and the Contactor agrees to waive the notice provisions in effect pursuant to 11 U.S.C. 362 and any applicable Local Rules of the United States Bankruptcy Court. The Contactor acknowledges that such waiver is done knowingly and voluntarily.

17.4.1.2 Alternatively, in the event the City does not seek stay relief, or if stay relief is denied, the City shall be entitled to monthly adequate protection payments within the meaning of 11 U.S.C. 361. The monthly adequate protection payments shall each be in an amount determined in accordance with the Note and Mortgage executed by the Contractor in favor of the City.

17.4.1.3 In the event the Contractor files for bankruptcy under Chapter 13 of Title 11, United States Code in addition to the foregoing provisions, the Contractor agrees to cure any amounts in arrears over a period not to exceed twenty-four (24) months from the date of the confirmation order, and such payments shall be made in addition to the regular monthly payments required by the Note and mortgage. Additionally, the Contractor shall agree that the City is over secured and, therefore, entitled to interest and attorney's fees pursuant to 11 U.S.C. 506(b). Such fees shall be allowed and payable as an administrative expense. Further, in the event the Contractor has less than five (5) years of payments remaining on the Note, the Contractor agrees that the treatment afforded to the claim of the City under any confirmed plan of reorganization shall provide that the remaining payments shall be satisfied in accordance with the Note, and that the remaining payments or claim shall not be extended or amortized over a longer period than the time remaining under the Note.

17.4.2 Should this Agreement be entered into and fully executed by the parties, and the funds have not been forwarded to Contractor, the following shall occur:

17.4.2.1 In the event the Contractor files a voluntary petition pursuant to 11 U.S.C. 301 or 302, or an order for relief is entered under 11 U.S.C. 303., the Contractor acknowledges that the commencement of a bankruptcy proceeding constitutes an event of default under the terms of this Agreement. Further, the Contractor acknowledges that this Agreement constitutes an executory contract within the meaning of 11 U.S.C. 365. The Contractor acknowledges that this Agreement is not capable of being assumed pursuant to 11 U.S.C. 365(c)(2), unless the City expressly consents in writing to the assumption. In the event the

City consents to the assumption, the Contractor agrees to file a motion to assume this Agreement within ten (10) days after receipt of written consent from the City, regardless of whether the bankruptcy proceeding is pending under Chapter 7, 11, or 13 of Title 11 of the United States Code. The Contractor further acknowledges that this Agreement is not capable of being assigned pursuant to 11 U.S.C. 365(b)(1).

- 17.5 Termination for Convenience: This Contract may be terminated for convenience in writing by City upon thirty (30) days written notice to Contractor (delivered by certified mail, return receipt requested) of intent to terminate and the date on which such termination becomes effective. In such case, Contractor shall be paid for all work executed and expenses incurred prior to termination in addition to termination settlement costs reasonably incurred by Contractor relating to commitments which had become firm prior to the termination. Payment shall include reasonable profit for work/services satisfactorily performed. No payment shall be made for profit for work/services which have not been performed.
- 17.6 Where the Contractor's service have been so terminated by the City, the termination shall not affect any rights of the City against the Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due the Contractor by the City will not release the Contractor from liability.
- 17.7 The Contractor has no right, authority or ability to terminate the Work except for the wrongful withholding of any payments due the Contractor from the City.

ARTICLE 18 – DISPUTE RESOLUTION

- 18.1 Resolution of Disputes: Questions, claims, difficulties and disputes of whatever nature which may arise relative to the technical interpretation of the Contract Documents and fulfillment of this Agreement as to the character, quality, amount and value of any work done and materials furnished, or proposed to be done or furnished under or, by reason of, the Contract Documents which cannot be resolved by mutual agreement of Contract Administrator and Contractor shall be submitted to the Consultant for resolution. When either party has determined that a disputed question, claim, difficulty or dispute is at an impasse, that party shall notify the other party in writing and submit the question, claim, difficulty or dispute to the Consultant for resolution. The parties may agree to a proposed resolution at any time without the involvement and determination of the Consultant.
- 18.1.1 Consultant shall notify Contract Administrator and Contractor in writing of Consultant's decision within twenty-one (21) calendar days from the date of the submission of the question, claim, difficulty or dispute, unless Consultant requires time to gather information or allow the parties to provide additional information.

- 18.1.2 In the event the determination of a dispute by the Consultant under this Article is unacceptable to any of the parties hereto, the party objecting to the determination must notify the other party and the City Manager, in writing within ten (10) days after receipt of the determination. The notice must state the basis of the objection and the proposed resolution. Final resolution of such dispute shall be made by the City Manager. The City Manager's decision shall be final and binding on the parties.
- 18.1.3 All non-technical administrative disputes (such as billing and payment) shall be determined by Contract Administrator.
- 18.1.4 During the pendency of any dispute and after a determination thereof, Contractor, Consultant, and Contract Administrator shall act in good faith to mitigate any potential damages including utilization of construction schedule changes and alternate means of construction. During the pendency of any dispute arising under this Agreement, other than termination herein, Contractor shall carry on the Work and adhere to the progress schedule. The Work shall not be delayed or postponed pending resolution of any disputes or disagreements.
- 18.1.5 For any disputes which remain unsolved, within sixty (60) calendar days after Final Completion of the Work, the parties shall participate in mediation to address all unresolved disputes. A mediator shall be mutually agreed upon by the parties. Should any objection not be resolved in mediation, the parties retain all their legal rights and remedies under applicable law. If a party objecting to a determination, fails to comply in strict accordance with the requirements of this Article, said party specifically waives all of its rights provided hereunder, including its rights and remedies under applicable law.

ARTICLE 19 – NOTICES

- 19.1 All notices required by any of the Contract Documents shall be in writing and shall be deemed delivered upon mailing by certified mail, return receipt requested to the following:

To the City:

City Manager
City of Fort Lauderdale
100 North Andrews Avenue
Fort Lauderdale, Florida 33301

with copy to the:

Project Manager and City Attorney
City of Fort Lauderdale
100 North Andrews Avenue
Fort Lauderdale, Florida 33301

To the Contractor:

ARTICLE 20 – LIMITATION OF LIABILITY

- 20.1 The City desires to enter into this Agreement only if in so doing the City can place a limit on the City's liability for any cause of action arising out of this Agreement, so that the City's liability for any breach never exceeds the sum of \$1,000. For other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Contractor expresses its willingness to enter into this Agreement with the knowledge that the Contractor's recovery from the City to any action or claim arising from the Agreement is limited to a maximum amount of \$1,000, which amount shall be reduced by the amount actually paid by the City to the Contractor pursuant to this Agreement, for any action or claim arising out of this Agreement. Nothing contained in this paragraph or elsewhere in this Agreement is in any way intended either to be a waiver of the limitation placed upon the City's liability as set forth in Section 768.28, Florida Statutes, or to extend the City's liability beyond the limits established in said Section 768.28; and no claim or award against the City shall include attorney's fees, investigative costs, expert fees, suit costs or pre-judgment interest.
- 20.2 No Extended Damages: For other and additional good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, the Contractor covenants and agrees that in the event of any delay of construction or for any reason, allegation or claim, and notwithstanding the reason of the delay, reason, claim or allegation or who caused them or the construction delay or whether they were caused by the City, that there will be no entitlement to Contractor to or for any direct or indirect financial damages or losses for extended corporate overhead impact, extended project overhead impacts, project support services, mobilization or demobilization or by whatever other label or legal concept or theory and types of names or labels or basis such claims may have, or any business damages or losses of whatever type or nature, and Contractor hereby waives any right to make any such claim or claims. This provision will have application and effect when construction delays are anticipated and agreed upon by both the City and the Contractor.

ARTICLE 21 – GOVERNING LAW

- 21.1 This Agreement shall be governed by the laws of the State of Florida. Both Parties agree that the courts of the State of Florida shall have jurisdiction of any claim arising in connection with this Agreement. Venue for any claim, objection or dispute arising out of this Agreement shall be in Broward County, Florida. **By entering into this Contract, Contractor and City hereby expressly waive any rights either party may have to a trial by jury or any civil litigation related to, or arising out of the Project. Contractor shall specifically bind all subcontractors to the provisions of this Contract.**

ARTICLE 22 – MISCELLANEOUS

- 22.1 The duties and obligations imposed by this Agreement and the rights and remedies available to the parties and, in particular but without limitation, the warranties, guaranties and obligations imposed upon the Contractor and all of the rights and remedies available to the City, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by laws or regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents, and the provisions of this Paragraph will survive final payment and termination or completion of this Agreement.
- 22.2 The Contractor shall not assign or transfer this Agreement or its rights, title or interests. The obligations undertaken by the Contractor pursuant to this Agreement shall not be delegated or assigned to any other person or firm. Violation of the terms of this Paragraph shall constitute a material breach of Agreement by the Contractor and the City any, at its discretion, cancel this Agreement and all rights, title and interest of the Contractor which shall immediately cease and terminate.
- 22.3 The Contractor and its employees, volunteers and agents shall be and remain an independent contractors and not agents or employees of the City with respect to all of the acts and services performed by and under the terms of this Agreement. This Agreement shall not in any way be constructed to create a partnership, association or any other kind of joint undertaking or venture between the Parties.
- 22.4 The City reserves the right to audit the records of the Contractor relating in any way to the Work to be performed pursuant to this Agreement at any time during the performance and term of this Agreement and for a period of three (3) years after completion and acceptance by the City. If required by the City, the Contractor agrees to submit to an audit by an independent certified public accountant selected by the City. The Contractor shall allow the City to inspect,

examine and review the records of the Contractor at any and all times during normal business hours during the term of this Agreement.

- 22.5 The remedies expressly provided in this Agreement to the City shall not be deemed to be exclusive but shall be cumulative and in addition to all other remedies in favor of the City now or later existing at law or in equity.
- 22.6 Should any part, term or provisions of this Agreement be decided by the courts to be invalid, illegal or in conflict with any state or federal law, the validity of the remaining portion or provision shall not be affected.
- 22.7 Prohibition Against Contracting With Scrutinized Companies: Subject to *Odebrecht Construction, Inc., v. Prasad*, 876 F.Supp.2d 1305 (S.D. Fla. 2012), affirmed, *Odebrecht Construction, Inc., v. Secretary, Florida Department of Transportation*, 715 F.3d 1268 (11th Cir. 2013), with regard to the "Cuba Amendment," the Contractor certifies that it is not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List or the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2018), that it is not engaged in a boycott of Israel, and that it does not have business operations in Cuba or Syria, as provided in section 287.135, Florida Statutes (2018), as may be amended or revised. The City may terminate this Agreement at the City's option if the Contractor is found to have submitted a false certification as provided under subsection (5) of section 287.135, Florida Statutes (2018), as may be amended or revised, or been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List or the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2018), or is engaged in a boycott of Israel or has been engaged in business operations in Cuba or Syria, as defined in Section 287.135, Florida Statutes (2018), as may be amended or revised.
- 22.8 Public Entity Crimes: In accordance with the Public Crimes Act, Section 287.133, Florida Statutes, a person or affiliate who is a contractor, consultant or other provider, who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to the City, may not submit a bid on a contract with the City for the construction or repair of a public building or public work, may not submit bids on leases of real property to the City, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with the City, and may not transact any business with the City in excess of the threshold amount provided in Section 287.017, Florida Statutes, for category two purchases for a period of thirty-six (36) months from the date of being placed on the convicted vendor list. Violation of this section by Contractor shall result in cancellation of the City purchase and may result in Contractor debarment.

22.9 Attorney Fees: If CITY or CONSULTANT incurs any expense in enforcing the terms of this Agreement through litigation, the prevailing party in that litigation shall be reimbursed for all such costs and expenses, including but not limited to court costs, and reasonable attorney fees incurred during litigation.

22.10 Public Records

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT PRRCONTRACT@FORTLAUDERDALE.GOV, 954-828-5002, CITY CLERK'S OFFICE, 100 N. ANDREWS AVENUE, FORT LAUDERDALE, FLORIDA 33301.

Contractor shall:

1. Keep and maintain public records that ordinarily and necessarily would be required by the City in order to perform the service.
2. Upon request from the City's custodian of public records, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes (2018), as may be amended or revised, or as otherwise provided by law.
3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of this contract if the Contractor does not transfer the records to the City.
4. Upon completion of the Contract, transfer, at no cost, to the City all public records in possession of the Contractor or keep and maintain public records required by the City to perform the service. If the Contractor transfers all public records to the City upon completion of this Contract, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Contractor keeps and maintains public records upon completion of this Contract, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City's custodian of public records, in a format that is compatible with the information technology systems of the City.

ARTICLE 23 – FAA REQUIRED CONTRACT PROVISIONS FOR AIRPORT CONTRACTS (NON-AIP CONTRACTS)

- 23.1 General Civil Rights Provisions: The Contractor agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision binds the Contractor and subtier contractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

- 23.2 Title VI Clauses for Compliance with Non-Discrimination Requirements:

During the performance of this Contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

1. Compliance with Regulations: The Contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts And Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this Contract.
2. Non-discrimination: The Contractor, with regard to the work performed by it during the Contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the Contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.
3. Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the Contractor's obligations under this Contract and the Nondiscrimination Acts And Authorities on the grounds of race, color, or national origin.
4. Information and Reports: The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the City or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts And Authorities and instructions. Where any information required of the Contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. Sanctions for Noncompliance: In the event of a Contractor's noncompliance with the Non-discrimination provisions of this Contract, the City will impose such Contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
 - a. Withholding payments to the Contractor under the Contract until the Contractor complies; and/or
 - b. Cancelling, terminating, or suspending a Contract, in whole or in part.
6. Incorporation of Provisions: The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the City or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the City to enter into any litigation to protect the interests of the City. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

23.3 Title VI List of Pertinent Nondiscrimination Acts and Authorities:

During the performance of this Contract, the Contractor, for itself, its assignees, and successors in interest agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination In Federally-Assisted Programs of The Department of Transportation—Effectuation of Title VI of The Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the

- programs or activities of the Federal-aid recipients, sub- recipients and Contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38;
 - The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
 - Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
 - Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
 - Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

Fort Lauderdale Executive Airport Airfield Electrical Vault Improvements
(Contractor)
Project 12189

CITY

IN WITNESS OF THE FOREGOING, the parties have set their hands and seals the day and year first above written.

CITY OF FORT LAUDERDALE, a municipal
corporation of the State of Florida

By: _____
LEE R. FELDMAN, City Manager

(CORPORATE SEAL)

ATTEST:

By: _____
JEFFREY A. MODARELLI
City Clerk

Approved as to Legal Form:

By: _____
RHONDA MONTOYA HASAN
Assistant City Attorney

CONTRACTOR

WITNESSES:

CONTRACTOR.,
a Florida corporation.

By _____

Print Name_____
PRINT NAME_____
Title

ATTEST:

BY: _____

Print Name_____
PRINT NAME_____
Secretary

(CORPORATE SEAL)

STATE OF FLORIDA:
COUNTY OF BROWARD:

The foregoing instrument was acknowledged before me this _____ day of _____, 2018, by
 _____ (Name), _____ (Title) of _____, a Florida corporation, on
 behalf of the Corporation.

SEAL

Notary Public, State of Florida_____
Name of Notary Typed, Printed or Stamped☐ Personally Known or ☐ Produced Identification:

Type of Identification Produced: _____

GENERAL CONDITIONS

Unless otherwise modified in the projects special conditions, the following General Conditions shall be part of the Contract:

GC - 01 - DEFINITIONS - The following words and expressions, or pronouns used in their stead, shall wherever they appear in the Contract and the Contract Documents, be construed as follows:

"Addendum" or "Addenda" - shall mean the additional Contract provisions issued in writing, by the Engineer, prior to the receipt of bids.

"Bid" – shall mean the offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

"Bidder" – shall mean any person, firm, company, corporation or entity submitting a Bid for the Work.

"Bonds" –shall mean Bid, performance and payment bonds and other instruments of security, furnished by Contractor and his surety in accordance with the Contract Documents.

"City" – shall mean the City of Fort Lauderdale, Florida, a Florida municipal corporation. In the event the City exercises its regulatory authority as a government body, the exercise of such regulatory authority and the enforcement of any rules, regulations, codes, laws and ordinances shall be deemed to have occurred pursuant to City's authority as a governmental body and shall not be attributable in any manner to the City as a party to this Contract. For the purpose of this Contract, "City" without modification shall mean the City Commission, and/or City Manager or his/her designee(s) as applicable.

"Construction Manager" - shall mean the Public Works Director or his/her designee.

"Construction Project Manager" - shall mean the Public Works Director or his/her designee

"Consultant" – shall mean a person, firm, company, corporation or other entity employed by the City to perform the professional services for the project.

"Contract Work" - shall mean everything expressed or implied to be required to be furnished and furnished by the Contractor by any one or more of the parts of the Contract Documents referred to in the Contract hereof except Extra Work as hereinafter defined, it being understood that, in case of any inconsistency in or between any part or parts of this Contract, the Public Works Director shall determine which shall prevail.

"Design Documents" – shall mean the construction plans and specifications included as part of a Bid/Proposal Solicitation prepared either by the City or by the Consultant under a separate Agreement with the City.

"Engineer" - shall mean the Public Works Director or his/her designee.

"Extra Work" - shall mean work other than that required by the Contract.

"Inspector" – shall mean an authorized representative of the City assigned to make necessary inspections of materials furnished by Contractor and of the Work performed by Contractor.

"Notice" - shall mean written notice sent by certified United States Mail, return receipt requested, or sent by commercial express carrier with acknowledgement of delivery, or via fax or email, or by hand delivery with a request for a written receipt of acknowledgment of delivery and shall be served upon the Contractor either personally or to its place of business listed in the Bid.

"Owner" - shall mean the City of Fort Lauderdale.

"Project Manager" - shall mean the Public Works Director or his/her designee.

"Public Works Director" -shall mean the Public Works Director of the City of Fort Lauderdale, Florida or his/her designee(s).

"Site" - shall mean the area upon or in which the Contractor's operations are carried out and such other areas adjacent thereto as may be designated as such by the Public Works Director.

"Subcontractor" - shall mean any person, firm, company, corporation or other entity, other than employees of the Contractor, who or which contracts with the contractor, to furnish, or actually furnishes labor and materials, or labor and equipment, or labor, materials and equipment at the site.

"Surety" - shall mean any corporation or entity that executes, as Surety, the Contractor's performance and payment bond securing the performance of this Contract.

GC - 02 - SITE INVESTIGATION AND REPRESENTATION - The Contractor acknowledges that it has satisfied itself as to the nature and location of the Work under the Contract Documents, the general and local conditions of the Site, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, and roads, the conformation and conditions at the ground based on City provided reports, the type of equipment and facilities needed preliminary to and during the prosecution of the Work and all other matters which can in any way affect the Work or the cost thereof under the Contract Documents.

The Contractor acknowledges that it has conducted extensive tests, examinations and investigations and represents and warrants a thorough familiarization with the nature and extent of the Contract Documents, the Work, locality, soil conditions, moisture conditions and all year-round local weather and climate conditions (past and present), and, in reliance on such tests, examination and investigations conducted by Contractor and the Contractor's experts, has determined that no conditions exist that would in any manner affect the Bid Price and that the project can be completed for the Bid Price submitted.

The Contractor, on its own, has made or caused to be made examinations, investigations, tests and studies of reports and related data in addition to those referred above, as Contractor deemed necessary to perform the Work at the Bid price set by the Contractor, within the contract time and in accordance with the other terms and conditions of the Contract Documents and the Bid made by the Contractor; and no additional examinations, investigations, tests, reports or similar data are, or will be, required by Contractor to assure that the Work can be done at the Bid price set by the Contractor.

The Contractor further acknowledges that it has satisfied itself based on any geotechnical reports the City may provide and inspection of the project Site as to the character, quality, and quantity of surface and subsurface materials to be encountered from inspecting the site and from evaluating information derived from exploratory work that may have been done by the City or included in the Contract Documents and finds and has further determined that no conditions exist that would in

any manner affect the Bid price and that the project can be completed for the Bid price submitted. Any failure by the Contractor to acquaint itself with all the provided information and information obtained by visiting the project Site will not relieve Contractor from responsibility for properly estimating the difficulty or cost thereof under the Contract Documents. In the event that the actual subsurface conditions vary from the actual City provided reports, the Contractor shall notify the City and the Contract amount may be adjusted depending on the conditions, at the approval of the City.

GC - 03 - SUBSTITUTIONS - If the Contractor desires to use materials and/or products of manufacturer's names different from those specified in the Contract Documents, the Bidder requesting the substitution shall make written application as described herein. The burden of proving the equality of the proposed substitution rests on the Bidder making the request. To be acceptable, the proposed substitution shall meet or exceed all expressed requirements of the Contract Documents and shall be submitted upon the Contractor's letterhead, in addition to the "Contractor's Request for Substitution" form provided by the Public Works Director. The following requirements shall be met in order for the substitution to be considered:

1. Requests for substitution shall reach the Public Works Director no less than ten (10) Working Days prior to the date set for opening of Bids; and
2. Requests for substitution shall be accompanied by such technical data, as the party making the request desires to submit. The Public Works Director will consider reports from reputable independent testing laboratories, verified experience records from previous users and other written information valid in the circumstances; and
3. Requests for substitution shall completely and clearly indicate in what respects the materials and/or products differ from those indicated in the Contract Documents; and
4. Requests for substitution shall be accompanied by the manufacturer's printed recommendations clearly describing the installation, use and care, as applicable, of the proposed substitutions; and
5. Requests for substitution shall be accompanied by a complete schedule of changes in the Contract Documents, if any, which must be made to permit the use of the proposed substitution; and

If a proposed substitution is approved by the Public Works Director, an Addendum will be issued to prospective bidders not less than three (3) working days prior to the date set for opening of Bids. Unless substitutions are received and approved as described above, the successful Bidder shall be responsible for furnishing materials and products in strict accordance with the Contract Documents.

GC - 04 - CONTROL OF THE WORK - The Public Works Director shall have full control and direction of the Work in all respects. The Public Works Director and/or his authorized designee(s) shall, at all times, have the right to inspect the Work and materials. The Contractor shall furnish all reasonable facilities for obtaining such information, as the Public Works Director may desire respecting the quality of the Work and materials and the manner of conducting the Work. Should the Contractor be directed or permitted to perform night Work, or to vary the period which work is ordinarily carried on in the daytime, he shall give ample notice to the Public Works Director so that proper and adequate inspection may be provided. Such Work shall be done only under such regulations as are furnished in writing by the Public Works Director, and no extra compensation shall be allowed to the Contractor therefore. In the event of night work, the Contractor shall furnish such light, satisfactory to the Public Works Director, as will insure proper inspection. Nothing

herein contained shall relieve the Contractor from compliance with any and all City ordinances relating to noise or Work during prohibited hours.

The Contractor shall keep the Public Works Director informed, a reasonable time in advance, as to his need for grades and lines in order that the same may be furnished and all necessary measurements made for records and for payment with the minimum of inconvenience to the Public Works Director or of delay to the Contractor. The Contractor shall submit to the Public Works Director or Inspector on the job a written request outlining the streets, etc., for which the Contractor desires lines and grades. It is the intention not to delay the Work for the giving of lines and grades, but when necessary, work operations shall be suspended for such reasonable time as the Public Works Director may require for this purpose. However, such cost increases shall be authorized either by the City Manager and/or designee, or the City Commission based upon the purchasing threshold amounts provided for in Chapter 2 of the City of Fort Lauderdale's Code of Ordinances.

GC - 05 - SUBCONTRACTOR - The Contractor shall not sublet, in whole or any part of the Work without the written consent and approval of the Public Works Director. Within ten (10) days after official notification of starting date, the Contractor must submit in writing, to the Public Works Director, a list of all Subcontractors. No Work shall be done by any Subcontractor until such Subcontractor has been officially approved by the Public Works Director. A subcontractor not appearing on the original list will not be approved without written request submitted to the Public Works Director and approved by the Public Works Director. In all cases, the Contractor shall give his personal attention to the Work of the Subcontractors and the Subcontractor is liable to be discharged by the Contractor, at the direction of the Public Works Director, for neglect of duty, incompetence or misconduct.

Acceptance of any Subcontractor, other person, or organization by the Public Works Director shall not constitute a waiver of any right of Public Works Director to reject defective Work or Work not in conformance with the Contract Documents.

Contractor shall be fully responsible for all acts and omissions of his Subcontractors and of persons and organizations directly or indirectly employed by them and of persons and organizations for whose acts any of them may be liable to the same extent that he is responsible for the acts and omissions of persons directly employed by him. Nothing in the Contract Documents shall create any contractual relationship between City and any Subcontractor or other person or organization having a direct contract with Contractor, nor shall it create any obligation on the part of City to pay or to see to the payment of any moneys due to any Subcontractor or other person, or organization, except as may otherwise be required by law.

GC - 06 - QUANTITIES - It is mutually agreed that the proposal shows the approximate amounts only along with the Plans and the general location. It is also mutually agreed that no change will be made involving any departure from the general scheme of the Work and that no such change involving a material change in cost, either to the City or Contractor, shall be made, except upon written permission of the City. However, the Public Works Director shall have the right to make minor alternations in the line, grade, plan, form or materials of the Work herein contemplated any time before the completion of the same. That if such alterations shall diminish the quantity of the Work to be done, such alterations shall not constitute a claim for damages or anticipated profits. That if such alterations increase the amount of the Work to be done, such increase shall be paid for according to the quantity actually performed and at the unit price or prices stipulated therefore in the Contract.

The City shall, in all cases of dispute, determine the amount or quantity of the several kinds of Work which are to be paid for under this Contract, and shall decide all questions relative to the execution of the same, and such estimates and decisions shall be final and binding.

Any Work not herein specified, which might be fairly implied as included in the Contract, of which the City shall judge, shall be done by the Contractor without extra charge. However, such cost increases shall be authorized either by the City Manager and/or designee, or the City Commission based upon the purchasing threshold amounts provided for in Chapter 2 of the City of Fort Lauderdale's Code of Ordinances.

GC-07 - NO ORAL CHANGES - Except to the extent expressly set forth in the Contract, no change in or modification, termination or discharge of the Contract in any form whatsoever, shall be valid or enforceable unless it is in writing and signed by the parties charged, therewith or their duly authorized representative.

GC - 08 - PERMITS AND PROTECTION OF PUBLIC – Permits on file with the City and or those permits to be obtained shall be considered directive in nature and will be considered a part of this Contract. A copy of all permits shall be given to the City and become part of the Contract Documents. Terms of permits shall be met prior to acceptance of the Work and release of the final payment.

The Contractor shall be required to observe all the ordinances in relation to obtaining permits for occupying, excavating, or in any way obstructing the streets and alleys. He shall erect and maintain barricades and sufficient safeguards around all excavations, embankments or obstructions; he shall place sufficient warning lights at or near the Work; keep the same burning from sunset to sunrise, employ watchmen, and strictly obey all laws and ordinances controlling or limiting those engaged in similar work.

Where there are telephones, light or power poles, water mains, conduits, pipes or drains or other construction, either public or private, in or on the streets or alleys, the Work shall be so conducted that no interruption or delay will be caused in the operation or use of the same. Proper written notice shall be given, and all the facilities, afforded the owners of such construction encountered or likely to be encountered, as will enable them to preserve the same from injury.

The Contractor shall not be permitted to interfere with public travel and convenience by grading or tearing up streets indiscriminately, but the Work of constructing the various items in this contract shall proceed in an orderly, systematic and progressive manner.

Contractor shall not load nor permit any part of any structure to be loaded with weights that will endanger the structure, nor shall he subject any part of the Work to stresses or pressures that will endanger it.

Where lifting operations involving the use of specialized cranes are required as part of construction, Contractor must make undertake the following investigation and submit the results and documentation to the Engineer prior to commencing any lifting operations: marking a very specific area in the field for the placement of the crane; a drawing showing the limitations of the job operation (i.e. not over adjacent properties or pedestrian and high vehicular traffic areas); underground utility exploration in the vicinity of the crane location, which may include ground penetrating radar to identify voids or old pipe or other subsurface features that could lead to sudden failure; assessment of the underlying soil and roadway materials and a worst case analysis based on entire load being distributed on just one or two outriggers; provision of properly sized pads under the outriggers; loading charts from manufacturer showing allowable configurations/loads; and inspection to make sure crane operation is in accordance with the permit conditions.

GC – 09 - DISEASE REGULATIONS - The Contractor shall enforce all sanitary regulations and take all precautions against infectious diseases as the Public Works Director may deem necessary. Should any infectious or contagious diseases occur among his employees, he shall arrange for

the immediate removal of the employee from the Site and isolation of all persons connected with the Work.

GC - 10 - CONTRACTOR TO CHECK PLANS, SPECIFICATIONS, AND DATA - The Contractor shall verify all dimensions, quantities, and details shown on the plans, supplementary drawings, schedules, or other data received from the Public Works Director, and shall notify the Public Works Director of all errors, omissions, conflicts and discrepancies found therein within three (3) working days of discovery. Failure to discover or correct errors, conflicts, or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory Work, faulty construction, or improper operation resulting there from nor from rectifying such condition at his own expense.

GC - 11 - SUPPLEMENTARY DRAWINGS - When, in the opinion of the Public Works Director, it becomes necessary to explain more fully the Work to be done, or to illustrate the work further, or to show any changes which may be required, drawings, known as supplementary drawings, with specifications pertaining thereto, will be prepared by the Public Works Director and copies will be given to the Contractor.

The supplementary drawings shall be binding upon the Contractor with the same force as the original Plans. Where such supplementary drawings require either less or more than the estimated quantities of work, credit to the City or compensations therefore to the Contractor shall be subject to the terms of the Contract.

GC - 12 - MATERIALS AND WORKMANSHIP - All material and workmanship shall, in every respect, be in conformity with approved modern practice and with prevailing standards of performance and quality. In the event of dispute the Public Works Director's decision shall be final. Wherever the Plans, specifications, Contract Documents, or the directions of the Public Works Director are unclear as to what is permissible and/or fail to note the quality of any Work, that interpretation will be made by the Public Works Director, which is in accordance with approved modern practice, to meet the particular requirements of the Contract.

In all cases, new materials shall be used, unless this provision is waived by notice from the City in writing.

GC - 13 - SAFEGUARDING MARKS - The Contractor shall safeguard all points, stakes, grade marks, monuments, and bench marks made or established on the Work, bear the cost of re-establishing same if disturbed, or bear the entire expense of rectifying Work improperly installed due to not maintaining or protecting or for removing without authorization, such established points, stakes and marks. The Contractor shall safeguard all existing and known property corners, monuments and marks not related to the Work and, if required, shall bear the cost of having them re-established by a licensed surveyor if disturbed or destroyed during the course of construction.

GC - 14 - EXISTING UTILITY SERVICE - All existing utility service shall be maintained with a minimum of interruption at the expense of the Contractor.

GC - 15 - JOB DESCRIPTION SIGNS – Contractor, at Contractor's expense, shall furnish, erect, and maintain suitable weatherproof signs on jobs over \$100,000 containing the following information:

1. City Seal (in colors)
2. Project or Improvement Number
3. Job Description
4. Estimated Cost
5. Completion Date

Minimum size of sign shall be four feet high, eight feet wide and shall be suitably anchored. The entire sign shall be painted and present a pleasing appearance. Exact location of signs will be determined in the field. Two (2) signs will be required, one at each end of the job. All costs of this work shall be included in other parts of the work.

GC - 16 - FLORIDA EAST COAST RIGHT-OF-WAY - Whenever a City contractor is constructing within the Florida East Coast Railway Company's Right-of-Way, it will be mandatory that the contractor carry separate bodily injury and property damage insurance in the amounts as stated below. This insurance shall be taken out and maintained during the life of the Contract.

Bodily injury insurance in an amount not less than \$500,000.00 for injuries, including wrongful death to any one person, and subject to the same limit for each person, in an amount not less than \$1,000,000.00 on account of any one occurrence, and

Property damage insurance in an amount not less than \$500,000.00 for damages on account of any one occurrence and in an amount not less than \$1,000,000.00 for damages on account of all occurrences.

GC - 17 - ACCIDENTS - The Contractor shall provide such equipment and facilities as are necessary and/or required, in the case of accidents, for first aide services to be provided to a person who may be injured during the project duration. The Contractor shall also comply with the OSHA requirements as defined in the United States Labor Code 29 CFR 1926.50.

In addition, the Contractor must report immediately to the Public Works Director every accident to persons or damage to property, and shall furnish in writing full information, including testimony of witnesses regarding any and all accidents.

GC - 18 - SAFETY PRECAUTIONS - Contractor must adhere to the applicable environmental protection guidelines for the duration of a project. If hazardous waste materials are used, detected or generated at any time, the Project Manager must be immediately notified of each and every occurrence. The Contractor shall comply with all codes, ordinances, rules, orders and other legal requirements of public authorities (including OSHA, EPA, DERM, the City, Broward County, State of Florida, and Florida Building Code), which bear on the performance of the Work.

The Contractor shall take the responsibility to ensure that all Work is performed using adequate safeguards, including but not limited to: proper safe rigging, safety nets, fencing, scaffolding, barricades, chain link fencing, railings, barricades, steel plates, safety lights, and ladders that are necessary for the protection of its employees, as well as the public and City employees. All riggings and scaffolding shall be constructed with good sound materials, of adequate dimensions for their intended use, and substantially braced, tied or secured to ensure absolute safety for those required to use it, as well as those in the vicinity. All riggings, scaffolding, platforms, equipment guards, trenching, shoring, ladders and similar actions or equipment shall be OSHA approved, as applicable, and in accordance with all Federal, State and local regulations.

GC - 19- DUST PREVENTION - The Contractor shall, by means of a water spray, or temporary asphalt pavement, take all necessary precautions to prevent or abate a dust nuisance arising from dry weather or Work in an incomplete stage. All costs of this Work shall be included in cost of other parts of the Work.

Should the Contractor fail to abate a dust nuisance by the above methods, and then he will be required to immediately construct temporary patches per City standards.

GC - 20 - PLACING BARRICADES AND WARNING LIGHTS - The Contractor shall furnish and place, at his own expense, all barricades, warning lights, automatic blinker lights and such devices

necessary to properly protect the work and vehicular and pedestrian traffic. Should the Contractor fail to erect or maintain such barricades, warning lights, etc., the Public Works Director may, after 24 hours' notice to the Contractor, proceed to have such barricades and warning lights placed and maintained by City or other forces and all costs incurred thereof charged to the Contractor and may be retained by the City from any monies due, or to become due, to the Contractor.

GC – 21 - TRAFFIC CONTROL - The Contractor shall coordinate all Work and obtain, through the City's Transportation and Mobility Department, Broward County, Florida Department of Transportation, as applicable, any permits required to detour traffic or close any street before starting to work in the road. The following section: Part VI Traffic Controls for Street and Highway Construction and Maintenance Operations, MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, U.S. Department of Transportation Federal Highway Administration, 2009, or current edition, shall be used as a guide for requirement and placement of traffic control devices, signs and barricades. The Public Works Director shall determine requirements for the above. The above publication is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. In the event that a Maintenance of Traffic (MOT) Plan is required, the Plan shall be prepared by an A.A.S.T.A. certified technician.

All traffic control devices, flashing lights, signs and barricades shall be maintained in working condition at all times.

GC – 22 - COORDINATION - The Contractor shall notify all utilities, transportation department, etc., in writing, with a copy to the Public Works Director before construction is started and shall coordinate his Work with them. The Contractor shall cooperate with the owners of any underground or overhead utility lines in their removal, construction and rearrangement operations in order that services rendered by these parties will not be unnecessarily interrupted.

The Contractor shall arrange his Work and dispose of his materials so as to not interfere with the operation of other Contractors engaged upon adjacent work and to join his Work to that of others in a proper manner and to perform his Work in the proper sequence in relation to that of other Contractors all as may be directed by the Public Works Director.

Each Contractor shall be responsible for any damage done by him or his agents to the work performed by another Contractor.

The Contractor shall contact the Broward County Transportation Department and the Florida Department of Transportation, as applicable, to verify and obtain location of any and all traffic conduits, loops, and street light underground services.

GC - 23 - WATER - Bulk water used for construction, flushing pipelines, and testing shall be obtained from fire hydrants. Contractor shall make payment for hydrant meter at Treasury Billing Office, 1st Floor, City Hall, 100 N. Andrews Avenue. With the paid receipt, contractor can pick up hydrant meter at the utility location office. No connection shall be made to a fire hydrant without a meter connected.

GC - 24 - PROHIBITION AGAINST CONTRACTING WITH SCRUTINIZED COMPANIES - Scrutinized Companies: Subject to *Odebrecht Construction, Inc., v. Prasad*, 876 F.Supp.2d 1305 (S.D. Fla. 2012), *affirmed*, *Odebrecht Construction, Inc., v. Secretary, Florida Department of Transportation*, 715 F.3d 1268 (11th Cir. 2013), with regard to the "Cuba Amendment," the Contractor certifies that it is not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List or the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2018), that it is not engaged in a boycott of Israel, and that it does not have business operations in Cuba or Syria, as

provided in section 287.135, Florida Statutes (2018), as may be amended or revised. The City may terminate this Agreement at the City's option if the Contractor is found to have submitted a false certification as provided under subsection (5) of section 287.135, Florida Statutes (2018), as may be amended or revised, or been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List or the Scrutinized Companies that Boycott Israel List created pursuant to Section 215.4725, Florida Statutes (2018), or is engaged in a boycott of Israel or has been engaged in business operations in Cuba or Syria, as defined in Section 287.135, Florida Statutes (2018), as may be amended or revised.

GC - 25 - LOCATION OF UNDERGROUND FACILITIES - If the Proposer, for the purpose of responding to this solicitation, requests the location of underground facilities through the Sunshine State One-Call of Florida, Inc. notification system or through any person or entity providing a facility locating service, and underground facilities are marked with paint, stakes or other markings within the City pursuant to such a request, then the Proposer shall be deemed non-responsive to this solicitation in accordance with Section 2-184(5) of the City of Fort Lauderdale Code of Ordinances.

GC - 26 – USE OF FLORIDA LUMBER TIMBER AND OTHER FOREST PRODUCTS - In accordance with Florida Statute 255.20 (3), The City specifies that lumber, timber, and other forest products used for this project shall be produced and manufactured in the state of Florida if such products are available and their price, fitness, and quality are equal. This requirement does not apply to plywood specified for monolithic concrete forms, if the structural or service requirements for timber for a particular job cannot be supplied by native species, or if the construction is financed in whole or in part from federal funds with the requirement that there be no restrictions as to species or place of manufacture.

The Bidder affirms by submitting a bid response to this solicitation that they will comply with section 255.20 (3) Florida Statutes.

GC – 27 – PUBLIC RECORDS/TRADE SECRETS/COPYRIGHT: The Proposer's response to the Solicitation is a public record pursuant to Florida law, which is subject to disclosure by the City under the State of Florida Public Records Law, Florida Statutes Chapter 119.07 ("Public Records Law"). The City shall permit public access to all documents, papers, letters or other material submitted in connection with this Solicitation and the Contract to be executed for this Solicitation, subject to the provisions of Chapter 119.07 of the Florida Statutes.

Any language contained in the Proposer's response to the Solicitation purporting to require confidentiality of any portion of the Proposer's response to the Solicitation, except to the extent that certain information is in the City's opinion a Trade Secret pursuant to Florida law, shall be void. If a Proposer submits any documents or other information to the City which the Proposer claims is Trade Secret information and exempt from Florida Statutes Chapter 119.07 ("Public Records Laws"), the Proposer shall clearly designate that it is a Trade Secret and that it is asserting that the document or information is exempt. The Proposer must specifically identify the exemption being claimed under Florida Statutes 119.07. The City shall be the final arbiter of whether any information contained in the Proposer's response to the Solicitation constitutes a Trade Secret. The City's determination of whether an exemption applies shall be final, and the proposer agrees to defend, indemnify, and hold harmless the City and the City's officers, employees, and agent, against any loss or damages incurred by any person or entity as a result of the City's treatment of records as public records. Proposals purporting to be subject to copyright protection in full or in part will be rejected.

EXCEPT FOR CLEARLY MARKED PORTIONS THAT ARE BONA FIDE TRADE SECRETS PURSUANT TO FLORIDA LAW, DO NOT MARK YOUR RESPONSE TO THE SOLICITATION

AS PROPRIETARY OR CONFIDENTIAL. DO NOT MARK YOUR RESPONSE TO THE SOLICITATION OR ANY PART THEREOF AS COPYRIGHTED.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

Telephone Number: (954) 828-5002

Mailing Address: City Clerk's Office
100 N. Andrews Avenue
Fort Lauderdale, FL 33301

E-mail: prcontract@fortlauderdale.gov

Contractor shall:

1. Keep and maintain public records that ordinarily and necessarily would be required by the City in order to perform the service.
2. Upon request from the City's custodian of public records, provide the City with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes (2018), as may be amended or revised, or as otherwise provided by law.
3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of this contract if the Contractor does not transfer the records to the City.
4. Upon completion of the Contract, transfer, at no cost to the City, all public records in possession of the Contractor or keep and maintain public records required by the City to perform the service. If the Contractor transfers all public records to the City upon completion of this Contract, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Contractor keeps and maintains public records upon completion of this Contract, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the City, upon request from the City's custodian of public records, in a format that is compatible with the information technology systems of the City.

SUPPLEMENTAL CONDITIONS

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FXE TAXIWAY FOXTROT LIGHTING IMPROVEMENTS**CITY PROJECT NO. 12357**

**SUPPLEMENTAL CONDITIONS
PROJECT 12357
FORT LAUDERDALE EXECUTIVE AIRPORT
TAXIWAY FOXTROT LIGHTING IMPROVEMENTS**

1. SUPPLEMENTAL CONDITIONS

The supplemental conditions included herein are intended to address items of work not included or addressed in the Construction Specifications. In case of a conflict, the Construction Specifications shall be subordinate to corresponding sections of the Supplemental Conditions.

2. CONSTRUCTION PROJECT COORDINATION PLAN

The purpose of the following outline is to establish guidelines to ensure operational safety during construction activities on the Fort Lauderdale Executive Airport. The primary document of reference, which is also made a part of these specifications and shall be adhered to by the Contractor is the U. S. Department of Transportation Federal Aviation Administration Advisory Circular 150/5370-2F (or latest revision) and its references.

It is the intent of the notes contained in this outline to establish a plan for construction on the Airport in order to maximize safety and minimize time and economic loss to the aviation community, along with construction contractors and others directly affected by the project. The following objectives should be targeted by the Contractor and must be considered when planning construction schedules and operational activities.

- A. Keep the Airport operational for all user aircraft.
- B. Minimize delays for aircraft operations.
- C. Maintain safety of aircraft operations.
- D. Minimize delays to construction operations.
- E. Minimize aircraft operation/construction activity conflicts.

Maximum, safe utilization of the Airport during construction is the ultimate goal to be achieved through communication and cooperative coordination between Contractor, jobsite Inspector (as a representative of the Engineer), the Airport Management, and the ATCT, as described herein.

- 2.1 All operations in airfield area to be performed only in coordination with the ATCT, Airport Management, and the Inspector assigned to the project.
- 2.2 Construction equipment regularly operating in the airfield area shall be marked with a flag on a staff, at least 36" square and a flashing amber light. Flag shall consist of a checkered pattern of international orange and white squares of not less than 1 foot on each side (in accordance with FAA AC 150/5210-5).

Vehicles (including all cars, trucks, construction equipment, etc.) are forbidden to penetrate aircraft movement areas or runway approach areas unless they are escorted by an authorized vehicle having the required radio, or are controlled by flagmen under a control plan approved in advance. Communication on radios shall be restricted to safety and coordination communications with the ATCT, and shall not be used for routine construction communications between contractor's personnel. All vehicles must

SUPPLEMENTAL CONDITIONS**SUP-1**

FXE TAXIWAY FOXTROT LIGHTING IMPROVEMENTS**CITY PROJECT NO. 12357**

obtain clearance from the control tower before entering aircraft movement areas. The control tower shall be informed of all activity within the aircraft movement areas

Any vehicle or contractor personnel crossing any aircraft movement areas without notifying ATCT personnel shall be fined the maximum amount of \$500.00 and shall not be allowed back on the construction site.

- 2.3 Materials stockpile and storage, vehicle parking, location of construction office (if requested), and storage of equipment when not in use shall be as directed by the Engineer. The Contractor shall dispose of all surplus materials and facilities removed from the limits of work in a manner and to a location acceptable to the Engineer and Airport Management.

Materials to be reused shall be stockpiled as directed above, and salvaged facilities desired to be retained by the Airport shall be stored as directed by the Engineer. Other removed materials shall be placed in approved spoil areas or other approved locations. Any surplus fill so removed shall be neatly graded as directed by the Engineer.

- 2.4 The Contractor shall ascertain the location of and protect all existing and new FAA cables, airport lighting cables and facilities, and appurtenant facilities during construction and ensure that all circuits and facilities are maintained in a safe and properly operable condition. The local FAA Airway Facilities Sector Field Office (AFSFO) personnel will, upon request, mark all FAA cables in the vicinity of construction once, prior to the start of work. Contact number to call to request locations is (954) 467-7099. At least two weeks should be allowed for requested work to be completed. The Contractor shall be responsible for protecting cable location markings, and shall be responsible for any damage to cables within three feet of the marked cable route.

The Contractor shall also ascertain the location of all utility services (water, sewer, gas, electrical, power, telephone, etc.) within the work limits and ensure that continual and equal service is maintained during all construction activities.

Should any FAA, FP&L, AT&T, or other outside utility company's cable or facility be inadvertently cut, damaged, or disrupted, the owner of that cable or facility shall be notified immediately. The Contractor shall not make any splices or repairs in such cables or facilities unless specifically authorized by the owner of that cable or facility. The Contractor shall be responsible for the cost of any repairs required.

All locations indicated on the plans are approximate and shall be field verified prior to beginning construction.

- 2.5 The Contractor's activities must not degrade in any way the security provided by the airport perimeter fence, unless Airport Management approves specific exemptions to this provision in advance of construction activities. Any temporary gates installed or fencing relocated for the Contractor at his expense shall maintain this project in a secure condition at all times. The Contractor shall provide a security guard at each of his access points to the airport, unless they are locked and secured, in order to prevent unauthorized persons from entering and to direct authorized construction vehicles on the proper route to their destination within the airport. A portable guard house shall be utilized at all construction gates and shall be located in close proximity to the gate. An employee sitting in a car "watching the gate" shall not be acceptable. If any gate is found to be unlocked without a guard in place, or should the guard allow any access

SUPPLEMENTAL CONDITIONS**SUP-2**

FXE TAXIWAY FOXTROT LIGHTING IMPROVEMENTS**CITY PROJECT NO. 12357**

without verifying the proper authority for access, the Contractor shall be fined \$500 for each occurrence.

- 2.6 The Contractor shall be responsible for controlling smoke and dust or blowing sand or soil caused by construction activities using one or a combination of the following methods, to the satisfaction of the Engineer and the Airport Management:
- A. Application of water and/or calcium chloride (minimum of three times per day or as directed by the Engineer).
 - B. Exposing the minimum area of erodible earth at one time.
 - C. Applying temporary mulch with or without seeding (only in locations as approved by Airport Management).
 - D. Using covered haul trucks.

Additionally, contractor shall be required to keep a vacuum sweeper vehicle with operator on duty during all hauling operations across pavement in use by aircraft. No additional compensation will be provided for dust or sand control.

- 2.7 Attractions for birds in the area of construction, such as trash, unprotected grass seeding, or ponded water must be avoided.
- 2.8 All electrical work shall be in strict accordance with the National Electric Code, latest edition. Electrical sub-contractor must furnish after hours contact phone number in case of emergency. This number must be an actual number and not an answering service.
- 2.9 Definitions:

Air Operations Area (AOA) - An AOA is any area of the airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An AOA shall include such paved or unpaved areas that are intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.

NOTAM (Notice to Airmen) - NOTAMs are advisories issued by FAA Flight Service Station when conditions at an airport exist that could adversely affect safe aircraft operations such as construction related closures or hazardous conditions.

Any construction activity within 200 feet from runway centerline or within 65 feet from taxiway centerline will be considered to be within the AOA and will require closure of the affected areas (the exception being work specifically approved by Airport Management and FAA up to active aprons and taxiways). Such closures of an AOA must be coordinated with Airport Management at least 48 hours prior to commencing proposed work in order that arrangements can be made for issuance of applicable NOTAMs. The Contractor shall not close an AOA until so authorized by Airport Management and until the necessary temporary barricades and closure markings are in place. The sequence of construction phases and updated work schedules shall be provided to the Engineer to enable close coordination with aircraft routing and operations and maintain the currency of NOTAMs during the construction period. The Contractor shall also advise the Airport Management when situations have been improved to a point where NOTAMs may be cancelled. **Once a NOTAM has been issued, Contractor shall adhere strictly to the construction schedule agreed to for the NOTAM.**

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FXE TAXIWAY FOXTROT LIGHTING IMPROVEMENTS**CITY PROJECT NO. 12357**

2.10 At times when Runway threshold is displaced, or equipment is operating in the ILS critical zone, the ILS must be taken off the air or ILS operations restricted by the ATCT. Also, when equipment is operating between a localizer antenna and its associated threshold, that localizer must be taken off the air. Due to such requirements, such work must be closely coordinated with the Airport Management requiring timing described above necessary for the issuance of applicable NOTAMs. If construction operations require shutdown of a navigational aid from service for more than 24 hours or in excess of 4 hours daily on consecutive days, a 45-day minimum notice is desirable prior to the facility shutdown. Additionally, the Contractor shall cease construction and remove all equipment from the critical area when directed by the FAA or airport personnel due to weather or other special operating conditions.

2.11 Definition:

Federal Aviation Regulations (FAR) Part 77 - Objects Affecting Navigable Airspace - Applicable section of this advisory establishes standards for determining obstructions in navigable airspace by establishing imaginary surfaces with relation to the airport and to each runway.

No penetrations of the imaginary surfaces defined in FAR Part 77 shall be allowed unless approval is obtained from Airport Management and the FAA. When penetrations are unavoidable, approval should be requested as far in advance as is practical to allow, if such penetrations are acceptable, sufficient time for issuance of applicable NOTAMs. The Contractor shall prepare appropriate sketches with precise locations shown on the Airport Layout Plan along with elevations depicting the obstructing objects' relationship to the imaginary surfaces. Special approval must be obtained from Airport Management and the FAA for use of equipment exceeding a height of 30 feet. All exceptionally tall equipment (such as cranes, derricks, etc.) operating on the airport shall be in direct radio communication with the control tower (e.g., two-way radios, ground control frequency of 121.75 Mhz, operators proficient in English, experienced or trained in such communication and required response).

2.12 All excavations exceeding 3 inches depth and width or slopes greater than 5% within runway or taxiway or runway/taxiway safety areas shall be backfilled or covered prior to reopening the runway or taxiway. No open trenches (exceeding 3 inches depth and width) will be permitted overnight or over weekends within the runway/taxiway safety areas. The Engineer and Airport Management must approve any deviation from the requirements. All open trenches, stockpiled material, and excavation not within the areas described above shall be permanently marked with orange flags and lighted with flashing amber light units which shall operate continuously.

2.13 Runways and taxiways shall be kept free of all debris, dirt, trash, refuse, water bottles, soda cans, etc., at all times. Material tracked onto these areas shall be removed immediately. Contractor must keep a vacuum sweeper vehicle with operator on site with operator on duty during all hauling operations across pavement in use by aircraft. Continuous inspections will be made. See item 2.6 for approved methods of debris control.

2.14 Work on the airport is also in close proximity to potable water supply wellfields, requiring that extreme care be taken when handling fuel, oils, etc. Any spillages should be promptly and properly cleaned up. The stipulations of the Broward County Water Resources Management Division "Checklist for Surface Water Management" are

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permit requirements and dictate preventative measures necessitated by construction in such wellfield areas.

- 2.15 Open flame welding or torch-cutting operations are prohibited unless adequate fire and safety precautions are provided and have been approved by the Engineer.
- 2.16 Construction safety meetings shall be established for the life of the contract to monitor, coordinate and adopt safety measures, on all matters of airport safety relating to this contract. Meetings will be scheduled by the Engineer at least once every week to discuss project schedule and applicable safety measures. These meetings shall be composed of the Contractor's superintendent, the Inspector, Airport Management, and (if available) the FAA/FDOT. In addition, representatives of the Fixed Base Operator (FBO) tenants may be invited, their attendance optional, and at their own discretion. The Owner reserves the right to amend the plan as necessary to maintain an acceptable level of safety during construction. Sub-contractors shall also be required to attend these meetings if they are scheduled to be performing any work on the project.
- 2.17 During the pre-construction Meeting, the Contractor shall designate a representative to be responsible for the safety aspects of the project. The representative shall be available on a 24-hour basis. In addition, the Contractor shall designate a responsible representative on call 24 hours per day for emergency maintenance of airport hazard lighting and barricades.
- 2.18 In addition to the appropriate notification procedures, temporary runway and taxiway closures require that the applicable lighting circuits be disconnected during the closure period. Temporarily closed taxiways are usually treated as unusable, or hazardous, areas (as described below).
- 2.19 Hazardous areas, in which no part of an aircraft may enter, are indicated by use of barricades with alternate orange and white markings. The barricades are supplemented with orange flags at least 20 by 20 inches square and made and installed so that they are always in the extended position and properly oriented. For nighttime use, the barricades are to be supplemented with flashing red lights. The intensity of the lights and spacing for barricades, flags, and lights must be such that they adequately delineate the hazardous area.

3. PROTECTION OF WILDLIFE AND NATURAL HABITAT

The Contractor shall make provisions to protect the existing wildlife on the airport within the limits of this project. Known nests for burrowing owls and turtles are marked with a white PVC T in the ground. Contractor shall investigate the stockpile area, work area, and haul routes for marked and unmarked nests before storing materials and beginning construction. All unmarked nests shall be marked with a white PVC T. Existing markers shall not be removed without Engineer's approval. Nests shall be protected with the construction of temporary safety fencing. Said fencing to be placed within a 50-foot radius of nesting holes, to be approximately 3 feet in height, and to be made out of orange PVC material.

All reasonable efforts must be made by the Contractor to protect the existing wildlife and their nests. Nests that lie directly in the construction area that cannot co-exist with construction must be brought to the Engineer's attention. Nests may not be displaced or destroyed without the Engineer's approval.

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Work areas and access to work areas shall be clearly delineated by the Contractor to avoid vehicular movement in turf areas that may contain nests or other features that could be damaged or destroyed by unnecessary traffic. All construction traffic shall be confined to paved areas to the greatest extent possible.

4. PORTABLE CONSTRUCTION LIGHTING-N/A

The Contractor is responsible for providing work area lighting of sufficient quality and quantity to construct the Work to the quality standards called for in the Plans and Specifications. At a minimum the construction lighting shall meet the following requirements:

- a. For any construction that will be performed during nighttime hours the Contractor shall ensure that the work areas are adequately illuminated. A minimum of 10-foot candles of illumination shall be provided in the work areas, using maneuverable light plants with 1,000-watt metal halide floodlights, mounted as high as practicality will allow. The Contractor shall determine the number of light plants and their required spacing to achieve the illumination levels specified herein.

The light should be positioned to provide the most natural color illumination and contrast with a minimum of shadows. The pavement area shall be lighted at a maximum spacing of 100 feet from both sides to eliminate objectionable shadows. A demonstration of the adequacy of the lighting will be required prior to beginning any night work. The Contractor shall work with Airport Operations when determining positions for each portable light unit so that the lighting will not interfere with the vision of pilots or Air Traffic Control Tower personnel.

- b. For night work, the Contractor shall equip all paving machines, rollers, distributor trucks, and other equipment with artificial illumination to safely illuminate the area immediately surrounding their work areas.
- c. Contractor shall remove all equipment and store in the staging areas during non-working hours, and prior to the re-opening of the Runways.

5. STAND-BY EQUIPMENT – N/A

- a. The Contractor shall maintain stand-by equipment at the construction site for all construction work to be performed under this Contract. The specific number and type of equipment shall be that which is necessary to complete the work planned for that work period should any piece of equipment break down. At a minimum, at least one milling machine, one paving machine, and one roller will be required on stand-by whenever the taxiway is being worked on. The Contractor is advised that work during 24-hour per day closures, night closures, and weekend closures is more intensive than that performed at other times; therefore, additional stand-by equipment may need to be provided by the Contractor for the 24-hour per day closures, night closures, and weekend closure work.

Standby equipment includes equipment such as paving machines, milling machines, rollers, trenching machines, core drills, backhoes, graders, and tack coat distributor trucks and any other equipment necessary to complete the proposed work. In addition, stand-by clean up equipment such as sweepers, brooms, vacuum trucks, water trucks, and air compressors with wands for blowing debris from cracks, shall be available to ensure timely re-opening of the pavement at the end of each work period.

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FXE TAXIWAY FOXTROT LIGHTING IMPROVEMENTS**CITY PROJECT NO. 12357**

- b. Stand-by equipment may only be used to replace broken equipment during a work period. The Contractor shall properly repair or replace broken equipment before being allowed to proceed with the next work period.
- c. The Contractor shall ensure arrangement for supply of enough material to re-open the construction area to aircraft operations in case of break down of an asphalt production plant. This will include back-up plants, storage of a minimum quantity of material, in storage bins at the start of each shift's work, as well as material in trucks. In the event of an emergency beyond the control of the Contractor that reduces asphalt production during a work period, the Contractor may be permitted to mill out materials placed to meet grade or transition requirements. Any material milled to facilitate re-opening of the runway due to break-down of an asphalt plant or lack of stored material shall not be eligible for payment.
- d. The Contractor shall submit a listing and description of all regular and standby equipment that will be provided for 24-hour per day closures, night closures, weekend closures, and other work, by number, type, size, and manufacturer to the Engineer for acceptance.
- e. Should Contractor fail to have adequate standby equipment in place at beginning of each work shift, the Contractor shall be denied opportunity to continue for that work shift. Said denial shall only be lifted when Contractor provides adequate standby equipment. Contractor shall not be entitled to additional time to compensate for lost time due to inadequate standby equipment being available.
- f. Contractor shall maintain adequate equipment on site at all times to allow adequate clean up to open pavement for aircraft use. At a minimum, the Contractor shall have a vacuum truck and a power broom on site and ready for use.

6. PRE-PHASE COORDINATION MEETINGS-N/A

At least 10 calendar days prior to beginning each phase of the Work, the Contractor shall hold a planning meeting to discuss, at a minimum, operational restrictions, work to be performed, haul routes (including Contractor signing and marking), closures, safety, testing requirements, submittal requirements, inspection requirements, schedule, communications, erosion control, stockpile locations and disposal schedule, location of stand-by equipment, salvaged materials container location, barricade layout, barricade placement schedule (including barricade storage areas during non-working hours) and other topics as appropriate. The Contractor shall submit a plan for all of the elements described above, to the Engineer for review, no less than 10 calendar days prior to each pre-phase meeting.

The Contractor shall prepare a construction traffic control plan for each haul route. The Contractor's traffic control plan shall conform to the requirements of the City traffic engineer, and shall be approved by the Engineer. The plan shall be included in Contractor's submittal for the pre-phase coordination meeting. When the haul route is not in use, all traffic control signs shall either be covered or removed and stored. The Contractor shall remove all construction signs after the completion of the work.

7. SCHEDULING AND DAILY OPERATIONS

All work hours will be subject to written approval of the Engineer and Airport Operations, and in accordance with the approved work schedule. The Contractor shall also provide weekly and daily work plans. The Contractor shall have equipment and personnel staged and ready to occupy the site at the start time listed. **No runway closure will take place until the**

SUPPLEMENTAL CONDITIONS**SUP-7**

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Contractor's equipment and personnel are in place as close as practical to the work area and ready to proceed into the work area and begin operations. Prior to the end of each work shift, the Contractor shall arrange to have Airport Operations inspect the site to confirm that the site is being left in a satisfactory condition. The Contractor shall allow sufficient time to make any corrections and or cleanup items found to be deficient before opening at the required times listed. Any runway or taxiway safety area that does not pass the operations inspection shall remain closed until corrective measures are complete and approved by Airport Operations.

8. OPERATING CONDITIONS AND SAFETY

All Contractor operations and activities shall comply with the requirements contained or identified in the Plans and these Specifications. Night work shall require use of sufficient portable light towers to provide safe and efficient operation conditions.

9. PHASING AND SCHEDULE NOTES

All Contractor phasing and scheduling of construction operations and activities shall comply with the requirements contained or identified in the Plans and these Specifications. The phasing schedule represents the general sequence of the Work. Although the intent is for each phase to be completed in the order indicated, the Contractor may be directed by the Engineer to change the order of phases, at no additional cost to the Owner.

10. CONTRACTOR'S CORRECTIVE ACTION PLAN

Should contractor repeatedly fail to open a runway/taxiway on time, City may instruct Contractor to stop work until such time as Contractor presents a plan acceptable to the City to modify operations to ensure opening of runway/taxiway at the scheduled time. For the purposes herein, repeatedly shall be defined as 3 or more times. Should said work stoppage be found to be necessary, it is understood that it is due solely to the Contractor's failure to perform in accordance with the contract requirements and the Contractor shall not be entitled to any additional time for construction, nor shall he be entitled to any additional compensation for any cause alleged to be due to the work stoppage.

Construction Safety & Phasing Plan

Fort Lauderdale Executive Airport Taxiway Foxtrot Lighting Improvements



City Project No.: 12357

May 7, 2018

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Appendix A – Project Layout

Appendix B – Construction Project Daily Inspection Checklist

GENERAL INFORMATION AND SCOPE OF WORK

This Construction Safety and Phasing Plan is being submitted in compliance with FAA A/C 150-5370-2G, current edition.

This project is for the replacement of the taxiway edge lights along the western section of Taxiway Foxtrot from Runway 13 to Taxiway Lima with new LED lights. The edge lights along Taxiway Bravo between Taxiway Foxtrot and Runway 9/27 will also be replaced with new LED lights. The existing taxiway guidance signs within this area will also be replaced with new LED units as part of this project. New cabling and junctions can plazas will be installed as well.

See Appendix A for layout of proposed work.

CONSTRUCTION PHASING AND SAFETY PLAN REQUIREMENTS

1. Coordination

- (a) Contractor progress meetings-Contractor will attend a pre-construction meeting with airport personnel, City, Air Traffic Control Tower (ATCT) staff, consultant, and construction management/inspection personnel at a date prior to commencement of construction activities. This meeting will address project scope, contact personnel, correspondence requirements, safety issues, submittal requirements, pay application procedures, initial construction schedule, contractor access, haul routes, and any other items that the parties deem necessary.

Weekly construction progress meeting will be held with the contractor, airport personnel, ATCT personnel, consultant, and other affected parties to coordinate work activities and operational safety issues/concerns. Agenda items for these meetings shall include, but not be limited to: current project status, upcoming project/2-week look-ahead schedule, safety and phasing, contractor coordination and NOTAM's, change orders, and clean-up/FOD control. Meeting minutes will be provided to all attendees within 48 hours by e-mail. If requested, copies of all minutes will be provided to FAA Airport District Office (ADO) at the completion of the project.

- (b) Scope or schedule changes-Any changes to the work scope or the construction schedule will be reviewed by the proper airport personnel and consultant to determine if such modifications are warranted and to judge their potential impact on the project. Once reviewed, the CSPP will be revised to include such changes and will be forwarded to the FAA ADO for their review and approval.
- (c) FAA coordination-Airport will coordinate with FAA Air Traffic Organization (ATO) to notify them of any conditions that may adversely affect the operational safety of the airport as well as any relocation to NAVAID's during the construction phase. Airport will provide quarterly updates to FAA ADO on the status of the construction.

2. Phasing

- (a) Phase elements-Phasing for the construction is included in Appendix A. Construction staging areas and general notes, as well as access routes to the construction site are shown in Appendix A.

- (b) Construction safety drawings-Construction safety drawings, notes, and details for barricades are shown in Appendix A. Low level airfield barricades will be used on this project. These barricades will have warning lights attached to each end per the detail on Appendix A.

3. Areas and Operations Affected by the Construction Activity.

- (a) Identification of affected areas-The areas that will be primarily affected by the construction is the Runway Safety Area (RSA), Runway Object Free Area (ROFA), and Runway Obstacle Free Zone (ROFZ) along runways 9-27 and 13-31, as shown in Appendix A.
- (b) Mitigation of effects-Phasing plans call for the closing of runways 9-27 and 13-31 during various stages of the work. All closures will be coordinated with the ATCT and through NOTAM's issued by airport staff. The Contractor shall abide by the safety setbacks shown on the Construction Phasing plans.

4. Protection of Navigation Aids (NAVAIDs)

There are no NAVAIDs within the construction area.

5. Contractor Access.

- (a) Location of stockpiled construction materials-The contractor will not be permitted to stockpile materials or construction equipment within the RSA and ROFA. Equipment will be parked within the contractor's staging area at the end of the working day. Material and excavated fill will be removed from the site and taken to the contractor's staging area for disposal off-site (see Appendix A).
- (b) Vehicle and pedestrian operations- Vehicle parking for contractor personnel will be provided for in the staging and storage area off-site from the construction area as shown in Appendix A. Construction vehicles will be parked within the contractor's staging area.

Access/haul roads to the site shall be clearly marked with Type II barricades and will be clearly marked for the contractor. All construction vehicles shall be equipped with flashing amber dome-type light mounted on top of the vehicle as well as 36"x36" orange-and-white, checkerboard flag.

No vehicles will be allowed on the airfield without escort from airport/City personnel. In addition, all contractor personnel will be required to take an airfield training class prior to receiving their identification badges. These badges are to be worn by all construction personnel while on the airside. Any person not wearing a badge will be asked to show his badge or leave the site. Construction personnel will be given instruction on which areas of the airfield are off-limits without proper escort. Any incursion of these areas will result in a \$500 fine and removal from the project.

Communication with the ATCT will be through an airfield trained inspector, or security personnel, by two-way radio. The inspector will also provide escort to all construction personnel to and from the work site. Contractor will also be responsible for maintaining the security fencing and gates during construction.

6. Wildlife Management.

- (a) Trash-Contractor will be required to remove any waste/food material that may attract wildlife as well as avoid construction activities that will create wildlife hazards at the airport during construction. The contractor will emphasize to his employees the need for daily foreign object debris (FOD) checks on or near active airfield pavements. FOD checks will be conducted daily at the end of each construction shift.
- (b) Standing water-Contractor will be required to avoid any activities that may cause standing water at the construction site and attract wildlife.
- (c) Poorly maintained fencing and gates-Contractor will be responsible for maintaining and replacing any damaged portion of the security fencing and gates during construction.
- (d) Disruption of existing wildlife habitat-Contractor shall make every effort to minimize disruption to the existing wildlife. If the contractor should come into contact with wildlife habitat at the site he shall immediately cease operations and inform the airport. The airport will use an environmental firm to determine what the best course of action will be to minimize any further impact to the wildlife.

7. Foreign Object Debris (FOD) Management.

Contractor will be required to remove any FOD from the work area and adjacent runway and taxiway. Prior to leaving the work area the contractor will be required to inspect the site with airport and inspection personnel to determine if the site is clear of FOD.

8. Hazardous Materials (HAZMAT) Management.

Contractor will be required to provide a spill prevention and clean-up plan in the case of a fuel or hydraulic fluid leak on the airport prior to being allowed on the work site and will conform to AC 150/5320-15.

9. Notification of Construction Activities.

- (a) Maintenance of a list of responsible representatives/points of contact-Contractor will be required to submit a contact list of all involved parties to include cell/phone numbers for contact after hours.
- (b) Notices to Airmen (NOTAM)-The airport operator will issue and cancel NOTAM's issued as part of the construction activities and coordinate said NOTAM's with tenants and ATCT personnel. Airport operator will also be responsible for providing information to the FAA Flight Service Station (FSS).
- (c) Emergency Notification Procedures-Emergency contact information for medical, firefighting, and police will be provided to the contractor by airport operations.
- (d) Coordination with ARFF Personnel-ARFF personnel will be informed during construction activities on the airfield. There will be no deactivation of water lines, hydrants, blocking of emergency access routes during the construction of the project.

- (e) Notification to the FAA-The airport has filed a notification with the ADO through the OEAAA.faa.gov website (ASN#: 2018-ASO-2012-NRA through 2018-ASO-2014-NRA).

10. Inspection Requirements.

- (a) Daily (or more frequent) inspections-Inspections will be conducted daily by airport operations staff in conformance with Appendix B-Construction Project Daily Inspection Checklist.
- (b) Final inspections-A final inspection will be held with the contractor, airport personnel, and consultants prior to formal acceptance of the project.

11. Underground Utilities.

The contractor will be required to coordinate with local utilities locating services, "One Call", airport personnel, and FAA ATO personnel to locate and protect any underground services prior to beginning any excavations on the site. Once the locations have been established, the contractor shall make all necessary arrangements to ensure that the facilities remain in a safe and operable condition during construction.

12. Penalties.

Contractor personnel entering a movement area without authorization shall be levied \$500 fine as well as removal from the job site. Personnel found to be on the jobsite without an airport issued identification badge will be immediately removed from job site. If security access gate is found to be left unmanned and unlocked, or should a guard under the employ of the contractor allow access to the work site without verifying the proper identification, the Contractor shall be fined \$500 for each occurrence.

13. Special Conditions.

Any security breach and/or Vehicle /Pedestrian Deviation (VPD) by the contractor or his personnel will be cause for the airport to suspend work until such matters are resolved to the airport's satisfaction and corrective measures have been taken by the contractor. All construction activity will be suspended in the event of an incident involving an aircraft in distress or airfield accident.

14. Runway and Taxiway Visual Aids, Marking, Lighting, Signs, and Visual NAVAIDS.

- (a) General-Construction operations will not obscure or damage existing markings, lighting, and signage. In addition, all new lighting and signage will be secured in place to prevent movement by jet blast/prop wash and will be mounted on frangible bases.
- (b) Markings-All airfield markings will be in compliance with A/C 150-5340-1L, current edition. Runways that will be temporarily closed to airport operations during construction will be marked with yellow lighted "X" placed on the runway designation numbers. Taxiway closure will be designated by low-level, lighted barricades placed at the entrance to the closed taxiway from the runway. These barricades will be maintained by the contractor.

- (c) Lighting and Visual NAVAIDs-All lighting will conform to AC 150/5340-30H, current edition. Light fixtures will be removed from the closed taxiway and lighting circuits will be disconnected. Temporary jumpers will be installed to maintain the airfield lighting system.

15. Marking and Signs for Access Routes.

Pavement markings will conform to AC 150/5340-1L, current edition, as indicated on the plans and specifications. All construction signage shall meet the requirements of the MUTCD, latest edition.

16. Hazard Marking and Lighting.

- (a) Purpose-To prevent pilots from entering construction areas that are closed to aircraft as well as prevent construction personnel from entering areas that are open to aircraft operations by use of warning indicators for both pilots and contractor personnel.
- (b) Equipment-Low-level airfield barricades equipped with flashing red-lights and flags will be used to close the work area to aircraft. The barricades shall be spaced no greater than 20' center-to-center. Sand bags will be used to hold the barricades in place against prop wash/jet blast.

The contractor will be responsible for maintaining the lights and barricades in working order throughout the project and shall have replacement flags, lights, and batteries on-site as well as designated employee that will be on call 24-hours/day to maintain the barricades.

17. Protection. Of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces.

- (a) Runway Safety Area (RSA)-The project will require work within the RSA of runways 9-27 and 13-31. As such, the runways will be closed during these operations and proper notices issued via NOTAM's.
- (b) Runway Object Free Area (ROFA)-All construction equipment will be removed from the ROFA at the end of the work day. In addition, no materials will be allowed to be stockpiled within the ROFA.
- (c) Taxiway Safety Area (TSA)-The project will require work within the Taxiway Safety Area (TSA). However, the work area will be closed off as shown on Appendix A during the construction period.
- (d) Taxiway Object Free Area (TOFA)-The project will require work within the TOFA. However, the work area will be closed off as shown on Appendix A during the construction period.
- (e) Obstacle Free Zone (OFZ)-The project will require work within the OFZ of runways 9-27 and 13-31. As such, the runway will be closed during these operations and proper notices issued via NOTAM's.

- (f) Runway approach/departure surfaces-The project will require access to and from the work site that will be within the approach/departure surfaces of runway 13-31. Airport operations will coordinate movement within these areas with ATCT personnel and issue the proper NOTAM's.

18. Other limitations on construction.

- (a) Prohibitions-The following prohibitions will be in place during construction: No use of tall equipment such as cranes will be allowed unless a 7460-1 has been filed with the FAA; no open flame welding or torches will be allowed; no blasting on airport property; and no use of flare pots within AOA.
- (b) Restrictions-The contractor will not be allowed access to any areas outside of the work site without escort by airport or inspection personnel. In addition, the contractor will submit a Hurricane Preparedness Plan detailing how the contractor will secure the work area equipment and materials to prevent damage to the work and prevent materials and equipment from becoming a hazard to persons and property on the airfield.

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APPENDIX A

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APPENDIX B

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GENERAL REQUIREMENTS

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FXE TAXIWAY FOXTROT LIGHTING IMPROVEMENTS

PROJECT 12357

**SECTION 011000
SUMMARY****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.
 - 1. The written specifications package entitled **Fort Lauderdale Executive Airport Taxiway Foxtrot Lighting Improvements, City Project P12357.**

1.2 INTENT OF DRAWINGS AND SPECIFICATIONS

- A. Intent of the drawings and specifications is to cover an installation complete in every respect. It is not necessarily intended to provide every detail on drawings or in the specifications. The City will not be responsible for absence of any detail which the Contractor may require nor for any special construction which may be found necessary as work progresses. If an item is either indicated or specified, it shall be considered sufficient for inclusion of said item in the contract. Contractor shall furnish and install materials and equipment normally furnished with such systems and as needed to complete a fully operational installation, whether mentioned or not, which are customary to the trade.
- B. Incidental accessories not usually shown or specified, but which are necessary for the proper installation and operation shall be included in the work without additional cost to the City, as if herein depicted or specified.
- C. Any material or work not shown on drawings, but mentioned in specifications, or vice versa, shall be furnished, delivered and installed by the Contractor without additional cost to the City.
- D. Drawings are diagrammatic and indicate the general arrangement of systems and work indicated (do not scale drawings).

1.3 SUMMARY

- A. This Section includes the following:
 - 1. Project Information
 - 2. Work covered by the Contract Documents
 - 3. Phased construction
 - 4. Use of Premises
 - 5. Work restrictions
 - 6. Mobilization

1.4 PROJECT INFORMATION

- A. Project Identification: Project 12357 – Executive Airport Taxiway Foxtrot Lighting Improvements
 - 1. Project Location: 6000 NW 21st Avenue, Fort Lauderdale, FL 33309

FXE TAXIWAY FOXTROT LIGHTING IMPROVEMENTS

PROJECT 12357

- B. Owner: City of Fort Lauderdale
 - 1. City's Representative: Fernando Blanco, Airport Engineer/Project Manager II

1.5 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work is defined by the Contract Documents and consists of the following:

The work includes, but is not limited to the following: replacement of taxiway edge lighting with new LED elevated edge lights, removal and disposal of electrical pull-boxes, installation of junction can plazas, modifications to existing airfield guidance signs, remove and dispose of existing guidance signs and install new LED airfield guidance signs, conduits, and replacing existing cabling.

- 1. Project will be constructed under a single prime contract.
 - a. Division of work: The division of work among it's separate Subcontractors is the responsibility of the General Contractor, and the City assumes no responsibility to act as arbitrator to establish subcontract limits between any sections of the work.

1.6 PHASED CONSTRUCTION

- A. The Work shall be conducted in phases, with each phase substantially complete as indicated in the construction plans.
- B. Before commencing Work of each phase, submit a schedule showing the sequence, commencement and completion dates for all phases of the Work.

1.7 USE OF PREMISES

- A. General: Contractor shall have full use of project site for construction operations during construction period.
- B. Use of Site: Limit use of project site to areas within the contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to City, City's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.8 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations as listed here and in the construction plans.
 - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

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- B. On-Site Work Hours: Work shall be generally performed as indicated in the construction plans.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by City or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify City not less than two working days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without City's written permission.
- D. Employee Identification: Owner will provide identification tags for Contractor personnel working on the Project site. Require personnel to utilize identification tags at all times.

PART 2 - PRODUCTS (Not Used)**PART 3 - EXECUTION (Not Used)****END OF SECTION 011000**

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SUMMARY

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**SECTION 012600
CONTRACT MODIFICATION PROCEDURES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Engineer will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on form included following the end of Part 3.

1.4 REQUESTS FOR INFORMATION

- A. If latent or unforeseen conditions arise that may require changes in the Work, the Contractor may submit a Request for Information to the Project Manager on the form included following the end of Part 3.

1.5 PROPOSAL REQUESTS

- A. City-Initiated Proposal Requests: Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Engineer are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.

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- d. Include an updated Contractor's Construction Schedule that indicates the effect of the change.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Engineer.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 4. Include costs of labor and supervision directly attributable to the change.
 5. Include an updated Contractor's Construction Schedule that indicates the effect of the change.
 6. Comply with requirements in General Conditions Section GC-03 "Substitution" if the proposed change requires substitution of one product or system for product or system specified.

1.6 ADMINISTRATIVE CHANGE ORDERS

- A. Unit Price Adjustment: Refer to Construction Agreement, Article 14, for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit price work.

1.7 CHANGE ORDER PROCEDURES

- A. On City's approval of a Proposal Request, Engineer will issue a Change Order for signature of the Contractor on City's standard form. The Change Order will not be official until approved and signed by the appropriate City Officials.

PART 2 - PRODUCTS (Not Used)**PART 3 - EXECUTION (Not Used)**

END OF SECTION 012600

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**SUPPLEMENTAL INSTRUCTIONS
FOR MINOR CHANGES**

CITY OF FORT LAUDERDALE

CITY PROJECT NO: #P

REQUEST NO:

PROJECT:

DATE:

OWNER: **City of Fort Lauderdale**

CONTRACTOR:

TO:

CONTRACT DATED:

The work shall be carried out in accordance with the following supplemental instructions issued in accordance with the Contract Documents without change in Contract Sum or Contract Time. Prior to proceeding in accordance with these instructions, indicate your acceptance of these instructions for minor changes to the Work as consistent with the Contract Documents and return a copy to the City.

DESCRIPTION:

ATTACHMENTS:

ENGINEER:

FAXED TO: () Contractor
() Site Office
() Eng. Insp. (954) 828-5074

CC: Project Inspector
Main File

CONTRACT MODIFICATION PROCEDURES

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PROPOSAL REQUEST**CITY OF FORT LAUDERDALE**

CITY PROJECT NO: #P

REQUEST NO:

PROJECT:

DATE:

OWNER: **City of Fort Lauderdale**

CONTRACTOR:

TO:

CONTRACT DATED:

Please submit an itemized quotation for changes in the **CONTRACT SUM** and/or **TIME** incidental to the proposed modifications to the Contract Documents described herein.

THIS IS NOT A CHANGE ORDER NOR A DIRECTION TO PROCEED WITH THE WORK DESCRIBED HEREIN.

DESCRIPTION:

ATTACHMENTS:

ENGINEER:

FAXED TO: () Contractor
() Site Office
() Eng. Insp. (954) 828-5074

CC: Project Inspector
Main File

CONTRACT MODIFICATION PROCEDURES

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REQUEST FOR SUBSTITUTION CITY OF FORT LAUDERDALE

CITY PROJECT NO: #P

REQUEST NO:

PROJECT:

OWNER: **City of Fort Lauderdale**

TO:

DATE:

CONTRACTOR:

CONTRACT DATED:

NAME AND ADDRESS OF CONTRACTOR:

hereby requests acceptance of the following product or system as an "acceptable substitution".

NAME AND DESCRIPTION OF SPECIFIED PRODUCT OR SYSTEM:

MANUFACTURER:

SPECIFICATION SECTION _____, PAGE(S) _____

PARAGRAPH(S) _____

DRAWING _____ DETAIL NUMBER _____

NAME AND DESCRIPTION OF PROPOSED SUBSTITUTION:

MANUFACTURER: _____

ADDRESS: _____

TELEPHONE: _____

NAME OF VENDOR: _____

NAME AND ADDRESS OF PREVIOUS PROJECT WHERE PROPOSED SUBSTITUTION
WAS UTILIZED:

TELEPHONE: _____

REASON FOR PROPOSING SUBSTITUTION: _____

DOES SUBSTITUTION AFFECT OTHER MATERIALS, INSTALLATION OR SYSTEMS?

YES _____ NO _____ IF YES, ATTACHED COMPLETE DATA.

DOES SUBSTITUTION REQUIRE REVISION OR REDESIGN OF ANY COMPONENT OF
BUILDING OR ELECTRICAL OR MECHANICAL WORK?

YES _____ NO _____ IF YES, ATTACHED COMPLETE DATA.

THE ATTACHED DATA IS FURNISHED FOR EVALUATION OF THE SUBSTITUTION:

() CATALOG () DRAWINGS () SAMPLES () TESTS () REPORTS () OTHER

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REQUEST FOR SUBSTITUTION**SAVING TO CITY FOR ACCEPTING SUBSTITUTE:**

COST OF SPECIFIED ITEM:

DOLLARS
(\$_____)

COST OF SUBSTITUTION ITEM:

DOLLARS
(\$_____)

TOTAL SAVINGS (CREDIT) TO CITY FOR ACCEPTING SUBSTITUTE:

DOLLARS
(\$_____)

THE UNDERSIGNED HEREBY CERTIFIES THAT THIS PROPOSED SUBSTITUTION HAS BEEN FULLY CHECKED AND COORDINATED WITH THE CONTRACT DOCUMENTS, THAT THE PROPOSED SUBSTITUTION MEETS OR EXCEEDS THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND THAT ALL INFORMATION IS TRUE AND ACCURATE.

FIRM NAME: _____

BY: _____

DATE SIGNED: _____

PRINT NAME LEGIBLY: _____

FAXED TO:
CC

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**SECTION 012900
PAYMENT PROCEDURES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Division 01 Section "Unit Prices" for administrative requirements governing use of unit prices.
 - 3. Division 01 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.
- C. BASIS OF PAYMENT - The price for each items shall include the furnishing of all labor, materials, equipment and incidentals required to complete the construction and to repair in a manner satisfactory to the Engineer any and all damage, as a result of work under this contract, done to existing structures, pavement, grass, utility pipe lines, conduits, drains, catch basins, and including all above and underground obstructions not specifically named here-in: replacing in a manner satisfactory to the Engineer and or all of the above items which may be damaged beyond repair as a result of work under this contract.
- D. Retainage: The City shall retain a portion of each partial payment according to the following schedule:
 - 1. The City will retain ten percent (10%) of all monies earned by Contractor until the work has been accepted by the City as Substantially Complete. Upon Substantial Completion, retainage may be reduced to 5% with approval of the Project Manager.

1.3 APPLICATIONS FOR PAYMENT

- A. The General Contractor must meet with the City Representative on or about the 25th of each month. The City Representative will go over the pay items and agree on the quantities and the dollar amounts of the work completed during the month. A copy of the agreed amounts will be signed by the parties and a copy will be left with each representative.
- B. The General Contractor will make up a partial pay request using the City-supplied forms and submit the request to the City Representative before the first of the upcoming month.

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- C. Each pay request must be accompanied by a partial release of lien by the General Contractor and by all Subcontractors, suppliers, and for all labor, as outlined below.
1. Starting with the second (2nd) pay request and for each and every pay request thereafter, the General Contractor shall submit partial release of liens from all Subcontractors, suppliers, and laborers covering the preceding month's request (SEE FOLLOWING EXAMPLE).
 2. EXAMPLE: In the first (1st) pay request, payment is requested by General Contractor for the electrician. The General Contractor must attach his partial release of lien.
 3. For the second (2nd) pay request, the General Contractor must attach his partial release of lien from the electrician for the amounts billed in the 1st pay request; i.e., the General Contractor will be running one (1) month behind with the releases from the Subcontractors, suppliers, etc., until the final pay request.
- D. For the final pay request, the General Contractor will be required to submit FINAL release of liens for ALL Subcontractors, suppliers, etc., and for ALL labor BEFORE FINAL PAYMENT WILL BE MADE.
- E. No partial payments, after the first payment, will be made until all partial release of liens are submitted for the preceding month's billing, as described
- F. Each Application for Payment shall be consistent with previous applications and payments as certified by and paid for by City.
- G. Payment Application Forms: Use City Form "PERIODIC ESTIMATE FOR PARTIAL PAYMENT" as form for Applications for Payment.
1. Application Preparation: Complete every entry on form. Executed by a person authorized to sign legal documents on behalf of Contractor. City will return incomplete applications without action.
 2. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- H. Release of Lien: With each Application for Payment, submit release of lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial release of lien on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final release of lien.
 3. City reserves the right to designate which entities involved in the Work must submit release of lien forms.
- I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Contractor's Construction Schedule (preliminary if not final).
 3. Certificates of insurance and insurance policies.
 4. Performance and payment bonds.

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- J. City may withhold, in whole or in part, payment to such extent as may be necessary to protect itself from loss on account of:
1. Defective Work not remedied.
 2. Claims filed or reasonable evidence indicating probable filing of claims by other parties against Contractor or City because of Contractor's performance.
 3. Failure of Contractor to make payments properly to Subcontractors or for material or labor.
 4. Damage to another contractor not remedied.
 5. Liquidated damages and costs incurred by City and/or Consultant for extended construction administration.
 6. Failure of Contractor to provide any and all documents required by the Contract Documents.
- K. No partial payment estimate will be processed for any contract which is beyond the contract completion date. After a contract runs past the completion date, only a final payment will be made when all work is complete.
- L. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. Evidence that claims have been settled.
 5. Final, liquidated damages settlement statement.
- M. The acceptance of final payment shall constitute a waiver of all claims by contractor, except those previously made in strict accordance with the provisions of the Contract and identified by Contractor as unsettled at the time of the application for final payment.
- N. If evidence is produced before the final settlement of all or any balance, that the party of the second part has failed to pay to laborers, employed on this work, or failed to pay for the materials used therein, or if the City has reason to suspect the same, the City may withhold such balance and, upon written evidence satisfactory to the City as to the amount due for such labor and materials, settle and pay for the same and charge the amounts to the party of the second part and deduct the same from said balance or balances.
- O. Payment for Insurance and Surety/Performance and Payment Bonds can be made upon submittal of the first contractor request for payment, less standard retainage.
- P. The work specified in this Section shall consist of the preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to the project site; and for the establishment of temporary offices, testing services, safety equipment and first aid supplies, sanitary and other facilities, survey services, site clean-up, restoration of disturbed sodded areas and photographs as required by these Specifications and Special Provisions, and any Federal, State and/or local laws and regulations. The costs of any other pre-construction expense necessary for the start of the work, excluding the cost of construction materials, shall also be included in this Section.

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Measurement of mobilization for payment shall be the work under this Section completed and accepted in accordance with the Plans and these Specifications.

<u>Percent of Original Contract Amount Earned</u>	<u>Allowable Percent of the Lump Sum Price For Mobilization</u>
5	25
25	25
50	40
100	10

Partial payments for the item "Mobilization" shall be made in accordance with the above schedule and the sum total of all the partial payments for the item "Mobilization" will be limited to 5% of the original Contract Amount for the project. Any remaining amount will be paid upon completion of all work under the Project.

The standard retainage will be applied to these allowances. Partial payments made on this item shall in no way act to preclude or limit any of the provisions for partial payments otherwise provided for by the Contract.

PART 2 - PRODUCTS (Not Used)**PART 3 - EXECUTION (Not Used)****END OF SECTION 012900**

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**SECTION 013100
PROJECT MANAGEMENT AND COORDINATION****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
1. Coordination Drawings.
 2. Submittals
 3. Special Project Procedures
 4. Administrative and supervisory personnel.
 5. Project meetings.
 6. Requests for Interpretation (RFIs).
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.
- C. Related Sections include the following:
1. Division 01 Section "Summary of Multiple Contracts" for a description of the division of Work among separate contracts and responsibility for coordination activities not in this Section.
 2. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
 3. Division 01 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 4. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.
 5. Division 01 Section "General Commissioning Requirements" for coordinating the Work with Owner's Commissioning Authority.

1.3 DEFINITIONS

- A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.4 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of

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attendees at meetings.

1. Prepare similar memoranda for City and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Construction Schedule.
 2. Preparation of the Schedule of Values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Project closeout activities.
 7. Project closeout activities.

1.5 SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
1. Name, address, and telephone number of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
- B. Key Personnel Names: Within 10 days of contract award, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including office and cell phone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.6 SPECIAL PROJECT PROCEDURES

- A. Discrepancies, Errors: Should discrepancies or errors appear in the drawings or specifications concerning materials, workmanship, or quantity of work to be performed, the Contractor will be required to immediately notify the City before proceeding with the work. If the Contractor fails to notify the City and proceeds with the work, Contractor will be required to correct the errors at his/her own expense. In the event of a conflict between the drawings and specifications, the City will decide on the way to perform the work or supply the materials. See also General Conditions, "Contractor to Check Plans and Data," Section GC-10
- B. Dimensions and Measurements: The figured dimensions on the drawings or notes including dimensions shall be used for construction instead of measurements of the drawings by scale. No scale measurements shall be used as a dimension for construction. Dimensions on all drawings as well as the detail drawings themselves are subject in every case to measurements of adjacent or previously completed work. All such measurements necessary shall be taken before undertaking any work dependent upon such data. Field verification of

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dimensions on plans is mandatory since actual locations, distances, and levels will be governed by actual field conditions.

- C. Discrepancies or Inconsistencies: Should any discrepancy or inconsistency appear between larger and smaller scale drawings in any of the divisions of the specifications or in any of the contract documents, such discrepancy shall be immediately submitted to the City for correction before proceeding with the work in question. In no case shall the Contractor make any alterations, erasures, changes or modifications in the drawings or specifications.
1. Should it appear that any of the work as specified or shown by the drawings is not sufficiently detailed or explained, the Contractor shall apply to the City for such further details or information as may be necessary for full understanding of the work in question.
 2. The data set forth in these specifications and indicated on the drawings are as accurate as can be obtained, but their extreme accuracy is not guaranteed. Final application thereto shall be determined on the job as conditions may demand and subject to the approval of the City.
- D. In the event a Subcontractor or Supplier notes a mistake or details appear incomplete, or if there are questions or concerns with the plans and specifications, the Subcontractor or Supplier will immediately notify the General Contractor. No work will proceed until such conflicts or questions are resolved in writing.

1.7 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. The Contractor shall employ a competent superintendent who can communicate with spoken English, and who shall be in attendance at the site full-time when any work is in progress. The superintendent shall be satisfactory to the City's Engineer and shall not be changed except with the consent of the City's Engineer.
- B. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.
1. Include special personnel required for coordination of operations with other contractors.

1.8 PROJECT MEETINGS

- A. General: Attend meetings and conferences at Project site, unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Construction Project Manager of scheduled meeting dates and times.
- B. Preconstruction Meeting: After the contract(s) has been awarded, executed, and a tentative work schedule has been composed, and prior to the start of the work, the Contractor(s), the Construction Project Manager, the City's Representative, and other persons and/or governmental agencies that are involved shall meet. The minimum agenda is to include but is not limited to the following:
1. Distribute and discuss list of major Subcontractors
 2. Tentative construction schedule
 3. Phasing
 4. Critical work sequencing and long-lead items

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5. Relation and coordination of Prime Contractor
 6. Designation of key personnel and their duties
 7. Procedures for processing field decisions and Change Orders
 8. Procedures for RFIs
 9. Procedures for testing and inspecting
 10. Adequacy of distribution of contract documents
 11. Submittal of Shop drawings, project data, and samples
 12. Procedures for maintaining Record documents
 13. Use of premises
 14. Work restrictions
 15. Responsibility for temporary facilities and controls
 16. Working hours
 17. Safety and first-aid procedures
 18. Security procedures
 19. Housekeeping procedures including progress cleaning.
 20. Schedule of values.
 21. Processing of payments or contract.
- C. Progress Meetings: Attend progress meetings at weekly intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of City and the Construction Project Manager, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Review and approve minutes of previous Progress Meeting.
 - b. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - c. Review present and future needs of each entity present, including the following:
 - 1) Status of submittals.
 - 2) Deliveries.
 - 3) Access.
 - 4) Site utilization.
 - 5) Temporary facilities and controls.
 - 6) Work hours.
 - 7) Quality and work standards.
 - 8) Status of correction of deficient items.
 - 9) Field observations.
 - 10) RFIs.
 - 11) Status of proposal requests.

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- 12) Pending changes.
 - 13) Status of Change Orders.
 - 14) Pending claims and disputes.
 - 15) Documentation of information for payment requests.
- D. Coordination Meetings: Attend Project coordination meetings at bi-weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and pre-installation conferences.
1. Attendees: In addition to representatives of City and the Construction Project Manager, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Schedule Updating: Revise Combined Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each contractor present, including the following:
 - 1) Status of submittals.
 - 2) Deliveries.
 - 3) Access.
 - 4) Site utilization.
 - 5) Temporary facilities and controls.
 - 6) Work hours.
 - 7) Quality and work standards.
 - 8) Change Orders.
- E. Project Closeout Conference: City shall schedule and conduct a project closeout conference, at a time convenient to City and Construction Project Manager, but no later than **30** days prior to the scheduled date of Substantial Completion.
1. Attend the conference to review requirements and responsibilities related to Project closeout.
 2. Attendees: Authorized representatives of City, City's Commissioning Authority, Construction Project Manager, and their consultants; Contractor and its

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superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of record documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Submittal of written warranties.
 - d. Requirements for preparing operations and maintenance data.
 - e. Preparation of Contractor's punch list.
 - f. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - g. Submittal procedures.
 - h. Coordination of separate contracts.
 - i. Responsibility for removing temporary facilities and controls.
4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

1.9 REQUESTS FOR INTERPRETATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
 1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
 1. City Project Number
 2. City Project Name.
 3. Date.
 4. Name of Contractor.
 5. RFI number, numbered sequentially.
 6. Specification Section number and title and related paragraphs, as appropriate.
 7. Drawing number and detail references, as appropriate.
 8. Field dimensions and conditions, as appropriate.
 9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 10. Contractor's signature.
 11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
 - a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.

PROJECT MANAGEMENT AND COORDINATION

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- C. Hard-Copy RFIs: Form at end of this Section.
1. Identify each page of attachments with the RFI number and sequential page number.
- D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above. Word Template is available upon request from the City Engineer's Office.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- E. Construction Project Manager's Action: Construction Project Manager will review each RFI, determine action required, and return it. Allow seven days for Construction Project Manager's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Construction Project Manager's actions on submittals.
 - f. Incomplete RFIs or RFIs with numerous errors.
 2. Construction Project Manager's action may include a request for additional information, in which case Construction Project Manager's time for response will start again.
 3. Construction Project Manager's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Construction Project Manager in writing within 10 days of receipt of the RFI response.
- F. On receipt of Construction Project Manager's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Construction Manager within seven days if Contractor disagrees with response.
- G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log bi-weekly. Include the following:
1. Project name.
 2. Name and address of Contractor.
 3. RFI number including RFIs that were dropped and not submitted.
 4. RFI description.
 5. Date the RFI was submitted.
 6. Date Construction Project Manager's response was received.
 7. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 8. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

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1.10 MAINTENANCE OF AIRPORT OPERATIONS TRAFFIC**A. DESCRIPTION:**

1. The work specified in this Section consists of maintaining traffic within the limits of the project for the duration of the construction period. It shall include the construction and maintenance of any necessary detour facilities along the project and the furnishing, installing and maintaining of traffic control and safety devices required for safe and expeditious movement of traffic as may be called for on the plans. The term "Maintenance of Traffic" or MOT as used herein shall include all of such facilities, devices and operations as are required for the safety and convenience of the public as well as for minimizing public nuisance; all as specified in this Section. The Section also includes installing temporary orange plastic fencing around any owl or tortoise nests, as directed by the Project Manager or Owner's Representative.
2. When the project plans include or identify a specific Maintenance of Traffic Plan, alternate proposals will be considered when they are found to be equal to or better than the plan specified. In no case may the Contractor begin work until the Project Manager has approved the Maintenance of Traffic Plan in writing. Modifications to the Maintenance of Traffic Plan that become necessary shall also be approved in writing. Except in an emergency, as determined by the Project Manager, no changes to the approved plan will be allowed until approval to change such plan has been received.
3. The Contractor shall conduct their operations in such a manner that no undue hazard will result due to the requirements of this section, and the procedures and policies described therein shall in no way act as a waiver of any of the terms of the liability of the Contractor or their surety.

B. CONSTRUCTION METHODS

1. The contractor shall be responsible for performing daily inspections, including weekends and holidays, with some inspections at nighttime, of the installations on the project and replace all equipment and devices not conforming to the approved standard during that inspection. The project personnel will be advised of the schedule of these inspections and be given the opportunity to join in the inspection as is deemed necessary.
2. The responsibility for installation and maintenance of adequate traffic control devices, warning devices and barriers, for the protection of the traveling public and workers, as well as to safeguard the work area in general shall rest with the Contractor. The required traffic control devices, warning devices and barriers shall be erected by the Contractor prior to creation of any hazardous condition and in conjunction with any necessary rerouting of traffic. The Contractor shall immediately remove, turn or cover any devices or barriers that do not apply to existing conditions.

The Contractor shall make the Project Manager aware of any scheduled operation which will affect traffic patterns or safety sufficiently in advance of commencing such operation to permit their review of the plan for installation of traffic control devices, warning devices, or barriers proposed by the Contractor.

The Contractor shall assign one of their employees the responsibility of maintaining the position and condition of all traffic control devices, warning devices and barriers throughout the duration of the contract. The Project Manager shall be kept advised at

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all times as to the identification and means of contacting this employee on a 24-hour basis.

3. All traffic control devices (including signs), warning devices, barricades and barriers shall be furnished by the Contractor.
4. Traffic control devices, warning devices, and barriers shall be kept in the correct position, properly directed, clearly visible and clean at all times. Damaged, defaced or dirty Devices or barriers shall be immediately repaired, replaced or cleaned as directed.
5. The Contractor shall provide competent flagmen to direct traffic where one-way operation in a single lane is in effect and in other situations as may be required by the standards established.
6. Where a detour changes the lane use or where normal vehicle paths are altered during construction, all existing pavement markings that will be in conflict with the adjusted vehicle paths shall be removed. Over-painting will not be allowed. The removal may be accomplished by any method that will not materially damage the surface texture of the pavement and which will eliminate the previous marking pattern regardless of weather and light conditions.

All pavement markings that will be in conflict with "next phase of operation" vehicle paths shall be removed as described above, prior to opening to traffic, when possible. Markings that cannot be removed prior to changing traffic patterns will be removed as soon as practicable. The term "practicable" shall be interpreted as meaning or implying:

- a. Marking removal equipment will be scheduled for use immediately following any change in lanes.
 - b. If darkness or inclement weather interferes with removal operations, such operations will be accomplished during the next daylight period or as soon thereafter as weather conditions permit.
 - c. If equipment failures occur such equipment will be repaired, replaced, or leased so that the removal can be accomplished by the following day.
7. The Contractor shall provide portable light towers as required for work. The towers shall be trailer mounted, that can be folded for easy transport and storage. The towers shall contain a diesel generator to power a minimum 6000 watts and have fuel capacity to operate at full load for a minimum of 48 hours. It shall be designed to be weather proof. The towers shall be telescoping and capable of rotating over 360 degrees and shall have a minimum of four (4) 1000 watt metal halide floodlights.

PART 2 - PRODUCTS (Not Used)**PART 3 - EXECUTION (Not Used)****END OF SECTION 013100**

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PROJECT MANAGEMENT AND COORDINATION

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**SECTION 013200
CONSTRUCTION PROGRESS DOCUMENTATION****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
1. Startup Construction Schedule.
 2. Contractor's Construction Schedule.
 3. Submittals Schedule.
 4. Daily construction reports.
 5. Site condition reports.
 6. Special reports.
- B. Related Sections include the following:
1. Division 01 Section "Summary of Multiple Contracts" for preparing a combined Contractor's Construction Schedule.
 2. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
 3. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
 4. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
 5. Division 01 Section "Photographic Documentation" for submitting construction photographs.
 6. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 2. Predecessor Activity: An activity that precedes another activity in the network.
 3. Successor Activity: An activity that follows another activity in the network.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

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- D. Event: The starting or ending point of an activity.
- E. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either City or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- F. Milestone: A key or critical point in time for reference or measurement.
- G. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
 - 1. Working electronic copy of schedule file in MS Project.
 - 2. PDF electronic file.
 - 3. **Two (2)** paper copies.
- B. Startup construction schedule.
 - 1. Approval of startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.
- C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.
- D. Daily Construction Reports: Submit **one (1)** copy at **weekly** intervals.
- E. Field Condition Reports: Submit **one (1)** copy at time of discovery of differing conditions.

1.5 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Construction Project Manager's request.

1.6 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of

CONSTRUCTION PROGRESS DOCUMENTATION

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FXE TAXIWAY FOXTROT LIGHTING IMPROVEMENTS**PROJECT 12357**

subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS**2.1 SUBMITTALS SCHEDULE**

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule and network diagram. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - a. At Contractor's option, show submittals on the Preliminary Construction Schedule, instead of tabulating them separately.
 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to proceed to date of Final Completion.
- B. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
2. Activity Duration: Define activities so no activity is longer than ten (10) days, unless specifically allowed by Construction Project Manager.
 3. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 4. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in

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Contractor's construction schedule with submittal schedule.

5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Construction Project Manager's administrative procedures necessary for certification of Substantial Completion.
 6. Punch List and Final Completion: Include not more than **thirty (30)** days for completion of punch list items and final completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Installation.
 - e. Tests and inspections.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, Final Completion.
- F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
1. Unresolved issues.
 2. Unanswered Requests for Information.
 3. Rejected or unreturned submittals.
 4. Notations on returned submittals.
 5. Pending modifications affecting the Work and Contract Time.
- G. Recovery Schedule: When periodic update indicates the Work is **fourteen (14)** or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and dating by which recovery will be accomplished.
- H. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.
1. Microsoft Project 2010 for Windows 7 operating system.

2.3 STARTUP CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule seven (7) days prior to the date established for the Pre-Construction Conference.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday

CONSTRUCTION PROGRESS DOCUMENTATION

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of each week with a continuous vertical line. Outline significant construction activities for first **ninety (90)** days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within **fourteen (14)** days of date established for the Notice to Proceed. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
 - 1. For construction activities that require 3 months or longer completing, indicate an estimated completion percentage in **ten (10)** percent increments within time bar.

2.5 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
 - 1. List of subcontractors at Project site.
 - 2. List of separate contractors at Project site.
 - 3. Approximate count of personnel at Project site.
 - 4. Equipment at Project site.
 - 5. Material deliveries.
 - 6. High and low temperatures and general weather conditions.
 - 7. Accidents.
 - 8. Meetings and significant decisions.
 - 9. Unusual events.
 - 10. Orders and requests of authorities having jurisdiction.
 - 11. Change Orders received and implemented.
 - 12. Construction Change Directives received and implemented.
 - 13. Services connected and disconnected.
 - 14. Substantial Completions authorized.
- B. Site Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION**3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE**

- A. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using CPM scheduling.
 - 1. In-House Option: City may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.

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2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.
- B. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- C. Distribution: Distribute copies of approved schedule to Construction Project Manager, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

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PROJECT 12357

**SECTION 013300
SUBMITTAL PROCEDURES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections include the following:
 - 1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
 - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
 - 3. Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
 - 4. Division 01 Section "Photographic Documentation" for submitting construction photographs
 - 5. Division 01 Section "Closeout Procedures" for submitting warranties.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Engineer's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Engineer's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Engineer's and additional time for handling and reviewing submittals required by those corrections.
 - 1. Coordinate submittal schedule with list of subcontracts, and Contractor's construction schedule.
 - 2. Initial Submittal: Submit concurrently with startup construction schedule. List those

SUBMITTAL PROCEDURES

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submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Engineer's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by City for Contractor's use.
 1. City will furnish Contractor one set of digital data drawing files of the Contract Drawings.
 - a. Engineer makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 - b. Digital Drawing Software Program: The Contract Drawings are available in AutoCad 2010 dwg format.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Engineer's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. Initial Review: Allow 10 working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Engineer will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow ten (10) working days for review of each resubmittal.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

SUBMITTAL PROCEDURES

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1. Action Submittals: Submit four (4) paper copies of each submittal unless otherwise indicated. Engineer will return three copies.
 2. Informational Submittals: Submit four (4) paper copies of each submittal unless otherwise indicated. Engineer will return three copies.
- B. Shop Drawings: Prepare Project-specific information. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on City's digital data drawing files is otherwise permitted.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches..

PART 3 - EXECUTION**3.1 CONTRACTOR'S REVIEW**

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Engineer.
- B. See requirements in Section 017700.
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, and date of Contractor's approval.

3.2 ENGINEER'S ACTION

- A. General: Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
 1. Approved as submitted
 2. Approved as noted
 3. Revise and resubmit
 4. Rejected.
- C. Informational Submittals: Engineer will review each submittal and will not return it, or will return it if it does not comply with requirements. Engineer will forward each submittal to appropriate party.

SUBMITTAL PROCEDURES

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- D. Partial or incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SUBMITTAL PROCEDURES

013300-4

City of Fort Lauderdale

Construction Sign Request Form

Bid 12161-283
P12357

Title (Bold):

Executive Airport Taxiway Foxtrot Lighting Improvements

Title (Not Bold):

What's Happening?

Installation of new LED taxiway edge lights and guidance signs along Taxiway Foxtrot as well as improvements to the airfield electrical vault.

Benefits:

Improve airfield taxiway visibility for pilots and reduce potential for runway incursions.

Number of Neighbors Benefitted:

N/A

Cost:

T.B.D

Month and Year of Expected Completion:

12/2018

Contractor:

T.B.D

Phone: 954-828-8000

We're Working On:

New LED taxiway edge lights and guidance signs
Improvements to airfield taxiway system

Project Manager Signature

Date

Senior Project Manager Signature

Date

015900-2

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SECTION 01590 – PROJECT SIGN**PART 1 GENERAL**

Contractor, at contractor's expense, shall furnish and install a **4' x 8'** sign (with white painted posts) prior to start of construction. A sample sign template is below but is not specific to the project. The exact style and design of the sign will be provided by the CITY to the Contractor during the preconstruction meeting in PDF format.



City of Fort Lauderdale

Keeping the Ocean in the Ocean

Bringing Drier Streets to Hendricks Isle

What's Happening?
The City of Fort Lauderdale is combating poor roadway drainage resulting from seasonal high tides and major rain events.

www.fortlauderdale.gov

Benefits 5,000 Neighbors

- Improved vehicular access during high tide and rain events
- Better drainage of roadway
- Enhanced neighborhood

Phone
(954) 828-8000

Cost
\$20,000

Completion
August 2013

Contractor
ABC Company

We're Working On:

- Installing interconnected underground catch basins
- Cleaning existing drainage pipes, including the outfall pipes
- Removing and replacing the concrete valley gutters that transport water to the catch basins
- Installing drainage valves to help alleviate flooding from high tides

Fort Lauderdale City Commission

John P. "Jack" Sailer Mayor	Bruce G. Roberts Vice Mayor, District I	Dean J. Trantalis Commissioner, District II	Bobby B. DuBose Commissioner, District III	Romney Rogers Commissioner, District IV	Lee R. Feldman, ICMA-CM City Manager
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See Page 2, "Construction Sign Request Form", for information on the sign for this Project.

END OF SECTION

FXE TAXIWAY FOXTROT LIGHTING IMPROVEMENTS

PROJECT 12357

**SECTION 017700
CLOSEOUT PROCEDURES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Sections include the following:
 - 1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
 - 2. Division 01 Section "Photographic Documentation" for submitting Final Completion construction photographs and negatives.
 - 3. Division 01 Section "Execution Requirements" for progress cleaning of Project site.
 - 4. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 5. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 6. Division 01 Section "Demonstration and Training" for requirements for instructing City's personnel.
 - 7. Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.

CLOSEOUT PROCEDURES

017700-1
CAM 18-0915
Exhibit 2
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~~C. As-Built Project Record Survey~~

- ~~1. Upon completion of the work, after Substantial Completion and before Final Acceptance, the Contractor will supply to the Engineer a complete "as-built" survey of the entire project site. The "as-built" project record survey shall be performed in conjunction with the paving operation, the Contractor will supply to the Engineer a complete "as-built" survey of the centerline profile and corresponding cross section grades at all 50 foot stations in the longitudinal direction. Provide survey points at all profile grade change locations as defined on the proposed profile. Provide survey points at all PC and PT locations as defined on the Geometry Plan. Provide as-built elevations in all additional locations where proposed elevations are given on the plans. All survey points, including horizontal and vertical control, property corners, section corners and references (hereinafter referred to as "survey points") shall be clearly marked and referenced prior to construction. These survey points must be sufficiently referenced so that they can be re-established after construction if they are disturbed.~~
- ~~2. This "as-built" survey will be a complete topographic survey of the entire project site surrounded by the limit of construction plus 50 feet in all directions. If any work is done outside the limits of construction for any reason, this limit of survey will be increased to include this area plus 50 feet. This survey shall be certified by a Registered Land Surveyor as meeting the minimum Technical Standards for topographic surveys as set forth in chapter 5J-17, Florida Administrative Code. The survey data must be supplied as a signed and sealed drawing (24" x 36"), PDF file (24" x 36"), and "readable" AutoCAD CADD file. All cogo points in the drawing file are to be Civil 3D point objects. All survey data shall also be supplied in ASCII format. ASCII format shall be comma delimited PNEZD with complete point descriptions. Each point or feature shown on the survey shall have a corresponding point or points in the ASCII file and the descriptions of the points in the ASCII file shall correspond to the call-outs and descriptions of the point and features on the survey. The topographic survey shall describe the entire site at the same scale as the construction drawings and will be arranged on the required size sheets in a neat and logical manner. Larger scale details are to be provided to clarify any complicated or complex areas. The horizontal and vertical control and datum established and shown on the project plans shall be the basis of the survey. Work specified herein shall be considered incidental to the project scope and will not be paid as a separate item.~~

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of **ten (10)** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

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1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 3. Submit closeout submittals specified in individual Divisions 02 through 33 Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of **ten (10)** days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
 2. Complete startup and testing of systems and equipment.
 3. Perform preventive maintenance on equipment used prior to Substantial Completion.
 4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
 5. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 6. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of **ten (10)** days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Construction Project Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Construction Project Manager will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of **ten (10)** days prior to date the work will be completed and ready for final inspection and

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tests. On receipt of request, Construction Project Manager will either proceed with inspection or notify Contractor of unfulfilled requirements. Construction Project Manager will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Construction Project Manager for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within fifteen (15) days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS (N/A)**PART 3 - EXECUTION (N/A)****END OF SECTION 017700**



Advancement
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PUNCH LIST

Project: _____

From (A/E): _____

Site Visit Date: _____

To (Contractor): _____

A/E Project Number: _____

Contract For: _____

The following items require the attention of the Contractor for completion or correction. This list may not be all-inclusive, and the failure to include any items on this list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Item Number	Room Number	Location (Area)	Description	Correction/Completion Date	Verification A/E Check
----------------	----------------	--------------------	-------------	-------------------------------	---------------------------

☐ Attachments

Signed by: _____ Date: _____

Copies: ☐ Owner ☐ Consultants ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ _____ ☐ File



Public Works Department-Engineering
Final Inspection Punch-List Corrective Action Form

Project Number: _____ **Project Name:** _____ **Inspection Date:** _____
Contractor: _____ **Project Manager:** _____ **Inspector:** _____

Item No.	Description of Deficiency	Date Completed		Comments
		Contractor	PM/CI	

Instructions for completing the *Final Inspection Punch-list Corrective Action Form*.

The Construction Project Manager, in conjunction with the assigned construction inspector is responsible for preparing this form. It shall be completed in cooperation with the project's prime contractor and will be used as the official record for any and all punch-list items. Under no circumstances shall final payment be made until all items identified on this form are corrected to the satisfaction of the Construction Project Manager.

1. Prior to scheduling Substantial Completion/Final Inspection, all permits should be cleared by the building department, all O&M Manuals should be turned over to the city, and all warranty information should be provided in a three ring binder and on CD-ROM.
2. Schedule inspection, coordinating with necessary staff to properly evaluate the completeness of the project.
3. The Final Inspection Punch-list Corrective Action Form is to be used to document discrepancies that are minor in nature (i.e., paint chips, minor blemishes, etc....) if major items of work are not complete, lack required quality, or are not acceptable for any reason, the final inspection should be rescheduled for a time when these items have been completed.
4. Fill in the form completely: Project Number and Name, Date of inspection, the contractor's name, PM and inspector's names should all be filled in.
5. Beginning with item number 1, list the description of the deficiency, and any amplifying information required to fully document the item to be corrected. For instance, Item No. 1; Description of Deficiency - Door entering main office sticks; Notes – Door should be adjusted to open and close properly.
6. Use as many forms as required to fully document the inspection results. In the lower right hand side of the form indicate page number and total number of forms used (for example 1 of 4)
7. If there is any disagreement as to whether or not an item is a deficiency, it should be documented and then
8. When an item is corrected, the Contractor shall initial the form and indicate the date work was completed. If the PM/CI concurs with the acceptance of the work, they will initial and date in the corresponding block.
9. Substantial completion will not be issued if there is a large number of punch list items or if there are major deficiencies with the work. If you have any questions regarding whether or not an item is major, or if there are a large number deficiencies, contact the Senior Project Manager.
10. Under no circumstances will final payment be made without documented completion of the Punch-List.

TECHNICAL SPECIFICATIONS

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FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357****SECTION M-101
MOBILIZATION****PART 1 - DESCRIPTION**

101-1.1 General. The work specified in this item consists of preparatory work and operations to mobilize for beginning work on the project. Mobilization shall include, but not be limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to the project site, and for the establishment of staging area, temporary offices, construction and removal of limerock haul road, buildings, utilities, safety equipment and first aid supplies, sanitary and other facilities, and maintenance of traffic, as required by these specifications and State and local laws and regulations.

101-1.2 Demobilization. Upon or before issuance of substantial completion, the Contractor shall promptly begin to demobilize men, equipment and facilities from the staging area and project site. At the time of final completion all materials, equipment, offices and temporary facilities shall be removed from the staging area and site. The staging area and site shall be fully restored to their previous condition or as otherwise approved by the Engineer. Final payment for this item as well as all retainage may be withheld until the site restoration and demobilization are complete.

PART 2 - BASIS OF PAYMENT

101-2.1 Basis of Measurement and Payment. Based upon the contract lump sum price for "Mobilization" partial payments will be allowed as follows:

- A.** With first pay request, 25%.
- B.** When 25% or more of the original contract is earned, an additional 25%.
- C.** When 50% or more of the original contract is earned, an additional 40%.
- D.** After Final Inspection, Staging area clean-up and delivery of all Project Closeout materials, the final 10%.

Mobilization costs shall not exceed 10% of the contract cost.

Payment shall be made under:

Item M-101-1	Mobilization	-- Lump Sum (LS)
Item M-101-2	Staging Area Construct and Restore	-- Lump Sum (LS)

END OF SECTION M-101

MOBILIZATION**M-101-1**

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS

PROJECT 12357

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MOBILIZATION

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357****SECTION M-102
MAINTENANCE OF AIR OPERATIONS TRAFFIC****PART 1 - DESCRIPTION**

102-1.1 The work under this Section consists of furnishing all measures required to maintain the safe and orderly movement of Air Operations Area (AOA) traffic in and around the construction areas as shown on the Plans and as described in the Contract documents. The AOA is defined as all areas, used or intended to be used for aircraft operations including active runways, aprons, taxiways and taxilanes.

102-1.2 GENERAL. This Section covers the Contractor's responsibilities for maintaining the optimum level of safety and the operating efficiency of the airport during construction. These responsibilities are based on criteria contained in the latest edition of Federal Aviation Administration Advisory Circulars 150/5370-2 "Operational Safety on Airport During Construction", and 150/5300-13, "Airport Design". The Contractor shall be responsible for all activities under his control, as specified in the above referenced Advisory Circulars, and in other referenced documents.

102-1.3 CONSTRUCTION ACTIVITIES. Construction activity, personnel, equipment, or materials shall not be permitted within 93 feet of the centerline of an active taxiway and within 400 feet of the centerline of an active runway, unless otherwise shown on the Plans or directed by the Engineer.

102-1.4 MARKING AND LIGHTING OF CONSTRUCTION AREAS. The Contractor shall install lighting, marking, construction markings, lighted barricades, orange safety cones and other measures as shown on the plans, described in the Specifications, or as directed/approved by the Engineer, to delineate access routes, closed areas, elevation drop-offs greater than three inches and hazardous areas during construction. All costs shall be covered under the Lump Sum Pay Item M-102-1, except for work that is specifically covered under other items.

102-1.5 LOOSE MATERIAL AND DEBRIS. Loose materials shall be removed from the Project Limits on a daily basis (i.e., prior to opening all areas to traffic each morning) to prevent dispersion into active portions of the AOA. The Contractor shall exercise care in the transportation of materials within the AOA to ensure that no material is tracked or spilled onto the AOA. Materials tracked or spilled in these areas shall be removed immediately. When hauling, loading, grading, or when any of the Contractor's activities are likely to cause the deposit of loose materials in the AOA or aircraft parking areas, it shall be immediately removed using powered vacuum sweepers which shall continuously patrol the affected areas. The vacuum sweepers shall be supplemented by power brooms, hand sweepers, loaders, and trucks as necessary.

102-1.6 STOCKPILED MATERIALS. At no times shall materials be stockpiled within the Project Limits or the AOA; all materials that are not to be re-used shall be removed directly from the Project Limits or the AOA and hauled to a legal dump site off airport property or on Airport property as directed by the Engineer.

~~**102-1.7 RADIO COMMUNICATION.** The Contractor is not permitted to use their own radios. The Airport will provide radios capable of receiving transmissions from the FXE FAA Air Traffic Control Tower and Airport Ground Control. The number of radios shall be as required for the Contractor's Superintendent to ensure safe and orderly movement of AOA traffic to, in and around the construction areas. The ATCT and Airport Ground Control frequency will be provided by Airfield Operations.~~

MAINTENANCE OF AIR OPERATIONS TRAFFIC**M-102-1**

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102-1.8 LIGHTED BARRICADES AND TEMPORARY PAVEMENT MARKINGS. Temporary pavement markings, lighted barricades and other measures shall be provided, installed, relocated, and maintained on a 24-hour basis (or as required based on construction phasing and sequencing plan) by the Contractor to delineate construction areas available to the Contractor and limits of aircraft operational areas. On a daily basis, the Contractor shall verify that the temporary lighted barricades are in proper operating condition. Any necessary maintenance repairs shall be performed immediately by the Contractor. The proposed layout of lighted barricades and other measures for each construction area are shown on the Plans. The actual field installation of lighted barricades and other measures and attendant operational procedures shall be inspected by the Engineer and any necessary changes or modifications will be promptly implemented by the Contractor as directed at no additional cost to the Contract. The revised installation will be re-inspected and approved by the Engineer before the Contractor may commence any construction or any other work which revises operational procedures in each affected area. For special areas of work, such as isolated electrical installations, the Contractor shall set up the MOT for these areas without additional cost to the Contract.

102-1.9 OPERATIONS SAFETY INSPECTION. The entire work site shall be inspected daily and more frequently if construction activities have potential to accumulate debris on AOA pavements. Special inspections shall be conducted for each work area prior to return to service for aircraft operation. The purpose of these inspections is to ascertain that areas returned to aircraft service are in satisfactory condition and that the overall work site and its activities are within the safety criteria set forth in these Contract Documents and as set forth in the FAA Advisory Circulars. Inspections shall be conducted jointly by representatives of the Contractor, Airport Operations, and the Engineer. These inspections shall cover the several safety items noted in and referred by in this Section.

Any violations of the Safety Criteria found during these inspections shall be rectified immediately. If a violation cannot be corrected on an immediate basis by the Contractor, the Contractor shall immediately notify the Engineer. No area shall be approved for aircraft operations while it is in violation unless specifically authorized in writing by Airport Operations and the Engineer.

102-1.10 OPERATIONAL EMERGENCIES. During periods of severe weather conditions or other operational emergencies, FXE may direct the Contractor to relinquish areas under construction and to prepare the areas for the severe weather or aircraft operations. In this event, the Engineer will so direct the Contractor to evacuate the area and the Engineer will specify the limits of the area to be evacuated, the term of evacuation, and the conditions governing the restoration work necessary to prepare the area for aircraft operations. The Contractor shall promptly and fully comply with the Engineer's directive. Should the directive entail extra work under the Contract, as determined by the Engineer, the Contractor will be reimbursed for such extra work in accordance with the General Conditions of this Contract. Should the directive entail a delay in the completion of the Contract or any defined subdivision of the contract, as determined by the Engineer, the Contractor may be granted an extension of time in accordance with the provisions of General Conditions of this Contract.

~~**102-1.11 WILDLIFE PROTECTION ZONES.** The Contractor shall provide fencing per the details in the Plans at locations identified in the field by the Engineer as burrows for Owls and Turtles. These areas shall be protected and maintained throughout the construction period and the fencing shall be removed during project demobilization. Disturbances to these areas during installation and deconstruction of fences shall be minimized and prevented. All costs shall be incidental to the project.~~

MAINTENANCE OF AIR OPERATIONS TRAFFIC**M-102-2**

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FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357****102-1.12 TRAFFIC CONTROL DEVICES, WARNING DEVICES AND BARRIERS.**

a. Installation. The responsibility for installation and maintenance of adequate traffic control devices, warning devices and barriers, for the protection of the traveling public and workers, as well as to safeguard the work area in general shall rest with the Contractor. The required traffic control devices, warning devices and barriers shall be erected by the Contractor prior to creation of any hazardous condition and in conjunction with any necessary rerouting of traffic. The Contractor shall immediately remove, turn or cover any devices or barriers that do not apply to existing conditions.

The Contractor shall make the Engineer aware of any scheduled operation which will affect traffic patterns or safety sufficiently in advance of commencing such operation to permit their review of the plan for installation of traffic control devices, warning devices, or barriers proposed by the Contractor.

The Contractor shall assign one of their employees the responsibility of maintaining the position and condition of all traffic control devices, warning devices and barriers throughout the duration of the contract. The Project Engineer shall be kept advised at all times as to the identification and means of contacting this employee on a 24-hour basis.

b. Furnishing of Devices and Barriers. All traffic control devices (including signs), warning devices and barriers shall be furnished by the Contractor.

c. Maintenance of Devices and Barriers. Traffic control devices, warning devices, and barriers shall be kept in the correct position, properly directed, clearly visible and clean at all times. Damaged, defaced or dirty Devices or barriers shall be immediately repaired, replaced or cleaned as directed.

~~**d. Flagmen.** The Contractor shall provide competent flagmen to direct traffic where one-way operation in a single lane is in effect and in other situations as may be required by the standards established.~~

e. Existing Pavement Markings. Where a detour changes the lane use or where normal vehicle paths are altered during construction, all existing pavement markings that will be in conflict with the adjusted vehicle paths shall be removed. Over-painting will not be allowed. The removal may be accomplished by any method that will not materially damage the surface texture of the pavement and which will eliminate the previous marking pattern regardless of weather and light conditions.

The Engineer may waive these requirements for detours that will be in use less than 12 hours.

All pavement markings that will be in conflict with "next phase of operation" vehicle paths shall be removed as described above, prior to opening to traffic, when possible. Markings that cannot be removed prior to changing traffic patterns will be removed as soon as practicable. The term "practicable" shall be interpreted as meaning or implying:

1. Marking removal equipment will be scheduled for use immediately following any change in lanes.

MAINTENANCE OF AIR OPERATIONS TRAFFIC**M-102-3**

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357**

2. If darkness or inclement weather interferes with removal operations, such operations will be accomplished during the next daylight period or as soon thereafter as weather conditions permit.
3. If equipment failures occur such equipment will be repaired, replaced, or leased so that the removal can be accomplished by the following day.

102-1.13 PORTABLE LIGHT TOWERS. The Contractor shall provide portable / towable light towers as required for work. The towers shall be trailer mounted, that can be folded for easy transport and storage. The towers shall contain a diesel generator to power a minimum 6000 watts and have fuel capacity to operate at full load for a minimum of 48 hours. It shall be designed to be weather proof. The towers shall be telescoping and capable of rotating over 360 degrees and shall have a minimum of (4) 1000 watt metal halide floodlights. This item shall be paid for under Item M-102-2.

PART 2 – MATERIALS AND CONSTRUCTION METHODS

102-2.1 COVERING OF AIRFIELD LIGHTS, SIGNS AND MARKINGS. The Contractor shall cover lights, signs, and markings that lead into a construction zone, are in a construction zone, or are in a closed portion of a taxiway as directed by the Engineer and/or described in the Contract Plans.

102-2.2 LIGHTED BARRICADES. The Contractor shall install and maintain lighted barricades at the locations shown on the plans, in accordance to the plan details, and as directed by the Engineer. Lighted barricades shall be inspected daily and repaired or replaced immediately when damaged or not functioning.

102-2.3 PLASTIC TRAFFIC CONES AND TUBULAR MARKERS. The Contractor shall install and maintain orange cones or other approved marking methods to mark the construction set-back lines as directed by the Engineer. The devices shall be bright in color and designed to remain usable following vehicular impact. The Contractor shall specify suitable ballasting to these traffic devices during high winds or jet blast. The Contractor shall provide and install temporary orange safety fence at limits of work for each work area.

PART 3 – METHOD OF MEASUREMENT

102-3.1 Payment for the work covered under this section will be made under the lump sum pay items listed below. There will be no separate measurement for individual work elements associated with this Section with the exception of items that are specifically covered under said pay items.

PART 4 – BASIS OF PAYMENT

102-4.1 GENERAL. Payment for the maintenance of traffic and all items covered in this Section and as shown on the Plans shall be made at the lump sum price bid for the items below unless payment for this work is already specifically covered under a separate pay item. The price and payment shall constitute full compensation for furnishing all labor, materials, equipment and incidentals required to complete the work under this Section.

MAINTENANCE OF AIR OPERATIONS TRAFFIC**M-102-4**

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102-4.2 PARTIAL PAYMENTS. Partial payments will be made throughout the duration of the project and shall match the percent of the project completed as determined by the Engineer.

Payment shall be made under:

Item M-102-1	Maintenance of Air Operations Traffic	-- Lump Sum (LS)
Item M-102-2	Towable Light Towers (for Night Construction)	-- Lump Sum (LS)
Item M-102-3	Portable Runway Closure Markers, "X"	-- Each (EA)

END OF SECTION M-102

MAINTENANCE OF AIR OPERATIONS TRAFFIC**M-102-5**

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS

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MAINTENANCE OF AIR OPERATIONS TRAFFIC

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357****ITEM P-610****STRUCTURAL PORTLAND CEMENT CONCRETE****DESCRIPTION**

610-1.1 This item shall consist of plain or reinforced structural Portland cement concrete (PCC), prepared and constructed in accordance with these specifications, at the locations and of the form and dimensions shown on the plans. This specification shall be used for all structural and miscellaneous concrete including signage bases.

MATERIALS

610-2.1 General. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Engineer before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

a. Reactivity. Fine and Coarse aggregates to be used in all concrete shall be evaluated and tested by the Contractor for alkali-aggregate reactivity in accordance with both ASTM C1260 and C1567. Aggregate and mix proportion reactivity tests shall be performed for each project.

(1) Coarse and fine aggregate shall be tested separately in accordance with ASTM C1260. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.10% at 28 days (30 days from casting).

(2) Combined coarse and fine aggregate shall be tested in accordance with ASTM C1567, modified for combined aggregates, using the proposed mixture design proportions of aggregates, cementitious materials, and/or specific reactivity reducing chemicals. If lithium nitrate is proposed for use with or without supplementary cementitious materials, the aggregates shall be tested in accordance with Corps of Engineers (COE) CRD C662. If lithium nitrate admixture is used, it shall be nominal 30% \pm 0.5% weight lithium nitrate in water.

(3) If the expansion of the proposed combined materials test specimens, tested in accordance with ASTM C1567, modified for combined aggregates, or COE CRD C662, does not exceed 0.10% at 28 days, the proposed combined materials will be accepted. If the expansion of the proposed combined materials test specimens is greater than 0.10%

STRUCTURAL PORTLAND CEMENT CONCRETE**P-610-1**

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at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10% at 28 days, or new aggregates shall be evaluated and tested.

610-2.2 Coarse Aggregate. The coarse aggregate for concrete shall meet the requirements of ASTM C33. Crushed stone aggregate shall have a durability factor, as determined by ASTM C666, greater than or equal to 95. The Engineer may consider and reserve final approval of other State classification procedures addressing aggregate durability.

Coarse aggregate shall be well graded from coarse to fine and shall meet the following gradation shown in the table below when tested per ASTM C136.

Gradation For Coarse Aggregate

Sieve Designation (square openings)	Percentage by Weight Passing Sieves						
	2" (50 mm)	1-1/2" (38 mm)	1" (25 mm)	3/4" (19 mm)	1/2" (12 mm)	3/8" (9 mm)	No. 4
No. 4 to 3/4 in. (4.75-19 mm)			100	90-100		20-55	0-10
No. 4 to 1 in. (4.75-25 mm)		100	90-100		25-60		0-10
No. 4 to 1-1/2 in. (4.75-38 mm)	100	95-100		35-70		10-30	0-5

610-2.2.1 Aggregate susceptibility to durability (D) cracking. Aggregates that have a history of D-cracking shall not be used.

~~Coarse aggregate may be accepted from sources that have a 20 year service history for the same gradation to be supplied with no durability issues.~~

~~a. Material currently being produced shall have a durability factor _____~~ ☐ 95 using A

~~Coarse aggregates that are crushed granite, calcite cemented sandstone, quartzite, basalt, diabase, rhyolite or trap rock are considered to meet the D-cracking test but must meet all other quality tests. Aggregates meeting State Highway Department material specifications may be acceptable with concurrence of the FAA.~~

~~b. The Contractor shall submit a current certification that the aggregate does not have a history of D-cracking and that the aggregate meets the state specifications for use in PCC pavement for use on interstate highways. Certifications, tests and any history reports must be for the same gradation as being proposed for use on the project. Certifications which are not dated or which are over one (1) year old or which are for different gradations will not be accepted. Test results will only be accepted when tests were performed by a State Department of Transportation (DOT) materials laboratory or an accredited laboratory.~~

610-2.3 Fine Aggregate. The fine aggregate for concrete shall meet the requirements of ASTM C33.

The fine aggregate shall be well graded from fine to coarse and shall meet the requirements of the table below when tested in accordance with ASTM C136:

STRUCTURAL PORTLAND CEMENT CONCRETE**P-610-2**

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Gradation for Fine Aggregate	
Sieve Designation (square openings)	Percentage by Weight Passing Sieves
3/8 inch (9 mm)	100
No. 4 (4.75 mm)	95-100
No. 16 (1.18 mm)	45-80
No. 30 (0.60 mm)	25-55
No. 50 (0.30 mm)	10-30
No. 100 (0.15 mm)	2-10

Blending will be permitted, if necessary, to meet the gradation requirements for fine aggregate. Fine aggregate deficient in the percentage of material passing the No. 50 mesh sieve may be accepted, if the deficiency does not exceed 5% and is remedied by the addition of pozzolanic or cementitious materials other than Portland cement, as specified in paragraph 610-2.6, Admixtures, in sufficient quantity to produce the required workability as approved by the Engineer.

610-2.4 Cement. Cement shall conform to the requirements of ASTM C150 Type I or II.

If aggregates are deemed innocuous when tested in accordance with paragraph 610-2.1.a.1 and accepted in accordance with paragraph 610-2.1.a.3, higher equivalent alkali content in the cement may be allowed if approved by the Engineer and FAA. If 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.

The Contractor shall furnish vendors' certified test reports for each carload, or equivalent, of cement shipped to the project. The report shall be delivered to the Engineer before use of the cement is granted. All test reports shall be subject to verification by testing sample materials received for use on the project.

610-2.5 Water. The water used in concrete shall be fresh, clean and potable; free from injurious amounts of oils, acids, alkalies, salts, organic materials or other substances deleterious to concrete.

610-2.6 Admixtures. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. 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 may 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.

a. Air-Entraining Admixtures. Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

b. Water-Reducing Admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

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c. Other Chemical Admixtures. The use of set retarding, and set-accelerating admixtures shall be approved by the Engineer. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

d. Lithium Nitrate. The lithium admixture shall be a nominal 30% aqueous solution of Lithium Nitrate, with a density of 10 pounds/gallon (1.2 kg/L), and shall have the approximate chemical form as shown below:

Constituent	Limit (Percent by Mass)
LiNO ₃ (Lithium Nitrate)	30 ±0.5
SO ₄ (Sulfate Ion)	0.1 (max)
Cl (Chloride Ion)	0.2 (max)
Na (Sodium Ion)	0.1 (max)
K (Potassium Ion)	0.1 (max)

Provide a trained representative to supervise the lithium nitrate admixture dispensing and mixing operations.

610-2.7 Premolded Joint Material. Premolded joint material for expansion joints shall meet the requirements of ASTM D1751 or ASTM D1752.

610-2.8 Joint Filler. The filler for joints shall meet the requirements of Item P-605, unless otherwise specified.

610-2.9 Steel Reinforcement. Reinforcing shall ~~consist of~~ conforming to the requirements of the following:

<u>a. Reinforcing Steel</u>	<u>ASTM A615, ASTM A706, ASTM A775, ASTM A934</u>
<u>b. Welded Steel Wire Fabric</u>	<u>ASTM A1064</u>
<u>c. Welded Deformed Steel Fabric</u>	<u>ASTM A1064</u>
<u>d. Bar Mats</u>	<u>ASTM A184 and ASTM A615, Grade 60</u>

610-2.10 Materials for Curing Concrete. Curing materials shall conform to the following:

<u>a. Waterproof paper</u>	<u>ASTM C171</u>
<u>b. Clear or white Polyethylene Sheeting</u>	<u>ASTM C171</u>
<u>c. White-pigmented Liquid Membrane-Forming Compound, Type 2, Class B</u>	<u>ASTM C309</u>

CONSTRUCTION METHODS

610-3.1 General. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the Engineer.

610-3.2 Concrete Composition. The concrete shall develop a compressive strength of **3,000** psi in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cement per cubic yard (280 kg per cubic meter). The concrete shall contain 5% of entrained air, ±1%, as

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determined by ASTM C231 and shall have a slump of not more than 4 inches (100 mm) as determined by ASTM C143.

610-3.3 Acceptance Sampling and Testing. Concrete for each structure will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The concrete shall be sampled in accordance with ASTM C172. Concrete cylindrical compressive strength specimens shall be made in accordance with ASTM C31 and tested in accordance with ASTM C39. The Contractor shall cure and store the test specimens under such conditions as directed by the Engineer. The Engineer will make the actual tests on the specimens at no expense to the Contractor.

610-3.4 Qualifications for Concrete Testing Service. Perform concrete testing by an approved laboratory and inspection service experienced in sampling and testing concrete. Testing agency must meet the requirements of ASTM C1077 or ASTM E329.

610-3.5 Proportioning and Measuring Devices. When package cement is used, the quantity for each batch shall be equal to one or more whole sacks of cement. The aggregates shall be measured separately by weight. If aggregates are delivered to the mixer in batch trucks, the exact amount for each mixer charge shall be contained in each batch compartment. Weighing boxes or hoppers shall be approved by the Engineer and shall provide means of regulating the flow of aggregates into the batch box so the required, exact weight of aggregates is obtained.

610-3.6 Consistency. The consistency of the concrete shall be determined by the slump test specified in ASTM C143.

610-3.7 Mixing. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C94.

610-3.8 Mixing Conditions. The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F (4°C) without permission of the Engineer. If permission is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F (10°C) nor more than 100°F (38°C). The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material shall not be permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.9 Forms. Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the Engineer. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

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The internal form ties shall be arranged so no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface. The forms shall not be removed until at least 30 hours after concrete placement for vertical faces, walls, slender columns, and similar structures. Forms supported by falsework under slabs, beams, girders, arches, and similar construction shall not be removed until tests indicate the concrete has developed at least 60% of the design strength.

610-3.10 Placing Reinforcement. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.11 Embedded Items. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed.

610-3.12 Placing Concrete. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the Engineer. Concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet (1.5 m). Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free from running water, or on a properly consolidated soil foundation.

610-3.13 Vibration. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309, Guide for Consolidation of Concrete. Where bars meeting ASTM A775 or A934 are used, the vibrators shall be equipped with rubber or non-metallic vibrator heads. Furnish a spare, working, vibrator on the job site whenever concrete is placed. Consolidate concrete slabs greater than 4 inches (100 mm) in depth with high frequency mechanical vibrating equipment supplemented by hand spading and tamping. Consolidate concrete slabs 4 inches (100 mm) or less in depth by wood tampers, spading, and settling with a heavy leveling straightedge. Operate internal vibrators with vibratory element submerged in the concrete, with a minimum frequency of not less than 6000 cycles per minute when submerged. Do not use vibrators to transport the concrete in the forms. Penetrate the previously placed lift with the vibrator when more than one lift is required. Use external vibrators on the exterior surface of the forms when internal vibrators do not provide adequate consolidation of the concrete. Vibrators shall be manipulated to work the concrete thoroughly around the reinforcement and embedded fixtures and into corners and angles of the forms. The vibration at any point shall be of sufficient duration to accomplish compaction but shall not be prolonged to where segregation occurs.

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Concrete deposited under water shall be carefully placed in a compact mass in its final position by means of a tremie or other approved method and shall not be disturbed after placement.

610-3.14 Construction Joints. If the placement of concrete is suspended, necessary provisions shall be made for joining future work before the placed concrete takes its initial set. For the proper bonding of old and new concrete, provisions shall be made for grooves, steps, reinforcing bars or other devices as specified. The work shall be arranged so that a section begun on any day shall be finished during daylight of the same day. Before depositing new concrete on or against concrete that has hardened, the surface of the hardened concrete shall be cleaned by a heavy steel broom, roughened slightly, wetted, and covered with a neat coating of cement paste or grout.

610-3.15 Expansion Joints. Expansion joints shall be constructed at such points and dimensions as indicated on the drawings. The premolded filler shall be cut to the same shape as the surfaces being joined. The filler shall be fixed firmly against the surface of the concrete already in place so that it will not be displaced when concrete is deposited against it.

610-3.16 Defective Work. Any defective work discovered after the forms have been removed, which in the opinion of the Engineer cannot be repaired satisfactorily, shall be immediately removed and replaced at the expense of the Contractor. Defective work shall include deficient dimensions, or bulged, uneven, or honeycomb on the surface of the concrete.

610-3.17 Surface Finish. All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated. Mortar finishing shall not be permitted, nor shall dry cement or sand-cement mortar be spread over the concrete during the finishing of horizontal plane surfaces.

The surface finish of exposed concrete shall be a rubbed finish. If forms can be removed while the concrete is still green, the surface shall be wetted and then rubbed with a wooden float until all irregularities are removed. If the concrete has hardened before being rubbed, a carborundum stone shall be used to finish the surface. When approved, the finishing can be done with a finishing machine.

610-3.18 Curing and Protection. All concrete shall be properly cured and protected by the Contractor. The concrete shall be protected from the weather, flowing water, and from defacement of any nature during the project. The concrete shall be cured by covering with an approved material as soon as it has sufficiently hardened. Water-absorptive coverings shall be thoroughly saturated when placed and kept saturated for at least three (3) days following concrete placement. All curing mats or blankets shall be sufficiently weighted or tied down to keep the concrete surface covered and to prevent the surface from being exposed to air currents. Wooden forms shall be kept wet at all times until removed to prevent opening of joints and drying out of the concrete. Traffic shall not be allowed on concrete surfaces for seven (7) days after the concrete has been placed.

610-3.19 Drains or Ducts. Drainage pipes, conduits, and ducts that are to be encased in concrete shall be installed by the Contractor before the concrete is placed. The pipe shall be held rigidly so that it will not be displaced or moved during the placing of the concrete.

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610-3.20 Cold Weather Placing. When concrete is placed at temperatures below 40°F (4°C), the Contractor shall provide satisfactory methods and means to protect the mix from injury by freezing. The aggregates, or water, or both, shall be heated to place the concrete at temperatures between 50°F and 100°F (10°C and 38°C).

Calcium chloride may be incorporated in the mixing water when directed by the Engineer. Not more than pounds (908 grams) of Type 1 nor more than 1.6 pounds (726 grams) of Type 2 shall be added per bag of cement. After the concrete has been placed, the Contractor shall provide sufficient protection such as cover, canvas, framework, heating apparatus, etc., to enclose and protect the structure and maintain the temperature of the mix at not less than 50°F (10°C) until at least 60% of the designed strength has been attained.

610-3.21 Hot Weather Placing. Concrete shall be properly placed and finished with procedures previously submitted. The concrete-placing temperature shall not exceed **85°F** when measured in accordance with ASTM C1064. Cooling of the mixing water and aggregates, or both, may be required to obtain an adequate placing temperature. A retarder meeting the requirements of paragraph 610-2.6 may be used to facilitate placing and finishing. Steel forms and reinforcement shall be cooled prior to concrete placement when steel temperatures are greater than 120°F (50°C). Conveying and placing equipment shall be cooled if necessary to maintain proper concrete-placing temperature. Submit the proposed materials and methods for review and approval by the Engineer, if concrete is to be placed under hot weather conditions.

610-3.22 Filling Joints. All joints that require filling shall be thoroughly cleaned, and any excess mortar or concrete shall be cut out with proper tools. Joint filling shall not start until after final curing and shall be done only when the concrete is completely dry. The cleaning and filling shall be done with proper equipment to obtain a neat looking joint free from excess filler.

METHOD OF MEASUREMENT

~~**610-4.1** Portland cement concrete shall be measured by the number of cubic yards (cubic meters) of concrete complete in place and accepted. In computing the yardage of concrete for payment, the dimensions used shall be those shown on the plans or ordered by the Engineer. No measurements or other allowances shall be made for forms, falsework, cofferdams, pumping, bracing, expansion joints, or finishing of the concrete. No deductions in yardage shall be made for the volumes of reinforcing steel or embedded items. Portland cement concrete will not be measured for payment. Its cost shall be considered by the Contractor and included in the various items or work.~~

~~**610-4.2** Reinforcing steel shall be measured by the calculated theoretical number of pounds (kg) placed, as shown on the plans, complete in place and accepted. The unit weight used for deformed bars shall be the weight of plain square or round bars of equal nominal size. If so indicated on the plans, the poundage to be paid for shall include the weight of metal pipes and drains, metal conduits and ducts, or similar materials indicated and included. Reinforcing steel will not be measured for payment. Its cost shall be considered by the Contractor and included in the various items or work.~~

STRUCTURAL PORTLAND CEMENT CONCRETE**P-610-8**

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357****BASIS OF PAYMENT**

~~610-5.1 Payment shall be made at the contract unit price per cubic yard (cubic meter) for structural Portland cement concrete and per pound (kg) for reinforcing steel. These prices shall be full compensation for furnishing all materials and for all preparation, delivery and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.~~

~~Payment will be made under:~~

~~Item P-610-5.1—Structural Portland Cement Concrete, per cubic yard (cubic meter)~~

~~Item P-610-5.1—Steel Reinforcement, per pound (kg)~~

TESTING REQUIREMENTS

ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C138	Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1064	Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1567	Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregates (Accelerated Mortar-Bar Method)
ASTM E329	Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection

STRUCTURAL PORTLAND CEMENT CONCRETE**P-610-9**

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U.S. Army Corps of Engineers
(USACE) Concrete Research Division
(CRD) C662

Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials, Lithium Nitrate Admixture and Aggregate (Accelerated Mortar-Bar Method)

MATERIAL REQUIREMENTS

ASTM A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A185	Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C595	Standard Specification for Blended Hydraulic Cements
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

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ACI 305R	Hot Weather Concreting
ACI 306R	Cold Weather Concreting
ACI 309R	Guide for Consolidation of Concrete

END OF ITEM P-610

STRUCTURAL PORTLAND CEMENT CONCRETE

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STRUCTURAL PORTLAND CEMENT CONCRETE

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FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357****ITEM L-106
SUBMITTALS, RECORD DOCUMENTS AND MAINTENANCE MANUALS**

106-1.1 GENERAL. The items described in this section are applicable to all electrical work by this Contractor. Where the contract special or general provisions also apply, the stricter of the documents shall apply.

106-1.2 SCOPE. This section includes the requirements for submittals, record documents and maintenance manuals. All submittals and manuals shall be made in book form as described in this item.

106-2.1 REQUIREMENTS FOR SHOP DRAWINGS AND SAMPLES. Shop drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are prepared by the Contractor or any Subcontractor, manufacturer, supplier or distributor, and which illustrate some portion of the work.

Submittal data for electrical materials and equipment shall consist of Shop Drawings and/or catalog cuts showing technical data as necessary to evaluate the material or equipment, to include dimensions, wiring diagrams, performance curves, ratings, control sequence and other descriptive_ data necessary to describe fully the item proposed and its operating characteristics.

Samples are physical examples furnished by the Contractor to illustrate materials, equipment or workmanship, and to establish standards by which the work will be judged. Each sample shall be accompanied by the manufacturers instructions regarding installation, operation and maintenance and shall be identified by item number, and specification.

The Contractor shall review, stamp with his approval and submit to the Engineer, one (1) set and seven (7) prints of shop drawings, seven (7) copies of submittal books and three (3) sets of samples where required, as described in this item, within thirty (30) days of notice to proceed.

If the Contractor desires to deviate from the requirements of the Contract Documents, the Contractor shall separately submit all deviations from the requirements of the Contract Documents in Shop Drawings or Samples. The submission shall direct in writing the specific attention of the Engineer to the deviations, and shall contain all required data and supporting documentation necessary for an evaluation of the proposed deviation. Any submission or deviation not identified as heretofore mentioned shall be rejected and require resubmission. Separate written approval of all deviations by the Engineer for all design related deviations and by the Owner for all other deviations is required before the Contractor may perform the work covered by such deviation. By requesting a deviation, the Contractor makes the representations contained in this Section.

106-2.1.1 Substitutions will only be considered after bid date only if the following conditions are met and allowed by other sections of these specifications:

- A.** Request for substitution is submitted no later than forty-five (45) days after notice to proceed for construction is awarded to the General Contractor.
- B.** Request for substitution includes appropriate credit to the project cost. This credit must be submitted with request for substitution in order for substitution to receive any consideration.
- C.** Samples are to be submitted for all substituted light fixtures, wiring devices and other items deemed necessary by the Engineer to determine that the substituted item meets all specifications and requirements before approval of substitutions can be made.
- D.** Samples shall be submitted within sixty (60) days after the award of the Contract.

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- E. Request for substitution shall include the name of the material or equipment for which it is to be substituted, drawings, cuts, performance and that data or any other data or information necessary for the Engineer to determine that the equipment meets all specifications and requirements.
- F. Where permitted and approved, must conform to space requirements. Substitutions that cannot meet space requirements, which is the Installer's responsibility whether approved or not, shall be replaced at the Contractor's expense. Any modifications of related systems, as a result of the substitution, shall be made at the Contractor's expense.

106-2.1.2. Substitutions will be considered prior to bid date only if all the following conditions are met:

- A. A written request has been submitted to the Engineer for approval at least ten (10) days prior to the bid date.
- B. Samples are to be submitted for all substituted light fixtures, wiring devices and other items deemed necessary by the Engineer to determine that the substituted item meets all specifications and requirements before approval of substitutions can be made.
- C. Samples shall be submitted within sixty (60) days after the award of the Contract.
- D. Request for substitution shall include the name of the material or equipment for which it is to be substituted. drawings, cuts, performance and that data or any other data or information necessary for the Engineer to determine that the equipment meets all specifications and requirements.
- E. Substitution is approved and included in an addendum.

By approving and submitting Shop Drawings and Samples, the Contractor thereby represents that it has determined and verified all field measurements, field construction criteria, materials, catalog numbers and similar data and that the Contractor, has checked and coordinated each Shop Drawing and Sample with the requirements of the work of the Contract Documents.

Unless otherwise stated in the Contract Documents, the Engineer will review and approve Shop Drawings and Samples within thirty (30) days after receipt, but only for conformance with the design concept of the project and with the information given in the Contract Documents. The Engineer's approval of a separate item shall not indicate approval of an assembly in which the item functions.

The Contractor shall make any corrections required by the Engineer and shall resubmit the required number of corrected shop drawings or new samples until approved. The Contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the corrections requested by the Engineer on previous submissions.

The Engineer's approval of shop drawings or samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Engineer in writing of such deviation at the time of submission and the Engineer has given written approval to the specific deviation. The Engineer's approval shall not relieve the Contractor from responsibility for errors or omissions in the shop drawings or samples.

The submittals will be reviewed for design intent and general compliance with the information contained in the drawings and specifications. The Contractor is responsible for dimensions, quantities, fabrication processes and methods of construction, coordination of the

**SUBMITTALS, RECORD DOCUMENTS
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Contractor's work with that of all trades. The Contractor shall be responsible for satisfactory performance of his work and supplying a complete and operational system.

No portion of the work requiring a shop drawing or sample submission shall be commenced until the submission has been approved by the Engineer. All such portions of the work shall be in accordance with approved shop drawings and samples.

Samples, upon request, shall be submitted after written notice of acceptance and approval has been made of each substitution. The Architect/Engineer reserves the right to reject sample should the sample not meet the requirement of the Contract Documents.

106-2.2 SUBMITTAL BOOKS. Submittal books shall consist of a hard cover, view type, 3-ring binder sized to hold 8 1/2" x 11" sheets.

Each binder is to be adequately sized to comfortably hold required submittals. Minimum spline size to be 1", maximum spline size to be 3" (provide additional binders if 3" size is not sufficient to properly hold submittals). Each binder shall be adequately sized to hold the submittal information plus an additional 25% of the submittal sheet count.

Binder covers to have outer clear vinyl pocket on front and back cover (to hold 8 1/2" x 11 sheet) and on spline (to hold spline width x 11" sheet). Binders shall be K & M Company Stock No. VBI1-25 presentation binders or approved equal. Provide correct designation of project in each pocket, see "EXAMPLES" Appendix A Figures 1 and 2, included at the end of this section. Description sheet is to be white with black letters, minimum of 11" high and full width of pocket. Description is to describe project and match project drawing/spec description. Description to include submittal type. One (1) for the Airfield Lighting System materials (black).

106-2.3 SUBMITTAL BOOK CONTENTS. Submittal books to include:

- A. First sheet(s) in book shall be a photocopy of the cover sheet see Appendix A Figure 1.
- B. The second sheet shall be a table of contents.
- C. Third sheet shall be prepared and filled out by Contractor and shall list project addresses, see Appendix A Figure 3.
- D. Fourth sheet shall also be filled out by Contractor and list project information for project, Appendix A Figure 4.
- E. Provide Wilson Jones, reinforced clear, ring binder indexes, 5 tab No. WJ-54125 or approved equal with the appropriate specification section number, and a typed index for each section.
- F. Submittals consisting of marked catalog sheets or shop drawings shall be inserted in the binder in proper order. Submittal data shall be presented in a clear and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable).
- G. Shop Drawings: Drawings to include identification of project and names of Architect, Engineer, General Contractor, Subcontractor and Supplier, data, number sequentially and indicate the following:
 - 1. Fabrication and erection dimensions.

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2. Arrangements and sectional views.
3. Necessary details, including complete information for making connections with other work.
4. Kinds of materials and finishes.
5. Descriptive names of equipment.
6. Modifications and options to standard equipment required by the work.
7. Leave blank area, size approximately 4 x 2 1/2 inches, near title block (Engineers stamp imprint).
8. Point-to-point wiring diagrams.
9. Conduit/raceway rough-in drawings.
10. See specific sections of specifications for further requirements.

106-2.4 SUBMITTAL BOOKS PRODUCT DATA. Technical data is required for all items as called for in the specifications regardless if item furnished is as specified.

- A. Submit technical data verifying that the item submitted complies with the requirements of the specifications. Technical data shall include manufacturer's name and model number, dimensions, weights, electrical characteristics, and clearances required. Indicate all optional equipment and changes from the standard item as called for in the specifications. Furnish drawings, or diagrams, dimensioned and in correct scale, covering equipment, showing arrangement of components and overall coordination.
- B. In order to facilitate review of product data, insofar as practicable, they shall be noted, indicating by cross reference the Contract Drawings, note, and/or specification paragraph numbers where item(s) occur- in the Contract Documents. At the end of each section insert a copy of the applicable specification.
- C. See specific sections of specifications for further requirements.

106-2.5 PROCESSING SUBMITTALS. Submit a minimum of seven (7) submittal books with separate tag marking on each copy for the Owner, Engineer (2), Contractor and Subcontractor (2). (See other sections/divisions of these specifications for additional quantity requirements.)

The General Contractor shall review the submittal books before submitting to the Engineer. No request for payment will be considered until the submittal book has been reviewed and submitted for approval.

Submit under provisions of the General Requirements of the Contract and this section of the specifications, whichever is the most strict.

Product Data: For standard manufactured materials, products and items, submit one (1) copy or sets of data (per book). If submittal is rejected, resubmittal shall contain same quantity of new data.

Shop Drawings: For custom fabricated items and systems shop drawings, initially submit a transparency (suitable for reproduction) together with two (2) prints made therefrom. When submittal is acceptable, furnish one (1) print per book made from the accepted transparency.

Acceptance: When returned to Contractor, the front of each submittal section will be marked with the Engineers stamp. If box marked "Rejected" or "Revise and Resubmit" is checked, submittal is not approved and Contractor is to correct and resubmit as noted. Contractor is to comply with notation making necessary corrections on submittal and resubmit for final record.

If submittal is marked "Furnish as Corrected" the Contractor shall make the necessary corrections to the submitted items and no resubmittal is necessary.

If the submittal is marked "Reviewed" the Engineer took no exceptions to the submitted items.

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Corrections or comments made on the shop drawings during this review do not relieve Contractor from compliance with requirements of the drawings and specifications. This check is only for review of the general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. The Contractor is responsible for: Confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his or her work with that of all other trades and performing all work in a safe and satisfactory manner.

Note that the review of shop drawings or other information submitted in accordance with the requirements herein before specified, does not assure that the Engineer, Architect, or Owner, attests to the dimensional accuracy or dimensional suitability of the material or equipment involved, the ability of the material or equipment involved or the Mechanical/Electrical performance of equipment. Review of shop drawings does not invalidate the plans and specifications if in conflict, unless a letter requesting such a change is submitted and approved on the Engineer's letterhead.

106-2.6 DELAYS. Contractor is responsible for delays in job project accruing directly or indirectly from late submissions or resubmissions of shop drawings, or product data.

106-2.7 RE-SUBMITTALS. The Engineer shall be reimbursed Cost to review resubmittals subsequent to the second submittal.

RECORD DOCUMENTS

106-3.0 PROGRESS AND RECORD DRAWING. Keep two (2) sets of blue line prints on the job and neatly mark up design drawings each day as components are installed. Different colored pencils shall be used to differentiate each system of electrical work. All items on progress drawings shall be shown in actual location installed. Drawings shall be inspected weekly for compliance and accuracy. Project payments shall be withheld if the marked-up drawings are not current.

Change the equipment schedules to agree with items actually furnished. At the end of the project, all changes shall be transferred to a set of reproducible transparencies of the design drawings marked "As-Built" and dated and stamped by the Contractor.

Prior to request for payment, furnish a set of "As-Built" sepia prints and four (4) sets of prints to the Architect/Engineer for approval. The final sepia prints shall be professionally drafted to indicate "As-Built" conditions to the Engineer.

The Contractor's failure to produce representative "As-Built" drawings in accordance with requirements specified herein, shall be cause for the Engineer to produce such "As-Built" drawings and the Contractor shall reimburse Engineer for all costs to produce a set of "As-Built" drawings to the Owner's satisfaction.

Complete and sign the Progress and Record Document Certification Form in Appendix A Figure 5 and submit with the Operation and Maintenance (O&M) Manual. Submit one (1) form for each Contractor/Subcontractor providing "As-Built" information, include a copy of each form in the O&M Manuals.

OPERATION AND MAINTENANCE MANUALS

106-4.0 REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS. Within each major division of work, each specification section in the Contract Documents which require submission of O&M information shall be individually identified by a typed index tab. The Contractor shall provide four (4) copies of manufacturer's manuals for all installed equipment. As a minimum, it shall contain the following:

- A. Safety precautions used while maintaining the equipment.
- B. Theory of circuit and system operation.
- C. Complete schematic and interconnecting wiring diagrams.

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- D. Complete parts list with each circuit component keyed to designations assigned on schematics and wiring diagrams. Complete information shall be given for each part to permit ordering for replacement purposes. This information shall include the components rating, name of manufacturer and the manufacturer's part number.
- E. Recommended preventive maintenance, including care, cleaning, lubrication, etc.
- F. Troubleshooting procedures.
- G. Physical characteristics (weight, size, mounting dimensions, etc.).
- H. Installation instructions.
- I. Operating instructions.
- J. Recommended spare parts and usage for a one (1) year period.
- K. Submit for checking purposes a specific set of written operating instructions on each item which requires instructions to operate. After approval, provide one (1) copy for insertion in each O&M Manual.
- L. Submit for approval maintenance information consisting of manufacturer's printed instructions and parts list for each major item of equipment. After approval, insert information in each O&M Manuals. Detailed schematic diagrams shall be furnished for all electrical/electronic equipment.
- M. Bill of materials.
- N. Physical layout plans.
- O. Equipment supplier list
- P. Panel schedules shall be submitted with the respective panel data.
- Q. Special instructions.
- R. Service maintenance contracts including the name, address and 24 hour phone number and contact of manufacturers authorized repair company.

There shall be no "Black Boxes" for which there are no schematic/wiring diagrams.

106-4.1 OPERATION AND MAINTENANCE MANUALS. O&M Manuals shall consist of hard cover, view type, 3-ring binders sized to hold 8 1/2" x 11" sheets.

Each binder is to be adequately sized to comfortably hold required submittals. Minimum spine size to be 1", maximum spine size to be 3" (provide additional binders if 3" size is not sufficient to properly hold submittals. Each binder shall be adequately sized to hold the submittal information plus an additional 25% of the submittal sheet count.

Binder covers to have outer clear vinyl pocket on front and back cover (to hold 8 1/2" x 11" sheet) and on spine (to hold spine width x 11" sheet). Binders shall be K & M Company Stock No. VB11-25 presentation binders or approved equal. Provide correct designation of project in each pocket, see "EXAMPLES" Appendix A Figures 6 and 7 included at the end of this section. Description sheet is to be white with black letters, minimum of 11" high and full width of pocket. Description is to describe project

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and match pocket drawing/spec description. Description to include submittal type, one (1) for Airfield Lighting System Materials (black).

106-4.2 OPERATION AND MAINTENANCE MANUAL CONTENTS. O&M Manuals to include:

- A.** First sheet in binder shall be a photocopy of the cover sheet see Appendix A Figure 1.
- B.** The second sheet shall be a table of contents.
- C.** The third sheet shall be filled out by Contractor and shall list project address, see Appendix A Figure 3.
- D.** The fourth sheet shall also be filled out by Contractor and list project information for project, see Appendix A Figure 4.
- E.** Provide Wilson Jones, reinforced, clear, ring binder indexes, 5 tab No. WJ-54125 or approved equal with the appropriate specification section number, and typed index for each section.
- F. Shop Drawings:** Shop drawings shall be a copy of the final and approved shop drawings submitted as required in item L-106.2. These shall be inserted in binder in proper order. Each catalog sheet shall clearly identify where the product is used and the drawing identification for equipment. Clear vinyl pockets shall be provided for insertion of shop drawings.
- G.** Product data and/or catalog sheets shall be a copy of the final and approved submittal submitted as required in Item L-106.2. These shall be inserted in binder proper order. Each catalog sheet shall clearly identify where the product is used and the drawing identification for equipment.
- H.** Warranty/Guarantee: Provide copy of warranty/guarantee and letters of certification, in respective location in O & M manual binder. Original warranty/guarantee is to be incorporated into separate project warranty book with warranty/guarantees provided for other sections and divisions of the specification and submitted for Engineer/Owner approval.

106-4.3 PROCESSING SUBMITTALS. Submit four (4) sets of O & M Manuals. The General Contractor shall review the manuals before submitting to the Engineer.

106-4.4 DELAYS. Contractor is responsible for delays in job project accruing directly or indirectly from late submissions or resubmissions of the O & M Manuals.

106-4.5 RE-SUBMITTALS. The Engineer shall be reimbursed the cost to review operation and maintenance manual, re-submittals subsequent to the second submittal.

METHOD OF MEASUREMENT

The items described in this section are incidental to other sections and not shall be measured for payment.

BASIS OF PAYMENT

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.

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APPENDIX A FIGURE 1

"EXAMPLE"

FORT LAUDERDALE EXECUTIVE AIRPORT

TAXIWAY FOXTROT LIGHTING IMPROVEMENTS

Project No.: 12357

PROJECT SUBMITTAL BOOK

Date:

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APPENDIX A FIGURE 2

PROJECT ADDRESS

OWNER: _____ PHONES: _____

GENERAL CONTRACTOR: _____

SUBCONTRACTORS:

SUPPLIERS:

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Contractor shall fill in the blanks below and insert in the Submittal Books and the Operating and Maintenance Manuals. Submit one (1) sheet for each major division of Work.

Project Name: _____
Specification Division Number & Name: _____
Subcontractor: _____

Contact: _____ Phone #: _____

Date Project Bid: _____
Project Start Date: _____

Construction Days Allowed for Construction: _____

Target Completion: _____

Substantial Completion
Certification Date: _____

**DATE
SUBMITTED**

Closeout Documentation
Manual: _____
Operating & Maintenance
Manual: _____

Owner Performance Verification
and Demonstrations: _____

Manufacturer's Performance Verification Memos: _____

Manufacturer's Test Data: _____

Record Documents: _____

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This form shall be completed and submitted with the Record Documents. Submit one form for each Contractor/Subcontractor providing as-built information. Include a copy of this form in the Closeout Documentation Manual.

Project Name: _____

Specification Division Number & Name: _____

The Contractor's and Subcontractor's signatures below certify that the attached drawings and specifications were marked and revised as items were installed/changed, during the course of construction, and that these documents represent an accurate "Record-As Built" condition of the work as actually installed.

(Name of General Contractor)

(Signature, Title, Date)

(Name of Sub-contractor)

(Signature, Title, Date)

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APPENDIX A FIGURE 5

"EXAMPLE"

FORT LAUDERDALE EXECUTIVE AIRPORT

TAXIWAY FOXTROT LIGHTING IMPROVEMENTS

Project No.: 12357

OPERATION AND MAINTENANCE MANUALS

Date:

END OF ITEM L-106

**SUBMITTALS, RECORD DOCUMENTS
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ITEM L-108
UNDERGROUND POWER CABLE FOR AIRPORTS

The work to be performed under this specification shall meet the requirements of Item L-108 Underground Power Cable for Airports of the Federal Aviation Administration Advisory Circular 150/5370-10G – Standards for Specifying Airport Construction as indicated and modified below.

I. General

- 1. All additions or revisions to Item L-108 are shown in bolded, italic, underlined or in parenthesis print.*
- 2. All deletions to Item L-108 are single or double struck through and are not applicable.*

DESCRIPTION

108-1.1 This item shall consist of ~~furnishing and installing power cables that are direct buried and~~ furnishing and/or installing power cables within conduit or duct banks per these specifications at the locations shown on the plans. ~~It includes excavation and backfill of trench for direct buried cables only.~~ Also included are the installation of counterpoise wires, ground wires, ground rods and connections, cable splicing, cable marking, cable testing, and all incidentals necessary to place the cable in operating condition as a completed unit to the satisfaction of the Engineer. This item shall not include the installation of duct banks or conduit, trenching and backfilling for duct banks or conduit, or furnishing or installation of cable for FAA owned/operated facilities. Requirements and payment for trenching and backfilling for the installation of underground conduit and duct banks is in Item L-110, "Airport Underground Electrical Duct Banks and Conduits."

EQUIPMENT AND MATERIALS

108-2.1 GENERAL.

- A.** Airport lighting equipment and materials covered by advisory circulars (AC) shall be approved under the Airport Lighting Equipment Certification Program per AC 150/5345-53, current version.
- 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.
- C.** Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications **and acceptable to the Engineer**. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the Engineer and replaced with materials that comply with these specifications, at the Contractor's sole cost.
- D.** All materials and equipment used to construct this item shall be submitted to the Engineer for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project.

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Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

- E. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the plans and specifications. The Contractor's submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section. The Engineer reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.
- F. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner. The Contractor shall be responsible to maintain a minimum insulation resistance **of 500 megaohms tested with a 1000V megger.** ~~per AC 150/5340-26B, Maintenance Airport Visual aid Facilities, Table 5-1 and paragraph 5.1.3.1,~~ with isolation transformers connected in new circuits and new segments of existing circuits through the end of the contract warranty period.

108-2.2 CABLE. Underground cable for airfield lighting facilities (runway and taxiway lights and signs) shall conform to the requirements of AC 150/5345-7, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits latest edition. Conductors for use on 6.6 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #8 American wire gauge AWG), L-824 Type C, 5,000 volts, nonshielded, with cross-linked polyethylene insulation. ~~Conductors for use on 20 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #6 AWG, L-824 Type C, 5,000 volts, nonshielded, with cross-linked polyethylene insulation.~~ L-824 conductors for use on the L-830 secondary of airfield lighting series circuits shall be sized in accordance with the manufacturer's recommendations. All other conductors shall comply with FAA and National Electric Code (NEC) requirements. Conductor sizes noted above shall not apply to leads furnished by manufacturers on airfield lighting transformers and fixtures.

Wire for electrical circuits up to 600 volts shall comply with Specification L-824 ~~and/or Federal Specification J-C-30~~ and shall be type **XHHW THWN-2**, 75°C. Conductors for parallel (voltage) circuits shall be sized and installed in accordance with NFPA-70, National Electrical Code.

Unless noted otherwise, all 600-volt and less non-airfield lighting conductor sizes are based on a 75°C, ~~THWN-2~~ **XHHW**, 600 volt insulation, copper conductors, not more than three single insulated conductors, in raceway, in free air. The conduit/duct sizes are based on the use of ~~THWN-2~~ **XHHW**, 600 volt insulated conductors. The Contractor shall make the necessary increase in conduit/duct sizes for other types of wire insulation. In no case shall the conduit/duct size be reduced. The minimum power circuit wire size shall be #12 AWG.

Conductor sizes may have been adjusted due to voltage drop or other engineering considerations. Equipment provided by the Contractor shall be capable of accepting the quantity and sizes of conductors shown in the Contract Documents. All conductors, pigtails,

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cable step-down adapters, cable step-up adapters, terminal blocks and splicing materials necessary to complete the cable termination/splice shall be considered incidental to the respective pay items provided.

Cable type, size, number of conductors, strand and service voltage shall be as specified in the Contract Document.

108-2.3 BARE COPPER COUNTERPOISE, BARE COPPER GROUND AND GROUND RODS.

Wire for counterpoise or ground-installations for airfield lighting systems shall be No. 6 AWG bare solid copper wire for counterpoise and or No. 6 AWG insulated stranded for ground wire per ASTM B3 and ASTM B8, and shall be bare tinned copper per ASTM B33. See AC 150/5340-30 for additional details about counterpoise and ground wire types and installation. For voltage powered circuits, the equipment ground conductor shall be minimum No. 6 AWG, 600V rated, Type XHHW insulated, green color, stranded copper equipment ground conductor.

Ground rods shall be **10 foot sectional** 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 ~~20 8-feet (240 cm)~~ **20 feet** long nor less than ~~3/4 5/8 in (15 mm)~~ **3/4 in** in diameter. ***The length of the rod shall be determined by The Wenner Vertical Profiling method (ASTM G57) to measure the resistance to ground. Each rod that is to be connected to the counterpoise shall be individually tested by the Contractor and witnessed by the Engineer or Owner's identified representative for a not to exceed earth resistance of 25 ohms prior to connection of the counterpoise. Additional sections to reach the grounding requirement shall be added per direction of the Engineer or Owner's identified representative until the not to exceed value is obtained or alternate methods of achieving the required resistance are determined.***

108-2.4 CABLE CONNECTIONS. In-line connections of underground primary cables shall be of the type called for on the plans, and shall be one of the types listed below. No separate payment will be made for cable connections.

- A. The Cast Splice-** A cast splice, employing a plastic mold and using epoxy resin equivalent to that manufactured by 3M™ Company, "Scotchcast" Kit No. 82-B, or as manufactured by Hysol® Corporation, "Hyseal Epoxy Splice" Kit No. E1135, or an approved equivalent, used for potting the splice is acceptable.
- B. The Field-attached Plug-in Splice-** Figure 3 of AC 150/5345-26, Specification for L-823 Plug and Receptacle, Cable Connectors, employing connector kits, is acceptable—for field attachment to single conductor cable. It shall be the Contractor's responsibility to determine the outside diameter of the cable to be spliced and to furnish appropriately sized connector kits and/or adapters ~~and heat shrink tubing with integral sealant.~~ ***L-823 Connector kits shall be Amerace "54 Super Kit" or approved alternate. Contractor shall coordinate with the connector kit manufacturer for all cable to cable and cable to transformers connections for full compatibility of a watertight connection and provide all necessary transformers and connector kits accordingly.***
- C. The Factory-Molded Plug-in Splice-** Specification for L-823 Connectors, Factory-Molded to Individual Conductors, is acceptable. ***L-823 Connector kits shall be Amerace "54 Super Kit" or approved alternate. Contractor shall coordinate with the connector kit manufacturer for all cable to cable and cable to transformers***

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connections for full compatibility of a watertight connections and provide all necessary transformers and connector kits accordingly.

- D. ~~The Taped or Heat Shrinked Splice.~~** ~~Taped splices employing field applied rubber, or synthetic rubber tape covered with plastic tape is acceptable. The rubber tape should meet the requirements of ASTM D4388 and the plastic tape should comply with Military Specification MIL I-24391 or Commercial Item Description A A 55809. Heat shrinkable tubing shall be heavy wall, self sealing tubing rated for the voltage of the wire being spliced and suitable for direct buried installations. The tubing shall be factory coated with a thermoplastic adhesive sealant that will adhere to the insulation of the wire being spliced forming a moisture and dirt proof seal. Additionally, heat shrinkable tubing for multi conductor cables, shielded cables, and armored cables shall be factory kits that are designed for the application. Heat shrinkable tubing and tubing kits shall be manufactured by Tyco Electronics/ Raychem Corporation, Energy Division, or approved equivalent.~~
- E.** In all the above cases, connections of cable conductors shall be made using crimp connectors using a crimping tool designed to make a complete crimp before the tool can be removed. All L-823/L-824 splices and terminations shall be made per the manufacturer's recommendations and listings.
- F.** All connections of counterpoise, grounding conductors and ground rods shall be made by the exothermic process ~~or approved equivalent~~, except that a light base ground clamp connector shall be used for attachment to the light base. See AC 150/5340-30 for additional information about methods of attaching a ground to a galvanized light base. All exothermic connections shall be made per the manufacturer's recommendations and listings.

108-2.5 SPLICER QUALIFICATIONS. Every airfield lighting cable splicer shall be qualified in making airport cable splices and terminations on cables rated at or above 5,000 volts AC. The Contractor shall submit to the Engineer proof of the qualifications of each proposed cable splicer for the airport cable type and voltage level to be worked on. Cable splicing/terminating personnel shall have a minimum of three (3) years continuous experience in terminating/splicing medium voltage cable. ***The Contractor shall submit to the Engineer a notarized letter on company letterhead or certificate for each proposed cable splicer indicating that the splicer(s) has attended the manufacturer's installation instructional course or witnessed an instructional training video for the L-823 connector kit to be utilized under this Contract within the past 3 years.***

108-2.6 CONCRETE. Concrete for cable markers shall conform to Specification Item P-610, "Structural Portland Cement Concrete."

108-2.7 FLOWABLE BACKFILL. Flowable material used to backfill trenches for power cable trenches shall conform to the requirements of Item P-153 "Controlled Low Strength Material".

108-2.8 CABLE IDENTIFICATION TAGS. Cable identification tags shall be made from a non-corrosive material with the circuit identification stamped or etched onto the tag. The tags shall be of the type as detailed on the plans.

108-2.9 TAPE. Electrical tapes shall be ScotchTM Electrical Tapes –ScotchTM 88 (1-1/2 inch ~~(38 mm)~~ wide) and ScotchTM 130C[®] linerless rubber splicing tape (2-inch ~~(50 mm)~~ wide), as

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manufactured by the Minnesota Mining and Manufacturing Company (3M™), or an approved equivalent.

108-2.10 ELECTRICAL COATING. Electrical coating shall be Scotchkote™ as manufactured by 3M™, or an approved equivalent.

108-2.11 EXISTING CIRCUITS. Whenever the scope of work requires, connection to an existing circuit, the circuit's insulation resistance shall be tested, in the presence of the Engineer **or the Owner's representative**. The test shall be performed per this item and prior to any activity that will affect the respective circuit. The Contractor shall record the results on forms ~~acceptable to the Engineer~~ **at the end of the Specification**. When the work affecting the circuit is complete, the circuit's insulation resistance shall be checked again, in the presence of the Engineer. The Contractor shall record the results on forms acceptable to the engineer. The second reading shall be equal to or greater than the first reading or the Contractor shall make the necessary repairs to the circuit to bring the second reading above the first reading. All repair costs including a complete replacement of the L-823 connectors, L-830 transformers and L-824 cable, if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance (O&M) Manual.

108-2.12 DETECTABLE WARNING TAPE. Plastic, detectable, American Wood Preservers Association (AWPA) Red (electrical power lines, cables, conduit and lighting cable) with continuous legend magnetic tape shall be polyethylene film with a metalized foil core and shall be ~~3-6 inches (75-150 mm)~~ wide. Detectable tape is incidental to the respective bid item.

CONSTRUCTION METHODS

108-3.1 GENERAL. The Contractor shall install the specified cable at the approximate locations indicated on the plans. Unless otherwise shown on the plans, all cable required to cross under pavements expected to carry aircraft loads shall be installed in concrete encased duct banks. Wherever possible, cable shall be run without splices, from connection to connection.

Cable connections between lights will be permitted only at the light locations for connecting the underground cable to the primary leads of the individual isolation transformers. 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 on the plans.

L-823 connectors shall be used for all airfield lighting terminations. L-823 connectors shall be installed in each cable connecting to an L-830 lighting transformer, lighting fixture, sign, windcone and etc. An L-823 connector shall only be installed where connections to devices are made. L-823 connectors shall not be installed in conductors pulled through a base can or home run conductors, unless maximum manufacturer pulling lengths have been reached.

After installation of the L-823 connectors, 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

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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.

In addition to connectors being installed at individual isolation transformers, L-823 cable connectors for maintenance and test points shall be installed at locations shown on the plans. Cable circuit identification markers shall be installed on both sides of the L-823 connectors installed or at least once in each access point where L-823 connectors are not installed.

Provide not less than 3 feet ~~(1-m)~~ of cable slack on each side of all connections, isolation transformers, light units, and at points where cable is connected to field equipment. Where provisions must be made for testing or for future above grade connections, provide enough slack to allow the cable to be extended at least one foot ~~(30-cm)~~ vertically above the top of the access structure. This requirement also applies where primary cable passes through empty light bases, junction boxes, and access structures to allow for future connections, or as designated by the Engineer. ***Splices shall not be allowed in abandoned base cans/junction boxes, splices shall be at a minimum and approved by the Engineer in the homerun conductors .***

Primary airfield lighting cables installed shall have cable circuit identification markers attached on both sides of each L-823 connector and on each airport lighting cable entering or leaving cable access points, such as manholes, hand holes, pull boxes, junction boxes, etc. Markers shall be of sufficient length for imprinting the cable circuit identification legend on one line, using letters not less than 1/4 inch ~~(6-mm)~~ in size. The cable circuit identification shall match the circuits noted on the construction plans.

108-3.2 INSTALLATION IN DUCT BANKS OR CONDUITS. This item includes the installation of the cable in duct banks or conduit per the following paragraphs. 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 per the latest version of the National Electric Code, or the code of the local agency or authority having jurisdiction.

The Contractor shall make no connections or splices of any kind in cables installed in conduits or duct banks.

Unless otherwise designated in the plans, where ducts are in tiers, use the lowest ducts to receive the cable first, with spare ducts left in the upper levels. Check duct routes prior to construction to obtain assurance that the shortest routes are selected and that any potential interference is avoided.

Duct banks or conduits shall be installed as a separate item per Item L-110, Airport Underground Electrical Duct Banks and Conduit. The Contractor shall run a mandrel through duct banks or conduit prior to installation of cable to ensure that the duct bank or conduit is open, continuous and clear of debris. The mandrel size shall be compatible with the conduit size. The Contractor shall swab out all conduits/ducts and clean light bases, manholes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed, the light bases and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, light bases, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be re-cleaned at the Contractor's expense. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the Engineer of any blockage in the existing ducts.

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The cable shall be installed in a manner that prevents harmful stretching of the conductor, damage to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape providing moisture-tight mechanical protection with minimum bulk, or alternately, heat shrinkable tubing 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 conduit, all cable shall be pulled in the conduit at the same time. The pulling of a cable through duct banks or conduits may be accomplished by hand winch or power winch with the use of cable grips or pulling eyes. Maximum pulling tensions shall not exceed the cable manufacturer's recommendations. A non-hardening cable-pulling lubricant recommended for the type of cable being installed shall be used where required.

The Contractor shall submit the recommended pulling tension values to the Engineer prior to any cable installation. If required by the Engineer, pulling tension values for cable pulls shall be monitored by a dynamometer in the presence of the Engineer. Cable pull tensions shall be recorded by the Contractor and reviewed by the Engineer. Cables exceeding the maximum allowable pulling tension values shall be removed and replaced by the Contractor at the Contractor's expense.

The manufacturer's minimum bend radius or NEC requirements (whichever is more restrictive) shall apply. Cable installation, handling and storage shall be per manufacturer's recommendations. During cold weather, particular attention shall be paid to the manufacturer's minimum installation temperature. Cable shall not be installed when the temperature is at or below the manufacturer's minimum installation temperature. At the Contractor's option, the Contractor may submit a plan, for review by the Engineer, for heated storage of the cable and maintenance of an acceptable cable temperature during installation when temperatures are below the manufacturer's minimum cable installation temperature.

Cable shall not be dragged across base can or manhole edges, pavement or earth. When cable must be coiled, lay cable out on a canvas tarp or use other appropriate means to prevent abrasion to the cable jacket.

~~108-3.1 INSTALLATION OF DIRECT-BURIED CABLE IN TRENCHES.~~

~~Unless otherwise specified, the Contractor shall not use a cable plow for installing the cable. Cable shall be unrecoiled uniformly in place alongside or in the trench and shall be carefully placed along the bottom of the trench. The cable shall not be unrecoiled and pulled into the trench from one end. Slack cable sufficient to provide strain relief shall be placed in the trench in a series of S-curves. Sharp bends or kinks in the cable shall not be permitted.~~

~~Where cables must cross over each other, a minimum of 3 inches (75 mm) vertical displacement shall be provided with the topmost cable depth at or below the minimum required depth below finished grade.~~

- ~~**A. Trenching.** Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored. Trenches for cables may be excavated manually or with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of surface is disturbed. Graders shall not be used to excavate the trench with their blades. The bottom surface of trenches shall be essentially smooth and free from coarse aggregate. Unless otherwise specified, cable trenches shall be excavated to a minimum depth of 18 inches (0.5 m) below finished grade per NEC Table 300.5, except as follows:~~

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~~(1) When off the airport or crossing under a roadway or driveway, the minimum depth shall be 36 inches (91 cm) unless otherwise specified.~~

~~(2) Minimum cable depth when crossing under a railroad track, shall be 42 inches (1 m) unless otherwise specified.~~

~~Dewatering necessary for cable installation, erosion and turbidity control, per Federal, state, and local requirements is incidental to its respective pay items as part of Item L-108. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the L-108 Item.~~

~~The Contractor shall excavate all cable trenches to a width not less than 6 inches (150 mm). Unless otherwise specified on the plans, all cables in the same location and running in the same general direction shall be installed in the same trench.~~

~~When rock is encountered, the rock shall be removed to a depth of at least 3 inches (75 mm) below the required cable depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4 inch (6 mm) sieve. Flowable backfill material may alternatively be used. The Contractor shall ascertain the type of soil or rock to be excavated before bidding. All such rock removal shall be performed and paid for under Item P-152.~~

~~Duct bank or conduit markers temporarily removed for trench excavations shall be replaced as required.~~

~~It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:~~

~~(1) Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred.~~

~~(2) Trenching, etc., in cable areas shall then proceed, with approval of the Engineer, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.~~

~~In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair or replacement.~~

B. Backfilling. ~~After the cable has been installed, the trench shall be backfilled. The first layer of backfill in the trench shall be 3 inches (75 mm) deep, loose measurement, and shall be either earth or sand containing no mineral aggregate particles that would be retained on a 1/4 inch (6 mm) sieve. This layer shall not be compacted. The second layer shall be 5 inches (125 mm) deep, loose measurement, and shall contain no particles that would be retained on a one inch (25 mm) sieve. The remaining third and subsequent layers of backfill shall not exceed 8 inches (20 cm) of loose measurement and be excavated or imported material and shall not contain stone or aggregate larger than 4 inches (100 mm) maximum diameter.~~

~~The second and subsequent layers shall be thoroughly tamped and compacted to at least the density of the adjacent undisturbed soil, and to the satisfaction of the Engineer.~~

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~~If necessary to obtain the desired compaction, the backfill material shall be moistened or aerated as required.~~

~~If the cable is to be installed in locations or areas where other compaction requirements are specified (under pavements, embankments, etc.) the compaction requirements per Item P-152 for that area shall be followed.~~

~~Trenches shall not contain pools of water during backfilling operations. The trench shall be completely backfilled and tamped level with the adjacent surface, except that when turf is to be established over the trench, the backfilling shall be stopped at an appropriate depth consistent with the type of turving operation to be accommodated. A proper allowance for settlement shall also be provided. Any excess excavated material shall be removed and disposed of per the plans and specifications.~~

~~Underground electrical warning (caution) tape shall be installed in the trench above all direct buried cable. Contractor shall submit a sample of the proposed warning tape for acceptance by the Engineer. If not shown on the plans, the warning tape shall be located 6 inches (150 mm) above the direct buried cable or the counterpoise wire if present. A 4-6 inch (100-150 mm) wide polyethylene film detectable tape, with a metalized foil core, shall be installed above all direct buried cable or counterpoise. The tape shall be of the color and have a continuous legend as indicated on the plans. The tape shall be installed 8 inch (200 mm) minimum below finished grade.~~

~~C. Restoration.~~ ~~Following restoration of all trenching near airport movement surfaces, the Contractor shall visually inspect the area for foreign object debris (FOD) and remove any that is found. Where soil and sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by work shall be restored to its original condition. The restoration shall include the [sodding] [topsoiling] [fertilizing] [liming] [seeding] [sprigging] [mulching] as shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. When trenching is through paved areas, restoration shall be equal to existing conditions and compaction shall meet the requirements of Item P-152. Restoration shall be considered incidental to the pay item of which it is a component part.~~

108-3.2 ~~CABLE MARKERS FOR DIRECT-BURIED CABLE~~

~~The location of direct buried circuits shall be marked by a concrete slab marker, 2 feet (60 cm) square and 4-6 inch (10-15 cm) thick, extending approximately one inch (25 mm) above the surface. Each cable run from a line of lights and signs to the equipment vault shall be marked at approximately every 200 feet (61 m) along the cable run, with an additional marker at each change of direction of cable run. All other direct buried cable shall be marked in the same manner. Cable markers shall be installed directly above the cable. The Contractor shall impress the word "CABLE" and directional arrows on each cable marking slab. The letters shall be approximately 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.~~

~~At the location of each underground cable connection, except at lighting units, or isolation transformers, or power a concrete marker slab must mark adapters placed above the connection. The Contractor shall impress the word "SPlice" on each slab. The Contractor also shall impress additional circuit identification symbols on each slab as directed by the Engineer. All cable markers and splice markers shall be painted international orange. Paint shall be~~

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~~specifically manufactured for uncured exterior concrete. After placement, all cable or splice markers shall be given one coat of high-visibility aviation orange paint as approved by the Engineer. Furnishing and installation of cable markers is incidental to the respective cable pay item.~~

108-3.5 SPLICING. Connections of the type shown on the plans shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

A. Cast Splices. These shall be made by using crimp connectors for jointing conductors. Molds shall be assembled, and the compound shall be mixed and poured per manufacturer's instructions and to the satisfaction of the Engineer.

B. Field-attached Plug-in Splices. These shall be assembled per 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 1/2 inches (38 mm) on each side of the joint.~~

C. 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 1/2 in (38 mm) on each side of the joint.~~

D. Taped or Heat-Shrunked Splices. ~~A taped splice shall be made in the following manner:~~

~~Bring the cables to their final position and cut so that the conductors will butt. Remove insulation and jacket allowing for bare conductor of proper length to fit compression sleeve connector with 1/4 inch (6 mm) of bare conductor on each side of the connector. Prior to splicing, the two ends of the cable insulation shall be penciled using a tool designed specifically for this purpose and for cable size and type. Do not use emery paper on splicing operation since it contains metallic particles. The copper conductors shall be thoroughly cleaned. Join the conductors by inserting them equidistant into the compression connection sleeve. Crimp conductors firmly in place with crimping tool that requires a complete crimp before tool can be removed. Test the crimped connection by pulling on the cable. Scrape the insulation to assure that the entire surface over which the tape will be applied (plus 3 inch (75 mm) on each end) is clean. After scraping wipe the entire area with a clean lint free cloth. Do not use solvents.~~

~~Apply high voltage rubber tape one half lapped over bare conductor. This tape should be tensioned as recommended by the manufacturer. Voids in the connector area may be eliminated by highly elongating the tape, stretching it just short of its breaking point. Throughout the rest of the splice less tension should be used. Always attempt to exactly half lap to produce a uniform buildup. Continue buildup to 1 1/2 times cable diameter over the body of the splice with ends tapered a distance of approximately one inch (25 mm) over the original jacket. Cover rubber tape with two layers of vinyl pressure sensitive tape one half lapped. Do not use glyptol or lacquer over vinyl tape as they react as solvents to the tape. No further cable covering or splice boxes are required.~~

~~Heat shrinkable tubing shall be installed following manufacturer's instructions. Direct flame heating shall not be permitted unless recommended by the manufacturer. Cable~~

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~~surfaces within the limits of the heat shrink application shall be clean and free of contaminants prior to application.~~

~~Surfaces of equipment or conductors being terminated or connected shall be prepared in accordance with industry standard practice and manufacturer's recommendations. All surfaces to be connected shall be thoroughly cleaned to remove all dirt, grease, oxides, nonconductive films, or other foreign material. Paints and other nonconductive coatings shall be removed to expose base metal. Clean all surfaces at least 1/4 inch (6.4 mm) beyond all sides of the larger bonded area on all mating surfaces. Use a joint compound suitable for the materials used in the connection. Repair painted/coated surface to original condition after completing the connection.~~

108-3.6 BARE COUNTERPOISE WIRE INSTALLATION FOR LIGHTNING PROTECTION AND GROUNDING.

~~If shown on the plans or included in the job specifications,~~ A bare solid #6 AWG copper counterpoise wire shall be installed for lightning protection of the underground cables. The Engineer shall select one of two methods of lightning protection for the airfield lighting circuit based on the frequency of local lightning:

a. Equipotential. – may be used by the Engineer for areas that have high rates of lightning strikes. This is where the counterpoise is bonded to the light base (edge lights included) and counterpoise size is determined by the Engineer.

~~**b. Isolation** used in areas where lightning strikes are not common. The counterpoise is not bonded to edge light fixtures, in pavement fixtures are boned to the counterpoise. Counterpoise size is selected by the Engineer.~~

Counterpoise wire shall be installed in the same trench for the entire length of buried cable, conduits and duct banks that are installed to contain airfield cables.

~~For edge light fixtures installed in turf (stabilized soils) and for raceways or cables adjacent to the full strength pavement edge, the counterpoise conductor shall be installed halfway between the pavement edge and the light base, mounting stake, raceway, or cable. The counterpoise conductor shall be installed 8 inches (203 mm) minimum below grade. Each light base or mounting stake shall be provided with a grounding electrode. When a metallic light base is used, the grounding electrode shall be bonded to the metallic light base or mounting stake with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor. When a nonmetallic light base is used, the grounding electrode shall be bonded to the metallic light fixture or metallic base plate with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor.~~

For raceways installed under pavement; ~~for raceways and cables not installed adjacent to the full strength pavement edge;~~ for fixtures installed in full strength pavement and shoulder pavement and for ~~optional method of~~ edge lights installed in turf (stabilized soils); and for raceways or cables adjacent to the full strength pavement edge, the counterpoise conductor shall be centered over the raceway or cable to be protected as described below. The counterpoise conductor shall be installed no less than 8 inches (203 mm) above the raceway or cable to be protected, except as permitted below. The minimum counterpoise conductor height above the raceway or cable to be protected shall be permitted to be adjusted subject to coordination with the airfield lighting and pavement designs.

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Where raceway is installed by the directional bore, jack and bore, or other drilling method, the counterpoise conductor shall be permitted to be installed concurrently with the directional bore, jack and bore, or other drilling method raceway, external to the raceway or sleeve.

The counterpoise conductor shall be installed no more than 12 inches (305 mm) above the raceway or cable to be protected. The counterpoise conductor height above the protected raceway(s) or cable(s) shall be calculated to ensure that the raceway or cable is within a 45-degree area of protection. The counterpoise conductor shall be bonded to each metallic light base, mounting stake, and metallic airfield lighting component. All metallic airfield lighting components in the field circuit on the output side of the constant current regulator (CCR) or other power source shall be bonded to the airfield lighting counterpoise system.

The counterpoise wire shall also be exothermically welded to ground rods installed as shown on the plans but not more than 500 feet ~~(150 m)~~ apart around the entire circuit. The counterpoise system shall be continuous and terminate at the transformer vault or at the power source. It shall be securely attached to the vault or equipment external ground ring or other made electrode-grounding system. The connections shall be made as shown on the plans and in the specifications. **Ground rods shall be tested to obtain a not to exceed 25 ohms prior to connection of grounding conductor**

~~If shown on the plans or in the specifications, A~~ a separate equipment (safety) ground system shall be provided in addition to the counterpoise wire using one of the following methods:

- c. A ground rod installed at and securely attached to each light fixture base, mounting stake, and to all metal surfaces at junction/access structures via #6 AWG wire.
- ~~d. For parallel voltage systems only, install a #6 AWG green insulated equipment ground conductor internal to the conduit system and securely attached it to each light fixture base internal grounding lug and to all metal surfaces at junction/access structures. Dedicated ground rods shall be installed and exothermically welded to the counterpoise wires at each end of a duct bank crossing under pavement.~~

Where an existing airfield lighting system is being extended or modified, the new counterpoise conductors shall be interconnected to existing counterpoise conductors at each intersection of the new and existing airfield lighting counterpoise systems.

The counterpoise system shall be continuous and terminate at the transformer vault or at the power source. It shall be securely attached to the vault or equipment external ground ring or other made electrode grounding system. The connections shall be made as shown on the plans and in the specifications.

108-3.7 COUNTERPOISE INSTALLATION ABOVE MULTIPLE CONDUITS AND DUCT BANKS. Counterpoise wires shall be installed above multiple conduits/duct banks for airfield lighting cables, with the intent being to provide a complete area of protection over the airfield lighting cables. When multiple conduits and/or duct banks for airfield cable are installed in the same trench, the number and location of counterpoise wires above the conduits shall be adequate to provide a complete cone of protection measured 22-1/2 degrees each side of vertical.

Where duct banks pass under pavement to be constructed in the project, the counterpoise shall be placed above the duct bank. Reference details on the construction plans.

108-3.8 COUNTERPOISE INSTALLATION AT EXISTING DUCT BANKS. When airfield lighting cables are indicated on the plans to be routed through existing duct banks, the new

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counterpoise wiring shall be terminated at ground rods at each end of the existing duct bank where the cables being protected enter and exit the duct bank. The new counterpoise conductor shall be bonded to the existing counterpoise system.

108-3.3 EXOTHERMIC BONDING. Bonding of counterpoise wire shall be by the exothermic welding process. Only personnel experienced in and regularly engaged in this type of work shall make these connections.

Contractor shall demonstrate to the satisfaction of the Engineer, the welding kits, materials and procedures to be used for welded connections prior to any installations in the field. The installations shall comply with the manufacturer's recommendations and the following:

- a. All slag shall be removed from welds.
- b. Using an exothermic weld to bond the counterpoise to a lug on a galvanized light base is not recommended unless the base has been specially modified. Consult the manufacturer's installation directions for proper methods of bonding copper wire to the light base. See also AC 150/5340-30 for galvanized light base exception.
- c. If called for in the plans, all buried copper and weld material at weld connections shall be thoroughly coated with 6 mm of 3M™ Scotchkote™, or approved equivalent, or coated with coal tar Bitumastic® material to prevent surface exposure to corrosive soil or moisture.

108-3.4 TESTING. The Contractor shall furnish all necessary equipment and appliances for testing the airport electrical systems and underground cable circuits before and after installation. The Contractor shall perform all tests in the presence of the Engineer **or the Owner's Representative**. The Contractor shall demonstrate the electrical characteristics to the satisfaction of the Engineer. All costs for testing are incidental to the respective item being tested. For phased projects, the tests must be completed by phase. The Contractor must maintain the test results throughout the entire project as well as during the warranty period that meet the following:

- a. Earth resistance testing methods shall be submitted to the Engineer for approval. Earth resistance testing results shall be recorded on an approved format **the end of the specification** and testing shall be performed in the presence of the Engineer **or the Owner's Representative**. All such testing shall be at the sole expense of the Contractor.
- b. Should the counterpoise or ground grid conductors be damaged or suspected of being damaged by construction activities the Contractor shall test the conductors for continuity with a low resistance ohmmeter. The conductors shall be isolated such that no parallel path exists and tested for continuity. The Engineer shall approve of the test method selected. All such testing shall be at the sole expense of the Contractor.

After installation, the Contractor shall test and demonstrate to the satisfaction of the Engineer the following:

- c. That all affected lighting power and control circuits (existing and new) are continuous and free from short circuits.
- d. That all affected circuits (existing and new) are free from unspecified grounds.
- e. That the insulation resistance to ground of all new non-grounded high voltage series circuits or cable segments is not less than **500** megohms.

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- f. That the insulation resistance to ground of all new non-grounded conductors of new multiple circuits or circuit segments is not less than **500** megohms.
- g. That all affected circuits (existing and new) are properly connected per applicable wiring diagrams.
- h. That all affected circuits (existing and new) 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 1/2 hour.
- i. That the impedance to ground of each ground rod does not exceed 25 ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81, to verify this requirement. ~~As an alternate, clamp-on style ground impedance test meters may be used to satisfy the impedance testing requirement.~~ Test equipment and its calibration sheets shall be submitted for review and approval by the Engineer prior to performing the testing.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the Engineer. Where connecting new cable to existing cable, ground resistance tests shall be performed on the new cable prior to connection to the existing circuit.

There are no approved "repair" procedures for items that have failed testing other than complete replacement.

METHOD OF MEASUREMENT

108-4.1 Trenching shall be measured by the linear feet (~~meters~~) of trench, including the excavation, backfill, and restoration, completed, measured as excavated, and accepted as satisfactory.

When specified, separate measurement shall be made for trenches of various specified widths.

The cost of all excavation, backfill, dewatering and restoration regardless of the type of material encountered shall be included in the unit price bid for the work.

108-4.2 Cable or counterpoise wire installed in trench, duct bank or conduit shall be measured by the number of linear feet (~~meters~~) of cable or counterpoise wire installed in trenches, duct bank or conduit, ~~including ground rods and grounding connectors~~, and trench marking tape ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in trench, duct bank or conduit. The measurement for this item shall include additional quantities required for slack. ***Cable and counterpoise slack is considered incidental to this item and is included in the Contractor's unit price. No separate measurement or payment will be made for cable or counterpoise slack.***

BASIS OF PAYMENT

108-5.1 Payment will be made at the contract unit price for trenching, cable and bare counterpoise wire, ~~installed in trench (direct buried)~~, or cable and equipment ground installed in duct bank or conduit, in place by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation and installation of these

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materials, and for all labor, equipment, tools, and incidentals, ~~including ground rods and ground connectors~~ and trench marking tape, necessary to complete this item.

Payment will be made under:

- Item L-108-5.1** ***Hand excavate minimum 8" Wide x 28" Deep in earth. Includes all labor, hand excavation, backfill and sod restoration, complete in place. - Price per linear foot.***
- Item L-108-5.2** ***Hand excavate minimum 18" Wide x 36" Deep in earth. Includes all labor, hand excavation, backfill and sod restoration, complete in place. - Price per linear foot.***
- Item L-108-5.3** ***Saw cut and hand excavate minimum 8" Wide x 28" Deep in existing full strength pavement. Includes all labor, hand excavation, saw cutting, backfill, high early concrete, pavement repair, complete in place. - Price per linear foot.***
- Item L-108-5.4** ***3/4" x 20' ground rods connected to counterpoise. Includes all labor, ground rods, excavation, splice kits, testing, backfill, connections, exothermic welds, and etc., complete in place. - Price per each.***
- Item L-108-5.5** ***10' additional ground rod sections. Includes all labor, ground rods, excavation, splice kits, testing, backfill, connections, exothermic welds and etc., complete in place - Price per each.***
- Item L-108-5.6** ***#6 bare solid AWG counterpoise conductor installed over conduit system. Includes all labor, conductors, splice kits, exothermic welds, testing, excavation, backfill, and etc. complete in place. - Price per linear foot.***
- Item L-108-5.7** ***#8, 5KV, L-824 conductor installed in new and existing conduit/ductbank/manhole system. Includes all labor, conductors, testing, cleaning and dewatering, removal and disposal of existing conductors, pull string, pulling compound, identification, connector kits, and etc., complete in place. - Price per linear foot.***

MATERIAL REQUIREMENTS

- | | |
|-----------------|--|
| AC 150/5345-7 | Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits |
| AC 150/5345-26 | Specification for L-823 Plug and Receptacle Cable Connectors |
| FED SPEC J-C-30 | Cable and Wire, Electrical Power, Fixed Installation (cancelled; replaced by A-A-59544 Cable and Wire, Electrical (Power, Fixed Installation)) |

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FED SPEC A-A-55809	Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic
ASTM B 3	Soft or Annealed Copper Wire
ASTM D 4388	Rubber tapes, Nonmetallic Semiconducting and Electrically Insulating

REFERENCE DOCUMENTS

NFPA No. 70	National Electrical Code (NEC)
MIL-S-23586C	Sealing Compound, Electrical, Silicone Rubber Building Industry Consulting Service International (BICSI)
ANSI/IEEE Std 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

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Airport _____ Date _____
 Location _____ Job# _____
 Project ID _____

Item Under Test	Cable Length	Duct _____ Buried _____
Number of Conductor	Conductor Size	Type Class Insulation
Voltage Rating	Age	Type of Test Performed

[illegible]

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TESTING REPORT

GROUND RESISTANCE MEASURING TEST DATA

[illegible]

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Remarks _____

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ITEM L-110
AIRPORT UNDERGROUND ELECTRICAL DUCT BANKS AND CONDUITS

The work to be performed under this specification shall meet the requirements of Item L-110 Airport Underground Electrical Duct Banks and Conduits of the Federal Aviation Administration Advisory Circular 150/5370-10G – Standards for Specifying Airport Construction as indicated and modified below.

I. General

- 1. All additions or revisions to Item L-110 are shown in bolded, italic, underlined or in parenthesis print.*
- 2. All deletions to Item L-110 are single or double struck through and are not applicable*

DESCRIPTION

110-1.1 This item shall consist of underground electrical conduits and duct banks (single or multiple conduits encased in concrete) installed in accordance with this specification at the locations and in accordance with the dimensions, designs, and details shown on the plans. This item shall include furnishing and installing of all underground electrical duct banks and individual and multiple underground conduits. It shall also include all turbing trenching, backfilling, removal, and restoration of any paved or turfed areas; concrete encasement, mandrelling, pulling lines, duct markers, plugging of conduits, and the testing of the installation as a completed system ready for installation of cables in accordance with the plans and specifications. This item shall also include furnishing and installing conduits and all incidentals for providing positive drainage of the system. Verification of existing ducts is incidental to the pay items provided in this specification.

EQUIPMENT AND MATERIALS

110-2.1 GENERAL.

a. 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.

b. Manufacturer's certifications shall not relieve the Contractor of the Contractor's responsibility to provide materials in accordance with these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

c. All materials and equipment used to construct this item shall be submitted to the Engineer for Engineer's approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable).

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Contractor is solely responsible for delays in project accruing directly or indirectly from late submissions or resubmissions of submittals. ***The Contractor's submittals shall be in accordance with Item L-106, Submittals, Record Documents and Maintenance Manuals.***

d. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the plans and specifications. The Contractor's submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section. ***The Contractor's submittals shall be submitted to the Engineer within fifteen (15) days of the notice to proceed. Submittals shall comply with Item L-106.*** The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer's opinion, does not meet the system design and the standards and codes, specified herein.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

110-2.2 STEEL CONDUIT. Rigid galvanized steel conduit and fittings shall be hot dipped galvanized inside and out and conform to the requirements of Underwriters Laboratories Standard 6, 514B, and 1242.

110-2.3 PLASTIC CONDUIT. Plastic conduit and fittings shall conform to the requirements of ~~Fed. Spec. W-C-1094,~~ Underwriters Laboratories Standards UL-651 and Article 352 of the current National Electrical Code shall be one of the following, as shown on the plans:

- a. Type I—Schedule 40 PVC suitable for underground use either direct-buried or encased in concrete.
- b. Type II—Schedule 40 PVC suitable for either above ground or underground use.

The type of adhesive shall be as recommended by the conduit/fitting manufacturer.

110-2.4 SPLIT CONDUIT. Split conduit shall be pre-manufactured for the intended purpose and shall be made of steel or plastic, manufactured by Carlon or approved equal.

110-2.5 CONDUIT SPACERS. Conduit spacers shall be prefabricated interlocking units manufactured for the intended purpose. They shall be of double wall construction made of high grade, high density polyethylene complete with interlocking cap and base pads, They shall be designed to accept No. 4 reinforcing bars installed vertically.

110-2.6 CONCRETE. Concrete shall conform to Item P-610, Structural Portland Cement Concrete, ~~using 1 inch maximum size coarse aggregate with a minimum 28 day compressive strength of 4,000 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 pay item of which they are a component part.

Concrete for backfill, sign pads and base cans in the runway/taxiway safety areas, in existing pavement where aircraft traffic will resume immediately upon re-opening, or in areas otherwise indicated in the details and drawings shall conform to the requirements of P-610 Class III concrete with a minimum 5 hour strength of 2,500 psi and a minimum

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28 day strength of 5,000 psi. A concrete mix design shall be submitted and approved before commencement of work.

Concrete for backfill, sign pads and base cans not in the runway/taxiway safety areas or in existing pavement where aircraft traffic will resume immediately upon re-opening, shall conform to the requirements of P-610 Class II concrete with a minimum 28 day strength of 4,000 psi. A concrete mix design shall be submitted and approved before commencement of work.

110-2.7 FLOWABLE BACKFILL. Flowable material used to back fill conduit and duct bank trenches shall conform to the requirements of Item P-153 Controlled Low Strength Material.

110-2.8 DETECTABLE WARNING TAPE. Plastic, detectable, color as noted magnetic tape shall be polyethylene film with a metallized foil core and shall be ~~4 in. to~~ 6 in. wide. Detectable tape is incidental to the respective bid item. **The color and legend shall be as shown on the drawings or as approved by the Engineer.**

CONSTRUCTION METHODS

110-3.1 GENERAL. The Contractor shall install underground duct banks and conduits at the approximate locations indicated on the plans. The Engineer shall indicate specific locations as the work progresses, if required to differ from the plans. Duct banks and conduits shall be of the size, material, and type indicated on the plans or specifications. Where no size is indicated on the plans or in the specifications, conduits shall be not less than 2 in. (50 mm) inside diameter or comply with the National Electrical Code based on cable to be installed, whichever is larger. All duct bank and conduit lines shall be laid so as to grade toward access points and duct or conduit ends for drainage. Unless shown otherwise on the plans, grades shall be at least 3 in. (75 mm) per 100-feet (30 m). On runs where it is not practicable to maintain the grade all one way, the duct bank and conduit lines shall be graded from the center in both directions toward access points or conduit ends, with a drain into the storm drainage system. Pockets or traps where moisture may accumulate shall be avoided. No duct bank or underground conduit shall be less than 18 in. below finished grade. Where under pavement, the top of the duct bank shall not be less than ~~48~~ 36-in. below the subgrade.

The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank. A ~~flexible~~ **flexible** ~~iron shoe~~ mandrel, not more than 1/4 in. (6 mm) smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole. **Mandrelling shall be witnessed by the Engineer.**

The Contractor shall swab out all conduits/ducts and clean base can, manhole, pull boxes, etc. interiors IMMEDIATELY prior to pulling cable. Once cleaned and swabbed the base cans, manhole, pull boxes, etc. and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc. is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be recleaned at the Contractor's expense. All accessible points shall be kept closed when not installing cable. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the Engineer of any blockage in the existing ducts.

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For pulling the permanent wiring, each individual conduit, whether the conduit is direct-buried or part of a duct bank, shall be provided with a 200 pound test polypropylene pull rope. The ends shall be secured and sufficient length shall be left in access points to prevent it from slipping back into the conduit. Where spare conduits are installed, as indicated on the plans, the open ends shall be plugged with removable tapered plugs, designed for this purpose.

All conduits shall be securely fastened in place during construction and shall be plugged to prevent contaminate from entering the conduits. Any conduit section having a defective joint shall not be installed. Ducts shall be supported and spaced apart using approved spacers at intervals not to exceed 5-feet.

~~Unless otherwise shown on the plans, concrete encased duct banks shall be used when crossing under pavements expected to carry aircraft loads.~~ **All conduit and duct banks shall be encased in a minimum envelope of 3 in. P-610 concrete.**

~~Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored.~~

Trenches for conduits and duct banks may be excavated manually or with mechanical trenching equipment unless in pavement, in which case they shall be excavated with mechanical trenching equipment. Walls of trenches shall be ~~essentially~~ **sawcut** vertical so that a minimum of shoulder surface is disturbed. Blades of graders shall not be used to excavate the trench. When rock is encountered, the rock shall be removed to a depth of at least 3-in. below the required conduit or duct bank depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-in. sieve. Flowable backfill may alternatively be used. The Contractor shall ascertain the type of soil or rock to be excavated before bidding. All such rock removal shall be performed and paid for under Item P-152 **Excavation and Embankment**.

Underground electrical warning (Caution) tape shall be installed in the trench above all underground duct banks and conduits in unpaved areas. Contractor shall submit a sample of the proposed warning tape for approval by the Engineer. If not shown on the plans, the warning tape shall be located 6-in. above the duct/conduit or the counterpoise wire if present. Joints in plastic conduit shall be prepared in accordance with the manufacturer's recommendations for the particular type of conduit. Plastic conduit shall be prepared by application of a plastic cleaner and brushing a plastic solvent on the outside of the conduit ends and on the inside of the couplings. The conduit fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly. Where more than one conduit is placed in a single trench, or in duct banks, joints in the conduit shall be staggered a minimum of 2-feet.

Changes in direction of runs exceeding 10 degrees, either vertical or horizontal, shall be accomplished using manufactured sweep bends.

Whether or not specifically indicated on the drawings, where the soil encountered at established duct bank grade is an unsuitable material, as determined by the Engineer, the unsuitable material shall be removed in accordance with Item P-152 and replaced with suitable material. Alternatively, additional duct bank supports that are adequate and stable shall be installed, as approved by the Engineer.

All excavation shall be unclassified and shall be considered incidental to the respective L-110 pay item of which it is a component part. Dewatering necessary for duct installation, erosion and turbidity control, in accordance with Federal, State, and Local requirements is incidental to

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its respective pay item as a part of Item L-110. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the L-110 Item.

Unless otherwise specified, excavated materials that are deemed by the Engineer to be unsuitable for use in backfill or embankments shall be removed and disposed of offsite.

Any excess excavation shall be filled with suitable material approved by the Engineer and compacted in accordance with item P-152.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables cross proposed installations, the Contractor shall insure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

(1) Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred.

(2) Trenching, etc., in cable areas shall then proceed with approval of the Engineer, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair.

When existing cables are to be placed in split duct, concrete encased, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the Engineer shall be notified so that he may inspect the cable and determine if it is in good condition. Where required, split duct shall be installed as shown or as indicated on the drawings or as required by the Engineer.

110-3.2 DUCT BANKS. Unless otherwise shown in the plans, duct banks shall be installed so that the top of the conduit is not less than ~~36 in. (45 cm)~~ below the bottom of the base or stabilized base course layers where installed under runways, taxiways, aprons, or other paved areas, and not less than 18 in. ~~(45 cm)~~ below finished grade where installed in unpaved areas.

Unless otherwise shown on the plans, duct banks under paved areas shall extend at least ~~5 3-~~ feet beyond the edges of the pavement or ~~5 3-~~ feet beyond any underdrains that may be installed alongside the paved area. Trenches for duct banks shall be opened the complete length before concrete is placed so that if any obstructions are encountered, proper provisions can be made to avoid them. Unless otherwise shown on the plans, all duct banks shall be placed on a layer of concrete not less than 3 in. ~~(75 mm)~~ thick prior to its initial set. Where two or more conduits in the duct bank are intended to carry conductors of equivalent voltage insulation rating, the Contractor shall space the conduits not less than 1-1/2 in. ~~(37 mm)~~ apart (measured from outside wall to outside wall). Where two or more conduits in the duct bank are intended to carry conductors of differing voltage insulation rating, the Contractor shall space the conduits not less than 3 in. apart (measured from outside wall to outside wall). All such multiple conduits shall be placed using conduit spacers applicable to the type of conduit. As the conduit laying progresses, concrete shall be placed around and on top of the conduits not less than 3 in. ~~(75 mm)~~ thick unless otherwise shown on the plans. End bells or couplings shall be installed flush with the concrete encasement at access points.

Conduits forming the duct bank shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 in. to anchor the assembly into the earth prior to placing the concrete encasement. For this purpose, the spacers shall be fastened down

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with locking collars attached to the vertical bars. Spacers shall be installed at 5 ft. intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the Engineer for review prior to use.

When specified, the Contractor shall reinforce the bottom side and top of encasements with steel reinforcing mesh or fabric or other approved metal reinforcement. When directed, the Contractor shall supply additional supports where the ground is soft and boggy, where ducts cross under roadways, or where shown on the plans. Under such conditions, the complete duct structure shall be supported on reinforced concrete footings, piers, or piles located at approximately 5 ft. (150 cm) intervals.

All pavement surfaces that are to have ducts installed therein shall be neatly saw cut to form a vertical face. All excavation shall be included in the contract ~~unit with~~ price for the duct.

Install a plastic, detectable, color as noted, ~~4 in. to~~ 6 in. (75-150mm) wide tape 8 in. (200mm) minimum below grade above all underground conduit or duct lines not installed under pavement.

When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the Engineer shall be notified so that he may inspect the cable and determine that it is in good condition. Where required, split duct shall be installed as shown on the drawings or as required by the Engineer.

~~**110-3.3 CONDUITS WITHOUT CONCRETE ENCASEMENT.** Trenches for single conduit lines shall be not less than 6 in. (150 mm) nor more than 12 in. (300 mm) wide, and the trench for 2 or more conduits installed at the same level shall be proportionately wider. Trench bottoms for conduits without concrete encasement shall be made to conform accurately to grade so as to provide uniform support for the conduit along its entire length.~~

~~Unless otherwise shown on the plans, a layer of fine earth material, at least 4 in. (100 mm) thick (loose measurement) shall be placed in the bottom of the trench as bedding for the conduit. 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 1/4 in. (6 mm) sieve. The bedding material shall be tamped until firm. Flowable backfill may alternatively be used.~~

~~Unless otherwise shown on plans, conduits shall be installed so that the tops of all conduits are at least 18 in. (45 cm) below the finished grade.~~

~~When two or more individual conduits intended to carry conductors of equivalent voltage insulation rating are installed in the same trench without concrete encasement, they shall be spaced not less than 2 in. (50 mm) apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 in. (150 mm) apart in a vertical direction. Where two or more individual conduits intended to carry conductors of differing voltage insulation rating are installed in the same trench without concrete encasement, they shall be spaced not less than 3 in (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 in. (150 mm) apart in a vertical direction.~~

~~Trenches shall be opened the complete length between normal termination points before conduit is installed so that if any unforeseen obstructions are encountered, proper provisions can be made to avoid them.~~

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~~Conduits shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 in. to anchor the assembly into the earth while backfilling. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5 ft. intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the Engineer for review prior to use.~~

110-3.4 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 in. to 6 in. (100-150 mm)~~ thick extending approximately 1 in. (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.

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 in. (100 mm) high and 3 in. (75 mm) wide with width of stroke 1/2 in. (12 mm) and 1/4 in. (6 mm) deep or as large as the available space permits. **No hand lettering allowed.** Furnishing and installation of duct markers is incidental to the respective duct pay item.

~~**110-3.5 BACKFILLING FOR CONDUITS.** For conduits, 8 in. (200 cm) of sand, soft earth, or other fine fill (loose measurement) shall be placed around the conduits ducts and carefully tamped around and over them with hand tampers. The remaining trench shall then be backfilled and compacted in accordance with Item P-152 Excavation and Embankment except that material used for back fill shall be select material not larger than 4 in. in diameter.~~

~~Flowable backfill may alternatively be used.~~

~~Trenches shall not contain pools of water during back filling operations.~~

~~The trench shall be completely backfilled and tamped level with the adjacent surface, except that, where 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.~~

110-3.6 BACKFILLING FOR DUCT BANKS. After the concrete has cured, the remaining trench shall be backfilled and compacted in accordance with Item P-152 Excavation and Embankment except that the material used for backfill shall be select material not larger than **1/4 in.** in diameter. ~~In addition to the requirements of P-152, where duct banks are installed under pavement, one moisture/density test per lift shall be made for each 250 linear feet of duct bank or one work period's construction, whichever is less.~~

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface: except that, where 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.

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Any excess excavated material shall be removed and disposed of in accordance with instructions issued by the Engineer.

110-3.7 RESTORATION. Where soil and sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by work shall be restored to its original condition. The restoration shall include sodding, topsoiling, fertilizing, liming, seeding, sprigging, and mulching as shown on the plans. ***Refer to specifications T-904 Sodding and T-905 Soiling.*** The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. All restoration shall be considered incidental to the respective L-110 pay item.

110-3.8 COUNTERPOISE WIRE. *Counterpoise wire shall be installed as specified in Item L-108.*

110-3.9 DIRECTIONAL BORE. *Directional bore conduit shall be installed as specified in Item L-112.*

METHOD OF MEASUREMENT

110-4.1 Underground conduits and duct banks shall be measured by the linear feet (meter) of conduits and duct banks installed, including encasement, locator tape, trenching and backfill with designated resolution, and for drain lines, the termination at the drainage structure, all measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

BASIS OF PAYMENT

110-5.1 Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank completed and accepted, including trench and backfill with the designated material, and, for drain lines, the termination at the drainage structure. 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 in accordance with the provisions and intent of the plans and specifications.

Payment will be made under:

~~Item L-110-5.1 Single Way or Multiway Electrical Duct per linear foot (meter)~~

Item L-110-5.1 *One 2" schedule 40 PVC conduit direct buried in earth/new paved shoulder complete in place. Includes conduits, connectors, warning tape, excavation, labor, backfill and etc., complete in place. – Price per linear foot*

Item L-110-5.2 *One 2" schedule 40 PVC conduit installed in existing full strength pavement complete in place. Includes conduits, connectors, saw cutting, excavation, warning tape, concrete, labor, backfill and etc., complete in place. – Price per linear foot*

Item L-110-5.3 *One 2" HDPE/Schedule 40 PVC conduit directional bored 36" deep under existing pavement/earth complete in place.*

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Includes excavation pits, backfill, conduits, labor, sod restoration, backfill and etc., complete in place. – Price per linear foot

Item L-110-5.4 *Intercept existing conduit system and connect to new conduit system and extend circuit. Includes excavation, chipping back of concrete encasement, sawcutting, backfill, shoulder repair, concrete, conductor removal, conduits, splice kits, labor and etc., complete in place. – Price per each*

MATERIAL REQUIREMENTS

Fed.Spec.W-C-1094 Conduit and Conduit Fittings; Plastic, Rigid (cancelled; replaced by UL 514 Boxes, Nonmetallic Outlet, Flush Device Boxes, & Covers, and UL 651 Standard for Conduit & Rigid Conduit, Type EB & A Rigid PVC)

Underwriters Laboratories Standard 6 Rigid Metal Conduit

Underwriters Laboratories Standard 514B Fittings for Cable and Conduit

Underwriters Laboratories Standard 1242 Intermediate Metal Conduit

Underwriters Laboratories Standard 651 Schedule 40 and 80 Rigid PVC Conduit (for Direct Burial)

Underwriters Laboratories Standard 651A Type EB and A Rigid PVC Conduit and HDPE Conduit (for concrete encasement)

END OF ITEM L-110

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ELECTRICAL MANHOLES AND JUNCTION STRUCTURES**

The work to be performed under this specification shall meet the requirements of Item L-115 Electrical Manholes and Junction Structures of the Federal Aviation Administration Advisory Circular 150/5370-10G – Standards for Specifying Airport Construction as indicated and modified below.

I. General

1. *All additions or revisions to Item L-115 are shown in bolded, italic, underlined or in parenthesis print.*
2. *All deletions to Item L-115 are single or double struck through and are not applicable.*

DESCRIPTION

115-1.1 This item shall consist of electrical manholes and junction structures (hand holes, pull boxes, junction cans, etc.) installed per this specification, at the indicated locations and conforming to the lines, grades and dimensions shown on the plans or as required by the Engineer. This item shall include the installation of each electrical manhole and/or junction structures with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, ladders, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the Engineer.

EQUIPMENT AND MATERIALS**115-2.1 GENERAL.**

a. 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.

b. Manufacturer's certifications shall not relieve the Contractor of the Contractor's responsibility to provide materials in accordance with these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer, and replaced with materials which do comply with these specifications at the sole cost of the Contractor.

c. All materials and equipment used to construct this item shall be submitted to the Engineer for Engineer's approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable). Contractor is solely responsible for delays in project accruing directly or indirectly from late submissions or resubmissions of submittals.

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d. The data submitted shall be sufficient, in the opinion of the Engineer to determine compliance with the plans and specifications. The Contractor's submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section. The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer's opinion, does not meet the system design and the standards and codes, specified herein.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

115-2.2 CONCRETE STRUCTURES. Cast-in-place concrete structures shall conform to the details and dimensions shown on the plans.

Provide precast concrete structures where shown on the plans. Precast concrete structures shall be an approved standard design of the manufacturer, ***sealed and signed by a licensed professional engineer in the applicable state where the project is being performed.*** Precast units shall have mortar or Bitumastic™ sealer placed between all joints to make them watertight. The structure shall be designed to withstand ***100,000 lb aircraft wheel loads with 250 psi tire pressure***, unless otherwise shown on the plans. Openings or knockouts shall be provided in the structure as detailed on the plans. ***The Contractor shall be responsible for providing structures that meet the loading requirements whether or not the details provided in the plans are designed to accommodate the design loads. The intent is for the Contractor to provide all structures that meet the required design load. Any structure within the defined runway, taxiway or apron safety area for which the structure is to be installed shall be aircraft rated. Any structure outside the runway, taxiway or apron safety area for which the structure is to be installed shall be HS-20 load rated unless otherwise indicated on plans.***

Threaded inserts and pulling eyes shall be cast in as shown.

If the Contractor chooses to propose a different structural design, signed and sealed shop drawings ***by a registered professional engineer within the state the project is being performed, along with all*** design calculations, and other information requested by the Engineer shall be submitted by the Contractor to allow for a full evaluation by the Engineer. The Engineer shall review in accordance with the process defined in the General Provisions ***Conditions.***

115-2.3 JUNCTION CANS. Junction boxes shall be L-867 Class 1 (non-load bearing) or L-868 Class 1 (load bearing) airport light bases that are encased in concrete. The light bases shall have a galvanized steel blank cover, gasket, and stainless steel or coated steel hardware per FAA Engineering Brief (EB) #83. Covers shall be $\frac{1}{2}$ ~~$\frac{3}{8}$~~ -inch (9-mm) thickness for L-867 and $\frac{3}{4}$ -inch (19-mm) thickness for L-868.

115-2.4 MORTAR. The mortar shall be composed of one part of Portland cement and two parts of mortar sand, by volume. The Portland cement shall be per the requirements in ASTM C150, Type I. The sand shall be per the requirements in ASTM C144. 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 C6. Water shall be potable, reasonably

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clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product.

115-2.5 CONCRETE. All concrete used in structures shall conform to the requirements of Item P-610, Structural Portland Cement Concrete.

Concrete for backfill, sign pads and base cans in the runway/taxiway safety areas, in existing pavement where aircraft traffic will resume immediately upon re-opening, or in areas otherwise indicated in the details and drawings shall conform to the requirements of P-610 Class III concrete with a minimum 5 hour strength of 2,500 psi and a minimum 28 day strength of 5,000 psi. A concrete mix design shall be submitted and approved before commencement of work.

Concrete for backfill, sign pads and base cans not in the runway/taxiway safety areas or in existing pavement where aircraft traffic will resume immediately upon re-opening, shall conform to the requirements of P-610 Class II concrete with a minimum 28 day strength of 4,000 psi. A concrete mix design shall be submitted and approved before commencement of work.

115-2.6 FRAMES AND COVERS. The frames shall conform to one of the following requirements:

- | | | |
|----|---------------------|--|
| a. | ASTM A 48 | Gray iron castings |
| b. | ASTM A 47 | Malleable iron castings |
| c. | ASTM A 27 | Steel castings |
| d. | ASTM A 283, Grade D | Structural steel for grates and frames |
| e. | ASTM A 536 | Ductile iron castings |
| f. | ASTM A 897 | Austempered ductile iron castings |

All castings specified shall withstand a maximum tire pressure of **250** psi and maximum load of **300,000 pounds**. ***Any casting within the defined runway, taxiway or apron safety area for which the casting is to be installed shall be aircraft rated. Any casting outside the runway, taxiway or apron safety area for which the structure is to be installed shall be HS-20 load rated.***

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

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

Each cover shall have the word "ELECTRIC" or other approved designation cast on it. Each frame and cover shall be as shown on the plans or approved equivalent. No cable notches are required.

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Each manhole shall be provided with a "DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" safety warning sign as detailed in the Contract Documents and in accordance with OSHA 1910.146 (c)(2).

115-2.7 LADDERS. Ladders, if specified, shall be galvanized steel or as shown on the plans.

115-2.8 REINFORCING STEEL. All reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A 615, Grade 60.

115-2.9 BEDDING/SPECIAL BACKFILL. Bedding or special backfill shall be as shown on the plans.

115-2.10 FLOWABLE BACKFILL. Flowable material used to backfill shall conform to the requirements of Item P-153 Controlled Low Strength Material.

115-2.11 CABLE TRAYS. Cable trays shall be of galvanized steel, plastic, or aluminum. Cable trays shall be located as shown on the plans.

115-2.12 PLASTIC CONDUIT. Plastic conduit shall comply with Item L-110 Airport Underground Electrical Duct Banks and Conduits.

115-2.13 CONDUIT TERMINATORS. Conduit terminators shall be pre-manufactured for the specific purpose and sized as required or as shown on the plans.

115-2.14 PULLING-IN IRONS. Pulling-in irons shall be manufactured with 7/8 inch (22 mm) diameter hot-dipped galvanized steel or stress-relieved carbon steel roping designed for concrete applications (7 strand, 1/2 inch (12 mm) diameter with an ultimate strength of 270,000 psi (1862 MPa)). Where stress-relieved carbon steel roping is used, a rustproof sleeve shall be installed at the hooking point and all exposed surfaces shall be encapsulated with a polyester coating to prevent corrosion.

115-2.15 GROUND RODS. Ground rods shall be one piece, copper clad. The ground rods shall be of the length and diameter specified on the plans, but in no case shall they be less than ~~8~~ **10**-feet (240 cm) long nor less than ~~5/8~~ **3/4 in.** (15 mm) in diameter.

CONSTRUCTION METHODS**115-3.1 UNCLASSIFIED EXCAVATION.**

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Damage to utility lines, through lack of care in excavating, shall be repaired or replaced to the satisfaction of the Engineer without additional expense to the Owner.

The Contractor shall perform 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.

All excavation shall be unclassified and shall be considered incidental to the respective L-115 pay item of which it is a component part. Dewatering necessary for L-115 structure installation, erosion and turbidity control, per Federal, state, and local requirements is incidental to its

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respective pay item as a part of Item L-115. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the L-115 Item.

Boulders, logs and all other objectionable material encountered in excavation shall be removed. All rock and 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, crevices, disintegrated rock and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation. Excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.

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

Unless otherwise provided, bracing, sheeting and shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall be effected in a manner that will not disturb or mar finished masonry. The cost of removal shall be included in the unit price bid for the structure.

After each excavation is completed, the Contractor shall notify the Engineer. Structures shall be placed after the Engineer has approved the depth of the excavation and the suitability of the foundation material.

Prior to installation the Contractor shall provide a minimum of 6 inches (150 mm) of sand or a material approved by the Engineer as a suitable base to receive the structure. The base material shall be compacted and graded level and at proper elevation to receive the structure in proper relation to the conduit grade or ground cover requirements, as indicated on the plans.

115-3.2 CONCRETE STRUCTURES. Concrete structures shall be built on prepared foundations conforming to the dimensions and form indicated on the plans. The concrete and construction methods shall conform to the requirements specified in Item P-610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the Engineer before the concrete is placed

115-3.3 PRECAST UNIT INSTALLATIONS. Precast units shall be installed plumb and true. Joints shall be made watertight by use of sealant at each tongue-and-groove joint and at roof of manhole. Excess sealant shall be removed and severe surface projections on exterior of neck shall be removed.

115-3.4 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.

Field connections shall be made with bolts, unless indicated otherwise. Welding will not be permitted unless shown otherwise on the approved shop drawings and written permission is granted by the casting manufacturer. Erection equipment shall be suitable and safe for the workman. Errors in shop fabrication or deformation resulting from handling and transportation that prevent the proper assembly and fitting of parts shall be reported immediately to the

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Engineer and approval of the method of correction shall be obtained. Approved corrections shall be made at Contractor's expense.

Anchor bolts and anchors shall be properly located and built into connection work. Bolts and anchors shall be preset by the use of templates or such other methods as may be required to locate the anchors and anchor bolts accurately.

Pulling-in irons shall be located opposite all conduit entrances into structures to provide a strong, convenient attachment for pulling-in blocks when installing cables. Pulling-in irons shall be set directly into the concrete walls of the structure.

115-3.5 INSTALLATION OF LADDERS. Ladders shall be installed such that they may be removed if necessary. Mounting brackets shall be supplied top and bottom and shall be cast in place during fabrication of the structure or drilled and grouted in place after erection of the structure.

115-3.6 REMOVAL OF SHEETING AND BRACING.

In general, all sheeting and bracing used to support the sides of trenches or other open excavations shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a structure shall be withdrawn, unless otherwise directed, before more than 6 inches (150 mm) of material is placed above the top of the structure and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The Engineer may order the Contractor to delay the removal of sheeting and bracing if, in his judgment, the installed work has not attained the necessary strength to permit placing of backfill.

115-3.7 BACKFILLING. After a structure has been completed, the area around it shall be backfilled in horizontal layers not to exceed 6 inches (150 mm) in thickness measured after compaction to the density requirements in Item P-152. 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.

Backfill shall not be placed against any structure until permission is given by the Engineer. In the case of concrete, such permission shall not be given 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.

Where required, the Engineer may direct the Contractor to add, at his own expense, sufficient water during compaction to assure a complete consolidation of the backfill. The Contractor shall be responsible for all damage or injury done to conduits, duct banks, structures, property or persons due to improper placing or compacting of backfill.

115-3.8 CONNECTION OF DUCT BANKS. To relieve stress of joint between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and shall be formed and tied into duct bank reinforcement at the time the duct bank is installed.

115-3.9 GROUNDING. A ground rod shall be installed in the floor of all concrete structures so that the top of rod extends 6 inches (150 mm) above the floor. The ground rod shall be installed within one foot (30 cm) of a corner of the concrete structure. Ground rods shall be installed prior

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to casting the bottom slab. Where the soil condition does not permit driving the ground rod into the earth without damage to the ground rod, the Contractor shall drill a 4 inch (100 mm) diameter hole into the earth to receive the ground rod. The hole around the ground rod shall be filled throughout its length, below slab, with Portland cement grout. Ground rods shall be installed in precast bottom slab of structures by drilling a hole through bottom slab and installing the ground rod. Bottom slab penetration shall be sealed watertight with Portland cement grout around the ground rod.

A grounding bus of 4/0 bare stranded copper shall be exothermically bonded to the ground rod and loop the concrete structure walls. The ground bus shall be a minimum of one foot (30 cm) above the floor of the structure and separate from other cables. No. 2 American wire gauge (AWG) bare copper pigtailed shall bond the grounding bus to all cable trays, **racks, frame, cover** and other metal hardware within the concrete structure. Connections to the grounding bus shall be exothermic. If an exothermic weld is not possible, connections to the grounding bus shall be made by using connectors approved for direct burial in soil or concrete per UL 467. Hardware connections ~~may be mechanical, using a lug designed for that purpose.~~ **shall be by bolted connections**

115-3.10 CLEANUP AND REPAIR. After erection of all galvanized items, damaged areas shall be repaired by applying a liquid cold-galvanizing compound conforming to MIL-P-21035. Surfaces shall be prepared and compound applied in accordance with manufacturer's recommendations.

Prior to acceptance, the entire structure shall be cleaned of all dirt and debris.

115-3.11 RESTORATION. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. The Contractor shall restore all disturbed areas equivalent to or better than their original condition. All sodding, grading and restoration shall be considered incidental to the respective L-115 pay item.

The Contractor shall grade around structures as required to provide positive drainage away from the structure.

Areas with special surface treatment, such as roads, sidewalks, or other paved areas shall have backfill compacted to match surrounding areas, and surfaces shall be repaired using materials comparable to original materials.

Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clear and in good condition.

115-3.12 INSPECTION.

Prior to final approval, the electrical structures shall be thoroughly inspected for conformance with the plans and this specification. Any indication of defects in materials or workmanship shall be further investigated and corrected. The earth resistance to ground of each ground rod shall not exceed 25 ohms. Each ground rod shall be tested using the fall-of-potential ground impedance test per American National Standards Institute / Institute of Electrical and Electronic

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Engineers (ANSI/IEEE) Standard 81. This test shall be performed prior to establishing connections to other ground electrodes

115-3.13 MANHOLE ELEVATION ADJUSTMENTS.

The Contractor shall adjust the tops of existing manholes in areas designated in the Contract Documents to the new elevations shown. The Contractor shall be responsible for determining the exact height adjustment required to raise the top of each manhole to the new elevations. The existing top elevation of each manhole to be adjusted shall be determined in the field and subtracted/added from the proposed top elevation.

The Contractor shall remove/extend the existing top section or ring and cover on the manhole structure or manhole access. The Contractor shall then install precast concrete sections or grade rings of the required dimensions to adjust the manhole top to the new proposed elevation or shall cut the existing manhole walls to shorten the existing structure, as required by final grades. Finally, the Contractor shall reinstall the manhole top section or ring and cover on top and check the new top elevation.

The Contractor shall construct a concrete slab around the top of adjusted structures located in graded areas that are not to be paved. The concrete slab shall conform to the dimensions shown on the plans.

115-3.14 DUCT EXTENSION TO EXISTING DUCTS. Where existing concrete encased ducts are to be extended, the duct extension shall be concrete encased plastic conduit. The fittings to connect the ducts together shall be standard manufactured connectors designed and approved for the purpose. The duct extensions shall be installed according to the concrete encased duct detail and as shown on the plans.

METHOD OF MEASUREMENT

115-4.1 Electrical manholes and junction structures shall be measured by each unit completed in place and accepted. The following additional items are specifically included in each unit.

- All Required Excavation, Dewatering
- Sheeting and Bracing
- All Required Backfilling with On-Site Materials
- Restoration of All Surfaces and Finished Grading, Sodding
- All Required Connections
- Dewatering If Required
- Temporary Cables and Connections
- Ground Rod Testing

115-4.2 MANHOLE/HANDHOLE ELEVATION ADJUSTMENTS shall be measured by the completed unit installed, in place, completed, and accepted. Separate measurement shall not be made for the various types and sizes.

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115-5.1 The accepted quantity of electrical manholes and junction structures will be paid for at the contract unit price per each, complete and in place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials, furnishing and installation of appurtenances and connections to duct banks and other structures as may be required to complete the item as shown on the plans and for all labor, equipment, tools and incidentals necessary to complete the structure.

115-5.2 Payment shall be made at the contract unit price for manhole/**handhole** elevation adjustments. 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, including but not limited to, spacers, concrete, rebar, dewatering, excavating, backfill, topsoil, sodding and pavement restoration, where required, to complete this item as shown in the plans and to the satisfaction of the Engineer.

Payment will be made under:

- | | |
|-----------------------|---|
| Item L-115-5.1 | <i>L-867 16" Diameter 2 can bottomless Junction can plaza installed in earth. Includes excavation, 2-16" diameter L-867 bottomless base cans, concrete, steel covers, carbon steel coated bolts, identification, connector kits, grounding, ground rods, safety grounds, identification, testing, labor, rock, backfill and etc. complete in place. – Price per each</i> |
| Item L-115-5.2 | <i>L-867 16" Diameter 4 can bottomless Junction can plaza installed in earth. Includes excavation, 4-16" diameter L-867 bottomless base cans, concrete, steel covers, carbon steel coated bolts, identification, connector kits, grounding, ground rods, safety grounds, identification, testing, labor, rock, backfill and etc. complete in place. – Price per each</i> |
| Item L-115-5.3 | <i>Intercept existing light base can in earth/existing pavement and connect to conduit system. Includes sawcutting, excavation, core drilling, can repair, backfill, concrete, pavement repair, labor and etc., complete in place. – Price per each</i> |
| Item L-115-5.4 | <i>Removal of existing manhole, complete. Includes excavation, backfill, labor, sawcutting, disposal, connections, disconnection of existing circuits, removal of circuit conductors, reconnection of existing circuits, temporary wiring, capping of conduits, sod restoration, dewatering and etc. complete in place. – Price per each</i> |

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ANSI/IEEE Std 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle Cable Connectors
FED SPEC J-C-30	Cable and Wire, Electrical Power, Fixed Installation (cancelled; replaced by AA-59544 Cable and Wire, Electrical (Power, Fixed Installation))
ASTM B.3	Soft or Annealed Copper Wire
ASTM B.8	Concentric-Lay-Stranded Copper Conductor, Hard, Medium-Hard, or Soft

END OF ITEM L-115**ELECTRICAL MANHOLES AND
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FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357****ITEM L-125 -INSTALLATION OF AIRPORT LIGHTING SYSTEMS****DESCRIPTION**

125-1.1 This item shall consist of airport lighting systems furnished, relocated, installed or modified in accordance with these specifications, and the applicable Advisory Circulars. The systems are to be installed at the locations indicated and in accordance with the dimensions, design, and details shown in the plans. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the Owner.

125-1.2 REFERENCED MATERIALS. Additional details pertaining to a specific system covered in this item are contained in one or more of the Advisory Circulars listed below. Contractor shall use the latest version of the listed advisories:

- L-823 Connectors, Cable (AC 150/5345-26D)
- L-829 Regulators, Constant Current, with Monitor (AC 150/5345-10H)
- L-830 Transformers, Isolation, 60HZ (AC 150/5345-47C)
- L-831 Transformers, Isolation, 60HZ (AC 150/5345-47C)
- L-850 Lights, Runway, In Pavement (AC 150/5345-46D, AC 150/5340-30H)
- L-852 Lights, Taxiway, In Pavement (AC 150/5345-46D, AC 150/5340-30H)
- L-858 Signs, Taxiway Guidance (AC 150/5345-44K)
- L-861 Lights, Runway & Taxiway Edge Medium Intensity (AC 150/5345-46D, AC 150/5340-30H)
- L-862 Lights, Runway Edge, High Intensity (AC 150/5345-46D, AC 150/5340-30H)
- L-867 Light Base, Non-Load Bearing (AC 150/5345-42H)
- L-868 Light Base, Load Bearing (AC 150/5345-42H)
- L-869 Junction Boxes (AC 150/5345-42H)

125-1.3 SUBMITTALS. Shop drawings and catalog cuts of each lighting and cable component, indicating FAA approval, shall be submitted for approval and approved prior to ordering any materials for this section. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the Contract Documents.

125-1.4 QUALIFICATIONS. The Engineer reserves the right to reject any equipment which, in his opinion, does not meet the system design and the standards and codes specified herein.

- A.** Airport lighting equipment and materials covered by FAA specifications shall have the prior approval of the Federal Aviation Administration, Airport Services, Washington , D.C. 20591
- B.** All other equipment and materials covered by the other referenced specifications shall be subject to acceptance through the manufactures certification of compliance with the applicable specifications. The Contractor shall submit the manufacturer's certificates of compliance with the applicable equipment submittals.
- C.** Lists of the equipment and materials required for a particular system are contained in the applicable advisory circulars.

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- D. If the Contractor elects to furnish and install airport lighting equipment requiring additional wiring, transformers, adapters, mountings, etc., to those shown on the drawings and or listed in the specifications, any cost for these items shall be incidental to the equipment cost.
- E. Only the specified type, style, class, and etc., of FAA approved equipment, when indicated in the plans or specifications, will be acceptable even though equipment of other types, styles, classes, etc. may be FAA approved. "FAA approved" as used herein means approved under the Airport Lighting Equipment Certification Program as described in Advisory Circular (AC) 150/5345-53, latest revision.
- F. All airfield lighting fixtures shall have been manufactured and shall perform in accordance with FAA AC 150/5345-46, latest edition. Any defect in design, materials (excluding lamps), or workmanship, which may occur during proper and normal use, shall be warranted for a period of one (1) year from date of installation. This warranty must include specifically warrants against water leakage, damage, and corrosion to the lamps, electrical connections, and optical elements internal to the luminaries. Any above mentioned defect requires the manufacturer to repair or replace, at its option, the defective part(s) or entire fixture at no additional cost. All other equipment shall be guaranteed free from defects in manufacturing, workmanship, and materials for a period of 12 months from placement into service.

All equipment shall meet the Buy American Preference 49 USC 50101 or be listed on the FAA Buy American Waiver list at time of bid per FAA Program Guidance Letter 10-02.

MATERIALS**125-2.1 GENERAL**

- A. Airport lighting equipment and materials covered by FAA Specifications shall have prior approval of the Federal Aviation Administration, Airports Service, Washington, D.C. 20591, and shall be listed in Advisory Circular 150/5345-53, latest edition, Airport Lighting Equipment Certification Program. All items that are FAA Test Laboratories approved at the time of bidding, which otherwise meet the project specifications are acceptable.
- B. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through the manufacturer's certification of compliance with the applicable specifications. The Contractor shall submit the manufacturer's certificates of compliance with the applicable specifications to the Engineer for approval before the equipment and material are ordered.
- C. Manufacturer's certifications shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and

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replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

- D. Lists of the equipment and materials required for a particular system are contained in the applicable Advisory Circulars as shown and described in the Contract Documents.
- E. All items required per this section are for use on a 6.6 amp primary series circuit unless specifically noted otherwise.

125-2.2 WARRANTY

- A. Except as modified below, all equipment and materials furnished and installed under this section shall be warranted against defects in materials and workmanship for a period of twelve (12) months or the manufacturer's standard warranty period whichever is greater, from final acceptance by the Owner. The defective materials and/or equipment shall be replaced with no additional cost to the Owner.

125-2.3 BASIS OF DESIGN. The airfield lighting systems are designed using the below listed maximum fixture wattages. Approved airfield lighting fixtures with higher wattages are permissible provided the Contractor assumes all costs for the redesign of the airfield lighting and necessary power distribution systems and all costs incurred furnishing and installing any additional equipment. In no case shall the Contractor be allowed to reduce the size of the constant current regulators or the power distribution systems.

Fixtures

Type	Total CCR Load
Taxiway Elev. Edge	18VA

125-2.4 FIXTURES. All in-pavement fixtures shall be style 3 unless otherwise noted. The total height of the fixture above the finished grade (x) shall be $x < 0.25$ inch. All in-pavement fixtures shall be Class 2, Mode 1, 6.6A. The fixture pay items shall include, as applicable, a deep base can, top can section, base plate, properly sized spacer ring (w/concrete ring), properly sized L-830 transformers, L-823 connectors, and all incidentals and appurtenances required to provide a fully functional and operating lighting system to the satisfaction of the Engineer. All alignment, leveling, aiming, etc. is included as a component part of the fixture pay item.

125-2.4.1 RUNWAY AND TAXIWAY EDGE LIGHTS. L-861T Taxiway Edge Lights are to be manufactured in accordance with Advisory Circular 150/5345-46, latest edition.

- A. Taxiway Fixtures shall be LED and fixture heads shall be cast aluminum. Fixture to be mounted on L-867 can with base plate. Base plate shall have fixture ground connector installed Cover to be 1 ½" hub. Fixture to have frangible coupling and 1" column of appropriate length. The elevated taxiway edge light lens assembly shall be a low profile design with glass lens. Fixtures utilizing a clamp band assembly or gaskets are not acceptable.

125-2.5 LAMP. Lamps shall be of size and type to provide distributions and minimum output

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requirements of isocandela curves shown for each size in AC 150/5346-46, latest edition. All airfield lighting fixtures shall be installed with lamps

125-2.6 COLORED FILTERS. Colored filters, or colored lenses, to be used for Airfield Lighting Fixtures shall conform to the requirements of Military Specification MIL-C-250-50 Type I and FAA Advisory Circular.

125-2.7 ISOLATION TRANSFORMERS. Isolation transformers shall be 6.6Amp, series lamp(s) (as required) conforming to requirement of Advisory Circular 150/5345-47, latest addition. Transformers shall be sized to be the smallest size allowable per the manufacturer recommendations. Isolation transformers shall be compatible with the L-823 connector kits for watertight connections and per FAA requirements.

125-2.8 TAPE. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88, respectively, as manufactured by the Minnesota Mining and Manufacturing Company, or an approved equal. Electrical coating shall be Scotchkote as manufactured by Minnesota Mining and Manufacturing Company, or an approved equal.

125-2.9 CONCRETE. Concrete for backfill, sign pads and base cans in the runway/taxiway safety areas, in existing pavement where aircraft traffic will resume immediately upon re-opening, or in areas otherwise indicated in the details and drawings shall conform to the requirements of P-610 Class III concrete with a minimum 5 hour strength of 2,500 psi and a minimum 28 day strength of 5,000 psi. A concrete mix design shall be submitted and approved before commencement of work.

Concrete for backfill, sign pads and base cans not in the runway/taxiway safety areas or in existing pavement where aircraft traffic will resume immediately upon re-opening, shall conform to the requirements of P-610 Class II concrete with a minimum 28 day strength of 4,000 psi. A concrete mix design shall be submitted and approved before commencement of work.

125-2.10 CONDUIT. Conduit shall comply with specification L-110.

- A. Rigid steel conduit and fittings shall conform to the requirements of Federal Specifications WW-C-581.
- B. Plastic conduit and fittings shall meet the requirements of Federal Specifications W-C-1094, Type II.

125-2.11 CABLE CONNECTIONS. In line connections of underground primary cables shall be of the type called for on the drawings and shall be listed below.

- A. The Field-attached Plug-in Splice- Figure 3 of AC 150/5345-26, Specification for L-823 Plug and Receptacle, Cable Connectors, employing connector kits, is acceptable for field attachment to single conductor cable. It shall be the Contractor's responsibility to determine the outside diameter of the cable to be spliced and to furnish appropriately sized connector kits and/or adapters and heat shrink tubing with integral sealant. L-823 Connector kits shall be Amerace "54 Super Kit" or approved alternate. Contractor shall coordinate with the connector kit manufacturer for all cable to cable and cable to transformers connections for full compatibility of a watertight connection and provide all necessary transformers and connector kits accordingly.

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- B. The Factory-Molded Plug-in Splice-** Specification for L-823 Connectors, Factory-Molded to Individual Conductors, is acceptable. L-823 Connector kits shall be Amerace "54 Super Kit" or approved alternate. Contractor shall coordinate with the connector kit manufacturer for all cable to cable and cable to transformers connections for full compatibility of a watertight connections and provide all necessary transformers and connector kits accordingly.

125-2.12 LIGHT BASES. The light bases shall be galvanized steel and shall be L-867 for non-load bearing (edge light installation) and L-868 (load bearing) for flush edge lights. The sizes shall be shown on the contract drawings. The cans shall be manufactured in accordance with Advisory Circular 150/5345-42, latest edition. All can, risers and flange rings shall be Class 1A, galvanized steel. Internal and external grounding lugs shall be provided in each base can.

- A.** The L-867 bases shall be used for non-load bearing applications and shall be the telescoping type, for new installations to allow for asphaltic overlay construction requirements, unless otherwise shown on plans. For existing installations, standard galvanized steel riser ring segments shall be used.
- B.** These rings shall be compatible with the existing base can and lighting fixture to be reset or replaced on base. Fluoropolymer metallic-ceramic coated SAE J429 Grade 2 carbon steel bolts shall be used for the installation of all fixtures onto the bases.
- C.** The L-868 bases shall be used for load bearing installations in pavement. Two piece base cans shall be used, the bases shall utilize standard riser rings to adjust the fixture to the proper height subsequent to the overlay. In addition, flange rings with concrete rings shall be compatible with each other and shall be steel. Fluoropolymer metallic-ceramic coated SAE J429 Grade 2 carbon steel bolts shall be used for the installation of all fixtures onto the bases.
- D.** The spacer rings are designed as a nominal 0.75" thickness, however the spacer rings 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, top can section or base can extension 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 shall include furnishing and installing all spacer rings, top can sections and base can extensions required.

125-2.13 CONNECTORS. The connectors for the primary 1/c #8, L-824, 5KV, Class C cable and the connectors for the secondary 600 volt cable shall be L-823 plug type. See Spec L-108 for specifications.

125-2.14 BOLTING HARDWARE. All airfield bolting hardware shall be fluoropolymer metallic-ceramic coated SAE J429 Grade 2 carbon steel bolts per FAA Engineering Brief 84 and meet FAA requirements. Bolt coating shall be orange. All bolts 1/4 inch and larger shall be hex head type. All bolts smaller than 1/4 inch trade size shall be recessed Allen type. All bolted connections shall utilize an anti-rotational locking type device. The base can cover and fixture mounting bolts shall extend thru the base can mounting flange into the base can a minimum of 0.75 inch beyond machined thread system. The bolts shall have enough thread length so they

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do not shoulder out before the fixture is securely tightened.

125-2.15 GROUND RODS. Ground rods shall be one piece, sectional copper clad. The ground rods shall be of the length and diameter specified on the plans, but in no case shall they be less than 20 feet long nor less than 3/4" in diameter. The length of the rod connected to counterpoise shall be determined by earth resistance testing. Each rod shall be individually tested for a not to exceed earth resistance of 25 ohms prior to connection of Additional sections shall be added until the not to exceed value is obtained per direction of the Engineer or Owner's representative.

125-2.16 ANTI-SEIZE COMPOUND. The anti-seize compound shall be marine grade Ideal "Noalox" or approval equal. Anti-seize compound shall NOT be used on coated bolts. Use Dow Coming Compound III valve lubricant non curing sealant to seal between sections of base cans, spacer rings, adapter rings or fixtures.

125-2.17 FILLERS AND ADHESIVES. Joint sealing filler shall be FAA type P-605 and adhesive compounds shall be FAA type P- 606. The P-605 and P-606 shall be formulated so they are compatible with the pavement type with which they are to be used.

125-2.18 IDENTIFICATION MARKERS. Fixture, manhole and sign identification markers shall be brass bench markers with flat top or approved equal. 1/16" deep by 1/2" high text shall be engraved in the ID marker. Once the ID markers are accepted the OWNER will use them as a basis for acceptance of the field installed markers. Payment for markers is incidental to the respective pay item of which it is a component part.

125-2.19 DELIVERY, STORAGE AND HANDLING. Ship materials and equipment disassembled only to the extent necessary for reasons of shipping limitations, handling facilities, and to avoid damage during shipment. Maintain materials and equipment in new condition. This shall include the use of suitable coverings, indoor storage, etc. to properly protect the equipment and materials. Any equipment or materials, in the opinion of the Engineer/OWNER, damaged during construction or storage periods shall be replaced by and at the expense of the Contractor.

CONSTRUCTION METHODS

125-3.1 GENERAL. The installation and testing details for the systems shall be as specified in the applicable Advisory Circulars or manufacturers specifications as approved by the Engineer. All fixtures, base cans, etc., shall be installed as shown on the plans or approved shop drawing and in accordance with the applicable FAA Advisory Circulars and manufacturers' recommendations. Tolerances given in the FAA Advisory Circulars, these specifications, and the plans shall not be exceeded. Where no tolerance is given, no deviation is permitted. Items not installed in accordance with the FAA Advisory Circulars, these specifications and plans shall be replaced by and at the expense of the Contractor.

125-3.2 PLACING LIGHTS.

- A. All new or relocated light fixtures or junction cans shall be installed at the location indicated in the plans or as directed by the Engineer. For runway or taxiway edge lighting systems, installation and installation tolerances, the Contractor shall conform to the FAA Advisory Circular 150/5340-30, latest edition. Stake location of all light fixtures prior to installation to demonstrate accuracy of layout, spacing intervals, and coordination with paving joints and utilities.

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- B.** For runway and taxiway in-pavement lighting systems, installation and installation tolerances, the Contractor shall conform to the FAA Advisory Circular 150/5340-30 and 150/5345-46, latest edition. Stake location of all light fixtures prior to installation to demonstrate accuracy of layout, spacing intervals, and coordination with paving joints and utilities.
- C.** Bases and Conduit System. Inspection of lighting systems during construction is important. Certain components may not be accessible for corrective action after the final installation. The Engineer shall
- Inspect the installed light unit to determine if the equipment has been installed in accordance with the manufacturer's instruction and at the proper elevation.
 - Check the alignment of all units to determine if all lighting fixtures have been installed in accordance with design and installation requirements.
 - Check the fixtures and bases to determine if the securing hardware has been tightened in accordance with the manufacturer's instructions.
 - Visually inspect the lighting fixtures to determine if the lens and channels in front of the lens are clean.
- D.** The Contractor will be held responsible for all correct leveling, adjustment, and orientation of all lights installed by him/her.
- E.** After leveling, the Contractor shall adjust the asymmetric lens of each optical system so that the two concentrated beams of light shine up and down the runway or taxiway and are "toed in" symmetrically toward the centerline of runway or taxiway. Final adjustment of asymmetric lenses shall be made at night, and shall be to the satisfaction of the Engineer.
- F.** Corrosion-resistant circuit identification tags identifying all circuits shall be affixed to all cables, in accordance with these specifications.
- G.** Provide slack cable inside the light base and transformer housing to permit connections of the primary leads to the lamp leads with a disconnecting plug and receptacle.
- H.** The bases for base-mounted light unit shall be installed as shown in the plans, at the specified location. The cable entrance hubs are to be oriented in the proper direction. With the base properly oriented and held at the proper elevation, place concrete is sloped away from the flange portion of the base so that the sloped outer edges of the concrete are the surface grade. Grade elevation shall be as established by the Engineer. Light bases which are too high or too low shall be removed and reset.
- I.** Edge light units shall be 10 feet off the striped edge of pavement (unless specifically indicated otherwise). On straight sections, they shall be optically in line when sighted from either end of a straight section. Base cans for edge light

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units shall be installed at the designated locations with top flanges at the required elevation and within 2 degrees of level. All elevated edge lights shall be installed at an equal height above grade not to exceed 14 inches. Transverse alignment shall be plus or minus 1/2 inch; longitudinal alignment (parallel to edge) shall be plus or minus 3 inches.

- J. Dewatering necessary to construct L-125 Items and related erosion and turbidity control in accordance with Federal, State, and Local requirements is incidental to its respective pay item as a part of L-125. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the L-125 Item.
- K. Dow Corning Compound 111 valve lubricant non-curing sealant or approved equal shall be used to seal between sections of base cans, spacer rings, adapter rings or fixtures.
- L. An identification tag shall be installed with each fixture, sign, etc., as shown in the plans. Stainless steel circuit identification tags identifying each circuit shall be attached to each cable in the fixture, on each side of all cable to cable splices and on the cable side of the cable to transformer splices. Provide three feet (3') of slack in each end of each cable in each base can. All connections shall be able to be made above ground.

125-3.3 TESTING. This section describes the testing and demonstrations furnished by the Contractor. All items furnished and/or installed by the Contractor shall be tested and demonstrated in accordance with these specifications. All equipment and labor required for testing and demonstrations shall be furnished by the Contractor.

- a. Fully test the installation by continuous operation for a period of not less than seventy-two (72) hours as a completed unit, prior to acceptance by the Engineer.
- b. Up to two (2) walk-throughs may be initiated by the Engineer during which the airfield lighting units would be required to be in operation. Additional walk-throughs may be necessary depending upon the number of discrepancies found on the previous walk-throughs.
- c. The Contractor is responsible for lamp replacements and necessary maintenance of airfield items during the testing, construction and walk-through periods.
- d. Test cabling per specification L-108, Installation of Underground Cable for Airports.
- e. Demonstrate all features and functions of all systems and instruct the Owner's personnel in the proper and safe operation of the systems.
- f. The Contractor shall perform the necessary inspection and tests for some items concurrently with the installation because of subsequent inaccessibility of some components. The Engineer shall be notified by the Contractor forty-eight (48) hours in advance of any testing.
- g. Test the impedance to ground of each ground rod with the resistance not to exceed 25 ohms with the exception of FAA ground rods prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used with all ground rods except FAA ground rods, as described by ANSI/IEEE Standard 81, to verify this requirement.

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h. Test the impedance to ground of each ground rod with the resistance not to exceed 25 ohms prior to establishing connections to other ground electrodes. The Wenner Vertical Profiling method (ASTM G57) shall be used to measure the resistance to ground. With this array, potential electrodes are centered on a traverse line between the current electrodes, and an equal spacing between electrodes is maintained. Ground resistance measurements shall be made before the electrical distribution system is energized. Tests shall not be conducted within 48 hours of a rainfall, or in frozen soil. The Contractor shall immediately notify the Engineer if the specified resistance is not obtained. Upon project completion, the Subcontractor shall submit a written test report, defining his test procedure and results obtained, to the Engineer.

There are no approved "repair" procedures for items that have failed testing other than complete replacement. Any other corrective measures shall be approved in writing by the Engineer.

125-3.4 WARRANTY. The lamp life for fixtures and signs other than LED, as rated by the manufacturer (not the supplier), shall be warranted for the number of hours specified in the manufacturer's submittal. Should 10% of the lamps fail prior to the rated life, the entire system using the failing lamp type shall be relamped at the Contractor's expense, and the warranty time shall start over. At the Owner's option, with written permission of the Engineer, the Contractor may elect to supply 100% spare lamps at the time of Owner's acceptance of the lighting system.

Per FAA Engineering Brief 67D, All LED light fixtures with the exception of obstruction lighting (AC 150/5345-43) must be warranted by the manufacturer for a minimum of 4 years after date of installation inclusive of all electronics. The replacement criterion for light fixtures is per AC 150/5340-26.

125-3.5 OPERATION AND MAINTENANCE MANUALS The Contractor shall provide a total of five copies of all applicable technical drawings, operating limitations and recommended maintenance procedures for all equipment installed under these specifications. Manuals shall be provided in a three ring binder format and shall be properly tabbed for each specific item. Final payment for any contract amounts shall not be processed without proper submittal of these manuals and approval of the Owner.

METHODS OF MEASUREMENT

125-4.1 GENERAL The quantity of airfield lighting units or base cans to be paid for under this item shall be the number of each type installed, adjusted, removed or replaced, complete in place, ready for operation, and accepted by the Engineer.

BASIS OF PAYMENT

125-5.1 Payment will be made at the contract unit price or lump sum price for each item completed by the contractor and accepted by the engineer. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, taxes, equipment, tolls, and incidentals necessary to complete this item. See plans for additional requirements.

Item L-125-5.1	New L-861T(L), LED taxiway elevated edge light installed on existing base can. Includes removal of existing fixture and transformer, drilling and tapping damaged bolts from base can, delivery of fixture to Owner, removal of circuit conductors, ground
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lug connector and installation, braided ground strap, new LED fixture, carbon steel coated bolts, circuit identification, splice kits, new transformer, labor, testing, temporary conduits and conductors, and etc. complete in place. – Price per each

Item L-125-5.2 Intercept existing circuit conductors in existing base can/ manhole /junction can and extend circuits accordingly. Includes dewatering, identification, connector kits, labor, and etc. complete in place. – Price per each

Item L-125-5.3 Identification of cables, ductbanks and lighting fixtures per FAA specifications. Includes concrete duct markers, bronze markers, cable tags, labor and etc., complete in place. – Price per lump sum

MATERIAL REQUIREMENTS

Fed. Spec WW-C-581 AC150/5340-30F AC150/5340-18F	Conduit, Metal, Rigid; and Coupling; Elbow; and Nipple, Electrical Conduit: Zinc-Coated. Runway and Taxiway Edge Lighting System. Taxiway Guidance Sign System.
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END OF ITEM L-125**INSTALLATION OF AIRPORT
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AIRFIELD SIGNAGE SYSTEMS****DESCRIPTION****126-1.1 GENERAL.**

This item shall consist of airfield guidance and distance remaining sign lighting systems and re-paneling of existing signage furnished and installed in accordance with this specification, any referenced specifications, and the applicable Federal Aviation Administration Advisory Circulars.

The systems shall be installed at the location and in accordance with the dimensions, layout, design, and details shown in the plans. This item shall include furnishing and installing all signs, transformers, base cans, mounting assemblies, base plates, adapter rings, concrete work, cable connections, all lamps, testing of the installation and all incidentals and appurtenances necessary to place the systems in operation as completed units to the satisfaction of the Engineer. All work shall be constructed and installed in accordance with the drawings and specifications. The work shall include all cable, conduit, raceway, terminations, accessories and all incidentals required to provide a complete and operational system to the satisfaction of the Engineer.

126-1.2 REFERENCED MATERIALS.

Additional details pertaining to specific systems covered in this section are contained in the Federal Aviation Administration (FAA) Advisory Circulars (AC's), latest edition, listed below:

150/5340-1	Standards for Airport Markings
150/5340-18	Standards for Airport Sign Systems
150/5340-26	Maintenance of Airport Visual Aid Facilities
150/5340-30	Design and Installation Details for Airport Visual Aids
150/5345-7	Specification for L-824 underground Electrical Cable for Airport Lighting Circuits
150/5345-26	FAA Specification for L-823 Plug and Receptacle, Cable Connectors
150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
150/5345-47	Specification for Series to Series Isolation Transformers for Airport Lighting Systems
150/5345-53	Airport Lighting Equipment Certification Program
150/5370-2	Operational Safety on Airports During Construction
150/5370-10	Standards for Specifying Construction of Airports

The Contractor is responsible for using the latest edition of the referenced FAA Advisory Circulars.

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Shop drawings of each airfield sign lighting component, indicating FAA approval, shall be submitted to the Engineer for Engineer's approval and be approved prior to ordering any materials for this item. This submittal shall include the proposed method of installation for all airfield sign lighting components.

a. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable). Contractor is solely responsible for delays in project accruing directly or indirectly from late submissions or resubmissions of submittals.

b. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the plans and specifications. The Contractor's submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section. The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer's opinion, does not meet the system design and the standards and codes, specified herein.

c. The submittal shall include data on all component parts of the item or system, and shall include the manufacturers list of recommended spare parts for one year's use.

126-1.4 QUALIFICATIONS.

The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in his opinion, does not meet the system design and the standards and codes, specified herein. All lighted signage panels shall be provided by the existing sign manufacturer.

126-1.5 SPARE PARTS.

The Manufacturer/Contractor by submitting a bid assures the Owner that it will sell to the Owner or any of the Owner's designated representatives any and all parts for materials furnished under this contract at the lowest price the Contractor or its subcontractors, or suppliers furnish them to any second party. This pricing requirement shall apply for five (5) years from the date of final acceptance of the contract. In furnishing parts at this price, the Contractor shall provide the parts within one week of an approved purchase agreement. The Owner shall have the right to verify that the prices the Owner pays for the parts are the lowest and if they are determined not to be, then the Owner shall receive a payment from the Manufacturer/Contractor in the amount of one and one-half (1.5) times the difference. The Contractor is responsible to coordinate and obtain this agreement, in writing, from the manufacturer.

126.-2 EQUIPMENT AND MATERIALS**126-2.1 GENERAL.**

a. Airfield sign lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified and listed under Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, latest edition.

b. All other equipment and materials covered by other referenced specification shall be subject to acceptance through manufacturer's certification of compliance with the applicable

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specification. The Contractor shall submit the manufacturer's certificate of compliance with the applicable equipment submittals.

c. Manufacturers certifications shall not relieve the Contractor of his responsibility to provide materials in accordance with these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials which do comply with these specifications, at the sole cost of the Contractor.

d. All items required per this section are for use on a 6.6 amp primary series circuit unless specifically noted otherwise.

126-2.2 WARRANTY.

a. Except as modified below, all equipment and materials furnished and installed under this section shall be warranted against defects in materials and workmanship for a period of twelve (12) months or the manufacturer's standard warranty period whichever is greater, from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

b. Per FAA Engineering Brief 67D, All LED light fixtures with the exception of obstruction lighting (AC 150/5345-43) must be warranted by the manufacturer for a minimum of 4 years after date of installation inclusive of all electronics. The replacement criterion for light fixtures is per AC 150/5340-26.

126-2.3 BASIS OF DESIGN.

The airfield sign lighting systems are designed using the below listed maximum sign loads. Approved airfield sign lighting fixtures with higher loads are permissible provided the Contractor assumes all costs for the redesign of the airfield sign lighting and necessary power distribution systems and all costs incurred furnishing and installing any additional equipment. In no case shall the Contractor be allowed to reduce the size of the constant current regulators or the power distribution systems. Sign loads shall not exceed the following values:

L-858 B, Y, R, L, & C
Boundary, Destination,
Mandatory, Taxiway End, &
Distance to Go Signs

Size 2	Style 2, Information	Style 3, Information
1 module/1-2 characters	90 VA	90 VA
2 module/3-4 characters	95 VA	95 VA
3 module/5-6 characters	100 VA	100 VA
4 module/7-8 characters	100 VA	100 VA
RDR	95VA	95VA

126-2.4 L-858 SIGNS.

The signs shall be L-858Y, R, C, L and B and shall be internally lighted as indicated on the plans. The size of the units shall be size 2 for the L-858Y, C, L and R and size 4 for the L-858B.

The signs shall be furnished with LED light bars installed. The L-858B, Y, R, L units shall be style required by the circuit the respective sign is connected to. All units shall be Class 1, Mode 2. All signs shall be furnished with tethers on a minimum of two legs per sign. The tethers shall be fabricated from 3/16 inch stainless steel aircraft cable with a formed eye on both ends and shall be of ample length to attach the sign (min. of 6 inches of slack) to the flange plate and allow the frangible coupling and disconnect plug to function properly. The bolting pattern, method of anchoring, etc., shall be per the sign manufacturer's recommendation. The sign manufacturer shall submit to the Engineer calculations showing the sign and anchoring methods will withstand a 200 MPH jet blast in accordance with Paragraph 4.1.2 of AC 150/5345-44, latest edition. The signs shall be supplied with the messages as shown on the sign schedule.

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Each sign shall be furnished with an on-off toggle switch with weatherproof cover. The switch shall be used by maintenance personnel to de-energize the sign so maintenance work can be performed. The switch shall be located immediately adjacent to the load side of the L-823 disconnect plug. The weatherproof cover shall provide protection from driving rain and shall have a spring operated closing device. The weatherproof cover shall also provide physical protection for the switch handle.

The nameplate required by 150/5345-44 shall be made of metal with the data stamped into the metal nameplate.

Provide 3-M Scotch-Lite or approved equivalent 3 inch high, die cut labels for each sign, labels shall be reflective film, with pressure-sensitive adhesive backing, suitable for exterior applications. Labels shall be UV resistant. Labels shall be white for installation on black surface, black for installation on other surfaces. Text shall be: number and letter style; Helvetica medium, upper case, 3 inches in height.

Each unit shall be furnished complete with the specified panels, mounting assemblies, breakable couplings, cable tether connecting the sign to the base, transformers and a base. The basis of design for the signage on the project is based on characters. A character shall be defined as a letter, number or special character such as punctuation. Line item quantities are determined by the greatest number of characters on a single side of a sign and does not include required message dividers or required background/text color changes. Each signage line items cost shall include sign panels for legends on both sides of the sign. Payment shall be made for signs based on the actual number of characters installed, not to exceed the number of characters reflected on the schedule, regardless of the panel color requirements, message dividers, manufacturing methods or techniques.

Sign lengths shall be the shortest possible however must conforming to FAA AC 150/5345-44, latest edition. If a "blank" panel is installed on sign legend, the blank shall be on the furthest position from the Runway/Taxiway pavement so that the sign legend text is closest to the pavement.

126-2.5 LIGHT BASES.

All light bases (base cans) shall meet the requirements of FAA AC 150/5345-42, latest edition. The light bases shall be L-867 type for the non-load bearing units and L-868 for the load bearing units. The sizes of the units shall be as shown in the Plans and in this specification. Two piece base cans, may be used, where paving interferences require their use. All light bases, transformer houses and junction boxes shall be Class 1A, hot dipped galvanized steel.

Light bases and base extensions shall be 12" nominal outside diameter and depth as noted on the drawings. Base shall be provided with an internal and external ground lug to accept a no. 6 AWG ground cable and threaded hubs for conduit entrance. Light bases shall be FAA type L-867 to comply with FAA Advisory Circular 150/5345-42, latest edition.

Blank cover plates shall be sized to match the corresponding light base, junction box, etc. Cover plates shall be 1/2" thick and provided with stainless steel bolts, gaskets, and associated hardware.

126-2.6 CABLES.

Cables shall comply with specification L-108, Installation of Underground Cable for Airports.

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Connectors shall comply with specification L-108, Installation of Underground Cable for Airports.

126-2.8 ISOLATION TRANSFORMERS.

Isolation transformers shall be for 6.6Amp, series lamp(s) (as required) conforming to requirement of Advisory Circular 150/5345-47, latest addition. Isolation transformers shall be compatible with the L-823 connector kits for watertight connections and per FAA requirements.

126-2.9 FRANGIBLE COUPLINGS.

All elevated items shall be installed on frangible couplings in accordance with the respective Federal Aviation Administration Advisory Circular. Frangible couplings shall be metallic and provide an electrical grounding path between the fixture/sign and the base can.

126-2.10 LAMPS.

Airfield sign lamps shall be LED light bars of size and type to provide distribution and minimum output requirements as detailed in FAA AC 150/5345-44, latest edition. All airfield signs shall be installed with light bars and include drivers.

126-2.11 TAPE.

Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88, respectively, as manufactured by the Minnesota Mining and Manufacturing Company, or an approved equal. Electrical coating shall be Scotchkote as manufactured by Minnesota Mining and Manufacturing Company, or an approved equal.

126-2.12 CONCRETE.

Concrete for backfill, sign pads and base cans in the runway/taxiway safety areas, in existing pavement where aircraft traffic will resume immediately upon re-opening, or in areas otherwise indicated in the details and drawings shall conform to the requirements of P-610 Class III concrete with a minimum 5 hour strength of 2,500 psi and a minimum 28 day strength of 5,000 psi. A concrete mix design shall be submitted and approved before commencement of work.

Concrete for backfill, sign pads and base cans not in the runway/taxiway safety areas or in existing pavement where aircraft traffic will resume immediately upon re-opening, shall conform to the requirements of P-610 Class II concrete with a minimum 28 day strength of 4,000 psi. A concrete mix design shall be submitted and approved before commencement of work.

126-2.13 REINFORCING STEEL.

All reinforcing steel shall be ASTM A 615, Grade 60.

126-2.14 CONDUIT.

Conduit shall comply with specification L-110, Installation of Airport Underground Electrical Duct.

126-2.15 BOLTING HARDWARE.

All airfield lighting bolting hardware shall be stainless steel and shall meet FAA requirements. All bolts 1/4 inch and larger shall be hex head type. All bolts smaller than 1/4 inch trade size shall be recessed Allen type. All bolted connections shall utilize an anti-rotational locking type device. The base can cover and fixture mounting bolts shall extend thru the base can mounting flange into the base can a minimum of 0.75 inch beyond machined thread system. The bolts shall have enough thread length so they do not shoulder out before the fixture is securely tightened.

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The anti-seize compound shall be marine grade Ideal "Noalox" or approved equivalent. Use Dow Coming Compound III valve lubricant non-curing sealant to seal between sections of base cans, spacer rings, adaptor rings or fixtures.

126-2.17 FILLERS AND ADHESIVES.

Joint sealing filler shall comply with Specification P-605 and adhesive compounds shall comply with Specification P-606. The P-605 and P-606 shall be formulated so they are compatible with the pavement type with which they are to be used.

126-2.18 STRAIN RELIEF CONNECTORS.

Strain relief connectors shall be Liquid Tight Thomas & Betts 2500 series with WMG-PG wire mesh cable grip or approved equal.

126-2.19 IDENTIFICATION MARKERS.

Fixture, manhole and sign identification markers shall be brass bench markers with flat top or approved equal. 1/16 inch deep by 1/2 inch high text shall be engraved in the ID marker. Once the ID markers are accepted the Engineer will use them as a basis for acceptance of the field installed markers. Payment for markers is incidental to the respective pay item of which it is a component part.

126-2.20 SIGN LEGENDS.

Furnish sign legends and blank panels to be installed on new and existing airfield signs. Size of signs are noted in the signage schedule shown in the plans.

The new legends shall not affect the lumen output of the existing sign. New legends shall secure to existing signs in the same manner as the original legends. Legend text size and style shall be in accordance with FAA Advisory Circular 150/5345-44, latest edition.

New legends provided for existing signs that are to remain shall be by original manufacturer of those signs. Provide letter of certification from the manufacturer that the legend replacement does not change any of the performance parameters under which the sign was FAA certified.

Sign legend panels shall include all incidentals required for a complete and operational unit to the satisfaction of the Engineer. Each replacement sign panel shall be one or two characters in length.

126-2.21 DELIVERY, STORAGE AND HANDLING.

Ship materials and equipment disassembled only to the extent necessary for reasons of shipping limitations, handling facilities, and to avoid damage during shipment. Maintain materials and equipment in new condition. This shall include the use of suitable coverings, indoor storage, etc. to properly protect the equipment and materials. Any equipment or materials, in the opinion of the Engineer, damaged during construction or storage periods shall be replaced by and at the sole cost of the Contractor.

126-2.22 SPARE PARTS.

The following electrical spare parts shall be furnished by the Contractor. All spare parts shall be identical to the same parts approved and installed in the project. Cost shall be incidental to the signage line items.

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- a. LEDs - Provide 1 spare LED & driver replacement kit for each sign size and type installed as a part of this contract.
- b. Circuit Boards - Provide 1 spare circuit board for each sign size and type installed as a part of this contract.

126-3 CONSTRUCTION METHODS AND INSTALLATION**126-3.1 SIGNS, BASE CANS.**

All signs, base cans, etc. shall be installed as shown in the plans or approved shop drawings and in accordance with the applicable FAA Advisory Circulars and manufacturers' recommendations. Survey instruments shall be used to position all items to insure precise orientation. Tolerances given in the FAA Advisory Circulars, these specifications, and the plans shall not be exceeded. Where no tolerance is given, no deviation is permitted. Items not installed in accordance with the FAA Advisory Circulars, these specifications and plans shall be removed and replaced by and at the expense of the Contractor.

Signs shall be oriented at 90 degrees to the direction of the taxing path from which it is viewed unless noted otherwise. Canted signs shall be oriented so that it is perpendicular to the aircraft fuselage of the airplane with the longest wheelbase.

For all signs, the concrete foundation shall extend to not less than twenty-four (24) inches out from the edge of the sign all around. The concrete foundation shall be a minimum of fourteen (14) inches thick. The concrete foundation shall be poured in place and rest on undisturbed soil.

The foundation shall be reinforcements, sized and placed as indicated in the plans. Exposed concrete surface shall be finished smooth with a steel trowel or rubbed to a smooth finish. All horizontal edges to be chamfered one (1) inch at 45 degrees and shall be flush with finished grade.

During construction of the foundation, the transformer base shall be adjusted and firmly held in place so that machined upper surface of base flange will be level within -2 degrees and not more than 1/4 inch above the surface of pad. All other bearing areas for additional flange supports shall be in the same horizontal plane as the transformer base flange.

The Contractor shall completely survey and stake out each area's signage layout prior to starting any installation. Should any irregularities occur in the layout, the Engineer shall be notified immediately. The bid item price shall include the necessary surveyed layout for each item and the cost for any additional adjustment or resurvey of the location of the items due to the existing geometric conditions. The new signage installation shall be coordinated with and blend into the signage installation.

All loose material shall be removed from all excavations for electrical equipment, raceways, manholes, pads, etc. The bottom of the excavation shall be compacted to 95% compaction in accordance with ASTM D 1557 prior to the installation of the electrical item and backfill.

Install new legends on existing signs at locations and with designations as indicated in the Plans. Installation of new sign legends on existing signs shall be done in accordance with construction sequencing as indicated in the Plans.

The Contractor shall be responsible for final calibration and adjustments of the signs.

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Assemble units and connect to the system in accordance with the manufacturer's recommendations and instructions.

An identification tag shall be installed with each fixture, sign and etc. as shown in the plans. Brass circuit identification tags identifying each circuit shall be attached to each circuit as shown in the plans.

Provide five feet (5') of slack in each end of each cable in each base can. All connections shall be able to be made above ground.

Painted and galvanized surfaces that are damaged shall be repaired according to the manufacturer's recommendations, to the satisfaction of the Engineer. Use LPS-1G cold galvanizing compound or approved equal to repair galvanized surfaces. Obtain paint and primer, of same batch number, from the equipment manufacturer to repair painted surfaces.

All threaded portions of frangible couplings, etc., shall be coated with marine grade Ideal "Noalox" compound or approved equal before being assembled.

If a light can is installed incorrectly or the duct/conduit is plugged/broken or the concrete joints are installed incorrectly or the light base can is sawed by the concrete saw, the concrete slabs on both sides of the light base can and the light shall be removed and replaced at the sole cost of the Contractor.

Dewatering necessary to construct L-126 Items and related erosion and turbidity control shall be in accordance with federal, state, and local requirements and is incidental to its respective pay item as a part of L-126. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the L-126 Item.

126-3.2 TESTING.

This section describes the testing and demonstrations furnished by the Contractor. All items furnished and/or installed by the Contractor shall be tested and demonstrated in accordance with these specifications. All equipment and labor required for testing and demonstrations shall be furnished by the Contractor.

a. Fully test the installation by continuous operation for a period of not less than seventy-two (72) hours as a completed unit, prior to acceptance by the Engineer.

b. Up to two (2) walk-throughs may be initiated by the Engineer during which the airfield lighting units would be required to be in operation. Additional walk-throughs may be necessary depending upon the number of discrepancies found on the previous walk-throughs.

c. The Contractor is responsible for lamp replacements and necessary maintenance of airfield items during the testing, construction and walk-through periods.

d. Test cabling per specification L-108, Installation of Underground Cable for Airports.

e. Demonstrate all features and functions of all systems and instruct the Owner's personnel in the proper and safe operation of the systems.

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f. The Contractor shall perform the necessary inspection and tests for some items concurrently with the installation because of subsequent inaccessibility of some components. The Engineer shall be notified by the Contractor forty-eight (48) hours in advance of any testing.

There are no approved "repair" procedures for items that have failed testing other than complete replacement. Any other corrective measures shall be approved in writing by the Engineer.

126-3.3 OPERATION AND MAINTENANCE MANUALS.

The Contractor shall provide a total of five copies of all applicable technical drawings, recommended spare parts, required testing results, operating limitations and recommended maintenance procedures for all equipment installed under these specifications. Manuals shall be provided in a three ring binder format and shall be properly tabbed for each specific item. Final payment for any contract amounts shall not be processed without proper submittal of these manuals and approval of the Engineer.

126-3.4 CONTRACT DRAWINGS.

Where the electrical drawings indicate (diagrammatically or otherwise) the work intended and the functions to be performed, even though some minor details are not shown, the Contractor shall furnish all equipment, material, and labor to complete the installation work, and accomplish all the indicated functions of the electrical installation. Further, the Contractor shall be responsible for taking the necessary actions to ensure that all electrical work is coordinated and compatible with the civil plans.

126-3.5 MINOR DEPARTURES.

Minor departures from exact dimensions shown in the electrical plans may be permitted where required to avoid conflict or unnecessary difficulty in placement of a dimensional item, provided contract requirements are met. The Contractor shall promptly obtain approval from the Engineer prior to undertaking any such proposed departure.

126-4 METHODS OF MEASUREMENT**126-4.1 GENERAL.**

The quantity of airfield guidance sign legends, guidance signs and distance remaining signs to be paid for under this item shall be the number of each type installed, adjusted, relocated, removed or replaced, complete in place, ready for operation, and accepted by the Engineer.

126-5 BASIS OF PAYMENT**126-5.1 PAYMENT.**

Payment will be made at the contract unit price for each Lighted and Unlighted Airport Guidance Sign that is installed, removed or relocated or adjusted by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials including, junction boxes, base cans, blank covers, concrete pad, steel cages, grounding, excavation, backfill, spare parts, isolation transformers, connectors, splice kits, wiring, heat shrink, grommets, identification, demolition, testing and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tolls, and incidentals necessary to complete this item.

Payment will be made under:

Item L-126-5.1 Removal of existing guidance sign and concrete base in

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earth/existing pavement, complete. Includes backfill, saw cutting, sod, labor, disposal, connector kits, disconnection of existing circuit, removal of circuit conductors to edge light, reconnection of existing circuit, capping of conduits, temporary conduit and conductors, labor and etc., complete in place. – Price per each

- Item L-126-5.2 New L-858, size 1, 3-4 characters LED guidance sign and concrete base installed in earth. Includes excavation, saw cutting, concrete, WWF/rebar, junction can, steel cover, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, transformers, hardware, carbon steel bolts, anchor bolts, conduits, conductors, counterpoise, ground lugs, grounding, 20' ground rods, testing, wiring, connectors, backfill, sod restoration, spare parts, identification, labor and etc. for a complete working system in place. – Price per each
- Item L-126-5.3 New L-858, size 1, 5-6 characters LED guidance sign and concrete base installed in earth. Includes excavation, saw cutting, concrete, WWF/rebar, junction can, steel cover, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, transformers, hardware, carbon steel bolts, anchor bolts, conduits, conductors, counterpoise, ground lugs, grounding, 20' ground rods, testing, wiring, connectors, backfill, sod restoration, spare parts, identification, labor and etc. for a complete working system in place. – Price per each
- Item L-126-5.4 New L-858, size 1, 7-8 characters LED guidance sign and concrete base installed in earth. Includes excavation, saw cutting, concrete, WWF/rebar, junction can, steel cover, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, transformers, hardware, carbon steel bolts, anchor bolts, conduits, conductors, counterpoise, ground lugs, grounding, 20' ground rods, testing, wiring, connectors, backfill, sod restoration, spare parts, identification, labor and etc. for a complete working system in place. – Price per each
- Item L-126-5.5 New L-858, size 1, 1-2 characters LED guidance sign installed on existing concrete pad, complete. Includes drilling and tapping bolts, carbon steel coated bolts, anchor bolts, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, frangible couplings, transformers, hardware, conduits, conductors, testing, grounding, wiring, spare parts, connectors, identification, labor and etc. for a complete working system in place. – Price per each
- Item L-126-5.6 New L-858, size 1, 3-4 characters LED guidance sign installed on existing concrete pad, complete. Includes drilling and tapping bolts, carbon steel coated bolts, anchor bolts, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, frangible couplings, transformers, hardware, conduits, conductors, testing, grounding, wiring, spare parts, connectors, identification, labor and etc. for a complete working system in place. – Price per each

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- Item L-126-5.7 New L-858, size 1, 5-6 characters LED guidance sign installed on existing concrete pad, complete. Includes drilling and tapping bolts, carbon steel coated bolts, anchor bolts, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, frangible couplings, transformers, hardware, conduits, conductors, testing, grounding, wiring, spare parts, connectors, identification, labor and etc. for a complete working system in place. – Price per each and etc. for a complete working system in place. – Price per each
- Item L-126-5.8 New L-858, size 1, 7-8 characters LED guidance sign installed on existing concrete pad. Includes drilling and tapping bolts, carbon steel coated bolts, anchor bolts, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, frangible couplings, transformers, hardware, conduits, conductors, testing, grounding, wiring, spare parts, connectors, identification, labor and etc. for a complete working system in place. – Price per each
- Item L-126-5.9 Provide and install LED retro fit kit in existing guidance sign. Includes hardware, LED retro-fit kit, LED light bars, LED Drivers, new transformer, identification, installation, connector kits, labor and etc. complete in place. – Price per each

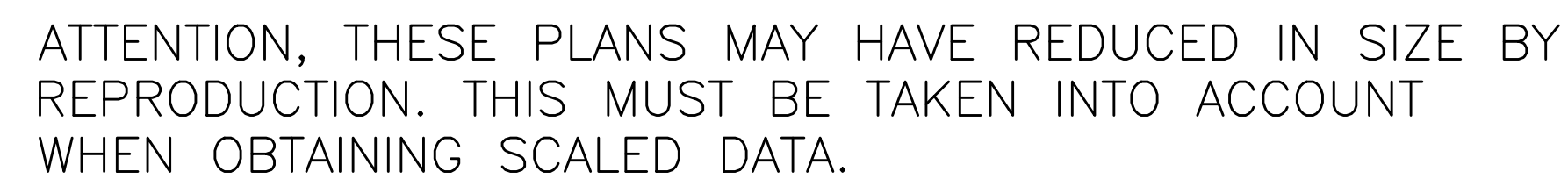
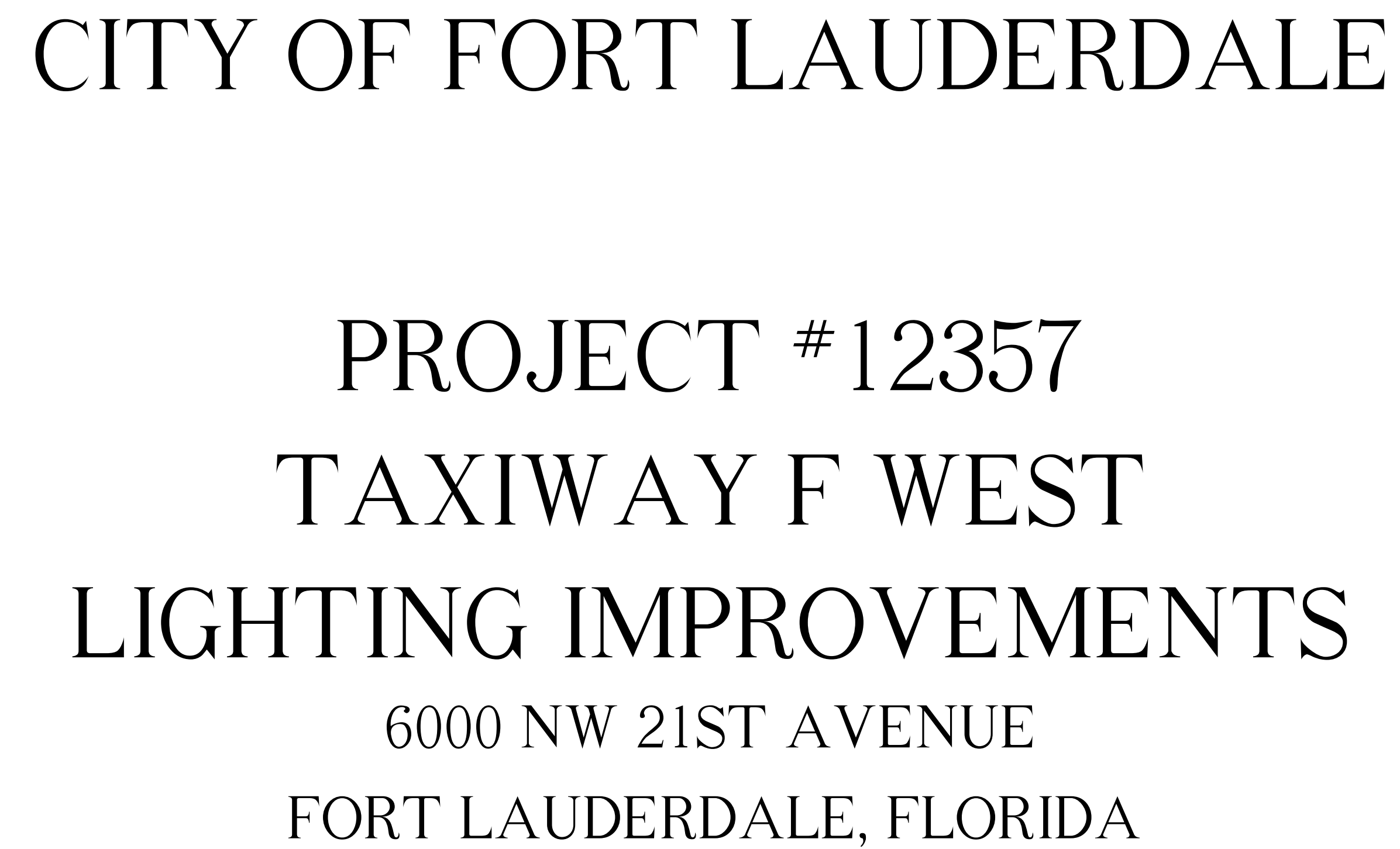
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AIRFIELD SIGNAGE SYSTEMS

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6000 NW 21ST AVENUE, FORT LAUDERDALE FL, 33309



DEAN J. TRANTALIS	MAYOR
HEATHER MORAITIS	COMMISSIONER - DISTRICT I
STEVEN GLASSMAN	COMMISSIONER - DISTRICT II
ROBERT MCKINZIE	COMMISSIONER - DISTRICT III
BEN SORENSEN	COMMISSIONER - DISTRICT IV

DATE: 05/10/2018
CAD FILE: 12357-G000-COVR
DRAWING FILE No.: 4-140-01

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GENERAL NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY REGULATIONS.

2. THE CONTRACTOR SHALL COOPERATE WITH AIRPORT AUTHORITIES, USERS, TENANTS AND FIRE DEPARTMENT WHILE WORKING ON THIS PROJECT.

3. THE CONTRACTOR'S SUPERINTENDENT SHALL BE ON THE CONSTRUCTION SITE AT ALL TIMES DURING WORKING HOURS WHILE THIS PROJECT IS IN PROGRESS. THE CONTRACTOR'S SUPERINTENDENT SHALL BE THE DESIGNATED RESPONSIBLE CONTRACTOR REPRESENTATIVE, AND SHALL BE AVAILABLE IN CASE OF EMERGENCIES ON A 24-HOUR BASIS AND SHALL BE FLUENT IN SPOKEN ENGLISH.

4. REQUESTS FOR FIELD CHANGES OR DEVIATIONS MUST BE SUBMITTED IN WRITING TO THE ENGINEER. ENGINEER WILL HAVE UP TO TWO WEEKS TO RESPOND TO REQUESTED CHANGES. THE ENGINEER'S REVIEW TIME IS NOT PERMITTED TO BE INCLUDED IN REQUEST FOR ADDITIONAL CONTRACT TIME.

5. CONTRACTOR SHALL PROVIDE MAINTENANCE OF TRAFFIC DURING CONSTRUCTION IN ACCORDANCE WITH THESE PLANS AND ALL STATE, COUNTY AND LOCAL REQUIREMENTS.

6. TEMPORARY BARRICADES SHALL BE INSTALLED AT THE BEGINNING OF EACH NIGHTLY WORK PERIOD (AT THE APPLICABLE LOCATIONS SHOWN ON THE PHASING PLAN) AND REMOVED PRIOR TO OPENING TO AIRCRAFT TRAFFIC EACH MORNING.

7. THE CONTRACTOR SHALL CLEAN AFFECTED AIRPORT PAVEMENTS PRIOR TO REOPENING THE PAVEMENTS TO AIRPORT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR CONTINUOUS DAILY CLEAN UP OF THE WORK AREA. THE CONTRACTOR SHALL CONDUCT VACUUM CLEANING OF AFFECTED AIRPORT PAVEMENTS PRIOR TO REOPENING THE PAVEMENTS PER EACH PHASE TO AIR TRAFFIC. CONTRACTOR SHALL CONDUCT VACUUM CLEANING OF ACTIVE AIRPORT PAVEMENTS IMMEDIATELY FOLLOWING ANY ACCESS TO THE PAVEMENT WHICH WAS USED BY CONSTRUCTION TRAFFIC.

8. ALL LOCATIONS, DIMENSIONS AND ELEVATIONS MUST BE VERIFIED BY THE CONTRACTOR IN THE FIELD BEFORE COMMENCING WORK. ANY DISCREPANCY MUST BE BROUGHT, IN WRITING, TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.

9. CONTRACTOR SHALL NOTE IN THE RECORD DRAWINGS ANY AND ALL PIPES, DUCTS AND CABLES FOUND DURING EXCAVATION. INDICATE EXACT POSITION, ELEVATION, DIRECTION, SIZE, MATERIAL, PURPOSE AND ACTIVE STATUS IF KNOWN.

10. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES TO PROTECT EXISTING ABOVE GROUND IMPROVEMENTS THAT ARE TO REMAIN IN PLACE. ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR RECONSTRUCTED SATISFACTORY TO THE OWNER, AT THE EXPENSE OF THE CONTRACTOR.

11. IT IS THE CONTRACTORS' RESPONSIBILITY TO VERIFY AND CONFIRM THE LOCATION OF ALL UNDERGROUND FACILITIES WITHIN LIMITS OF CONSTRUCTION. ALL EXISTING UTILITIES, CABLES, EQUIPMENT, DEVICES, ETC., DESIGNATED TO REMAIN IN SERVICE WHICH ARE DAMAGED IN THE COURSE OF THE CONTRACT SHALL BE IMMEDIATELY REPAIRED AT THE EXPENSE OF THE CONTRACTOR. AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO BEGINNING CONSTRUCTION THE CONTRACTOR SHALL CONTACT:

CITY OF FT. LAUDERDALE OPERATIONS

PHONE: (954) 828-4963

FPL

PHONE: (954) 956-2045

FAA REPRESENTATIVE

PHONE: (954) 359-5687

THE CONTRACTOR SHALL CONTACT SUNSHINE STATE ONE CALL AT 1-800-432-4770 AT LEAST TWO (2) WORKING DAYS PRIOR TO EXCAVATION. EXCAVATION IN AREAS OF EXISTING UTILITIES SHALL BE DONE BY HAND.

12. THE CONTRACTOR SHALL CONTINUOUSLY MAINTAIN THE SITE FREE OF TRASH. ALL TRASH SHALL BE TOTALLY REMOVED FROM THE WORK AREA BEFORE THE END OF EACH WORK PERIOD.

13. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL CLEAN AND RESTORE THE SITE. ALL RUBBISH AND OTHER MATERIAL SHALL BE DISPOSED OF OFF AIRPORT PROPERTY AT CONTRACTOR'S DISCRETION AND EXPENSE. THE CONTRACTOR SHALL RESTORE ALL GRASSED AND PAVED AREAS WHICH ARE DISTURBED BY CONSTRUCTION ACTIVITY TO THEIR PRE CONSTRUCTION CONDITION.

14. ALL EXISTING UTILITIES ARE TO REMAIN UNLESS OTHERWISE NOTED.

15. REFER TO THE CONTRACTOR ACCESS AND STAGING AREA PLAN FOR ACCESS POINTS TO BE USED BY THE CONTRACTOR FOR THIS PROJECT.

16. SPECIFICATIONS ARE PROVIDED WHICH REQUIRE THE CONTRACTOR TO APPLY EITHER WATER, NON-HAZARDOUS CHEMICALS, VEGETATION OR OTHER MATERIALS TO PREVENT THE OCCURRENCE OF DUST WHICH WILL BE OBJECTIONABLE TO THE OPERATIONS OR USERS OF THE AREA. ALL COST FOR CONTROLLING DUST OR POLLUTANTS OF ANY KIND SHALL BE INCIDENTAL TO THE CONTRACT.

17. DO NOT SCALE DRAWINGS. USE GIVEN DIMENSIONS ONLY. LARGE SCALE PLANS GOVERN OVER SMALL SCALE PLANS.

18. THE CONTRACTOR SHALL ENDEAVOR TO PROTECT PRIVATE PROPERTY. ANY DAMAGE CAUSED BY THE CONTRACTOR IN THE PERFORMANCE OF THEIR WORK SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTORS EXPENSE.

19. ANY UNITED STATES COAST AND GEODETIC SURVEY (U.S.C.&G.S.) MONUMENTATION WITHIN THE CONSTRUCTION LIMITS SHALL BE PROTECTED. IF A MONUMENT IS IN DANGER OF DAMAGE, THE CONTRACTOR SHALL NOTIFY:

THE NATIONAL GEODETIC SURVEY, INFORMATION SERVICE BRANCH,

NOAA, NNGS12

1315 EAST-WEST HIGHWAY, ATTENTION SSMC-3 #9202

SILVER SPRING, MARYLAND 20910-3282

TELEPHONE: (301) 713-3242
20. NO ADJUSTMENT FOR ADDITIONAL COMPENSATION AND TIME WILL BE MADE FOR TIME LOST IN WORK AREAS CONTIGUOUS TO TAXIWAYS AND RUNWAYS DUE TO AIRCRAFT TRAFFIC.

21. ALL DEMOLITION WORK AND REMOVAL OF CONSTRUCTION DEBRIS SHALL BE CONDUCTED DURING HOURS APPROVED BY THE OWNER WITHOUT THE INTERRUPTION OF NORMAL AIRPORT DAILY ACTIVITIES.

22. CONTRACTOR SHALL PROVIDE CONSTRUCTION SITE ACCESS TO THE OWNER AND ITS REPRESENTATIVES FOR INSPECTION PURPOSES.

23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING THE WORK AREA AND COORDINATING THE OVERALL SECURITY OF THE WORK AREA AND MATERIAL STORAGE AND STAGING AREAS WITH THE OWNER.
24. THE CONTRACTOR IS REQUIRED TO PROVIDE LIGHTING FOR CONSTRUCTION DURING THE HOURS OF DARKNESS AS REQUIRED BY THE SPECIFICATIONS.

25. WHENEVER, IN THE CONTRACT DOCUMENTS, THE WORDS "PROVIDE", "FURNISH", "INSTALL", "FURNISH AND INSTALL", OR OTHER WORDS OF LIKE IMPORT ARE USED, IT SHALL BE UNDERSTOOD THAT THE INTENT OF THE CONTRACT DOCUMENTS IS TO PROVIDE FOR THE CONSTRUCTION AND COMPLETION IN EVERY DETAIL OF THE WORK DESCRIBED. IT IS FURTHER INTENDED THAT THE CONTRACTOR SHALL FURNISH ALL LABOR, SUPERVISION, MATERIALS, EQUIPMENT, TOOLS, TRANSPORTATION, SUPPLIES, TESTING AND INCIDENTALS REQUIRED TO COMPLETE THE WORK IN ACCORDANCE WITH THE DRAWINGS (PLANS), SPECIFICATIONS AND TERMS OF THE CONTRACT.

26. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS, LICENSES, ETC., PRIOR TO COMMENCEMENT OF WORK. THE COST OF PERMITS, LICENSES, ETC., SHALL BE INCIDENTAL TO AND INCLUDED IN THE BID PRICE FOR THE RESPECTIVE PAY ITEMS. PROVIDE AND PAY FOR ALL PERMITS, LICENSES, FEES AND INSPECTIONS REQUIRED FOR THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL PAY ALL SALES, CONSUMER, USE AND OTHER TAXES REQUIRED IN ACCORDANCE WITH THE LAW OF THE PLACE OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN AND PAY FOR ALL REQUIRED LICENSES, FEES AND INSPECTIONS INCLUDING METER INSTALLATION FEE. THE COST FOR SUCH SHALL BE INCLUDED IN THE BID PRICE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE APPLICABLE UTILITY COMPANY(S) TO DETERMINE IF ANY FEES, CHARGES OR COSTS WILL BE DUE THE UTILITY COMPANY(S) AS REQUIRED BY THE UTILITY COMPANY(S) FOR TEMPORARY POWER, INSTALLATIONS, HOOK-UPS, ETC. THIS FEE, CHARGE OR COST SHALL BE INCLUDED IN THIS CONTRACTOR'S PRICE.

27. ITEMS SHOWN IN SCREEN (HALFTONE) ARE EXISTING OR CIVIL ITEMS. ITEMS SHOWN IN SOLID (BOLD) ARE NEW TO BE INSTALLED UNDER THIS CONTRACT, UNLESS OTHERWISE NOTED.

28. IT SHALL BE THE CONTRACTORS' RESPONSIBILITY TO DETERMINE THAT ALL AIRFIELD LIGHTING CIRCUITS, EXCEPT THOSE THAT ARE SERVING CLOSED TAXIWAYS OR RUNWAYS, ARE COMPLETELY OPERATIONAL, USING TOWER CONTROLS, AT THE END OF EACH WORK SHIFT AND SHALL SO CERTIFY TO THE OWNER BEFORE THE END OF EACH SHIFT. THE CONTRACTOR SHALL NOT LEAVE THE WORK SITE UNTIL CIRCUIT OPERATION HAS BEEN CONFIRMED BY THE ENGINEER. TEMPORARY CABLE CONNECTIONS SHALL BE MADE IN AIRFIELD LIGHTING CIRCUITS WHEN PERMANENT WIRING CANNOT BE COMPLETED DURING DAYLIGHT HOURS. ALL RUNWAYS AND TAXIWAYS NOT CLOSED FOR CONSTRUCTION (REFER TO PHASING PLAN) SHALL HAVE FULLY OPERABLE AIRFIELD LIGHTING DURING THE HOURS BETWEEN ONE HOUR BEFORE DUSK AND ONE HOUR AFTER DAWN AND AS REQUIRED BY AIRPORT OPERATIONS. THE CONTRACTOR SHALL DISCUSS THE CONTRACTOR'S PROPOSED WIRING WITH THE OWNER AND OBTAIN APPROVAL PRIOR TO COMMENCING WORK IN THAT AREA. ALL ELECTRICAL WIRING SHALL BE COMPLETED AND TESTED ONE (1) HOUR PRIOR TO REOPENING EACH WORK AREA AND/OR SEGMENTS THEREOF, TO AIRCRAFT TRAFFIC EACH MORNING.

29. 45 DAY MINIMUM NOTICE REQUIRED FOR ANY WORK INVOLVING A FAA OR AIRPORT COMM MANHOLE OR FAA EQUIPMENT. THE NOTICE IS APPLICABLE ANYTIME THE MANHOLE IS OPENED OR ANY WORK INVOLVING CABLES BETWEEN OR WITHIN THE MANHOLES OR ANY WORK IMPACTING FAA EQUIPMENT.

30. ALL WORK UNDER THIS CONTRACT WILL REQUIRE NIGHT WORK/CLOSURES AS SHOWN ON THE PHASING PLAN. NIGHT WORK/CLOSURES SHALL BE PERFORMED BETWEEN 10:00 P.M. AND 6:00 A.M. AND BETWEEN ANY LATE ARRIVING OR EARLY DEPARTING FLIGHTS. AVAILABLE NIGHT WORK/CLOSURE HOURS ARE DEPENDANT UPON AIRPORT FLIGHT OPERATIONS AND MAY VARY FROM NIGHT TO NIGHT. NIGHT WORK SHALL BE COORDINATED WITH AND IS SUBJECT TO APPROVAL BY AIRPORT OPERATIONS.
- ABBREVIATIONS
- | | |
|--------|---|
| AB | AGGREGATE BASE COURSE |
| AC | ADVISORY CIRCULAR OR ASPHALTIC CONCRETE |
| AOA | AIR OPERATION AREA |
| APPROX | APPROXIMATE |
| ASTM | AMERICAN SOCIETY FOR TESTING AND MATERIALS |
| ATCT | AIR TRAFFIC CONTROL TOWER |
| BC | BEGIN CURVE |
| BVC | BEGIN VERTICAL CURVE |
| CL | CENTER LINE |
| CLF | CHAIN LINK FENCE |
| CTB | CEMENT TREATED BASE |
| CY | CUBIC YARDS |
| DIA | DIAMETER |
| E | EASTING - ELECTRICAL - EAST |
| EA | EACH |
| EC | END CURVE |
| EL | ELEVATION |
| EL | ELEVATION |
| ELEV | ELEVATION |
| EVC | END VERTICAL CURVE |
| EXIST | EXISTING |
| FAA | FEDERAL AVIATION ADMINISTRATION |
| FL | FLOWLINE |
| FPL | FLORIDA POWER AND LIGHT |
| FT | FEET |
| FXE | FT. LAUDERDALE EXECUTIVE AIRPORT |
| G | GAS |
| GA | GAUGE |
| GAL | GALLON |
| GALV | GALVANIZED |
| HP | HIGH POINT |
| ILS | INSTRUMENT LANDING SYSTEM |
| INV | INVERT |
| KV | KILOVOLT |
| K | LENGTH OF CURVE/GRADE IN - GRADE OUT |
| LF | LINEAR FOOT |
| LP | LOW POINT |
| LS | LUMP SUM |
| LT | LEFT |
| MALS | MEDIUM INTENSITY AIRPORT LIGHTING SYSTEM |
| MALSR | MEDIUM INTENSITY AIRPORT LIGHTING SYSTEM RAIL |
| MAX | MAXIMUM |
| MH | MANHOLE |
| MIN | MINIMUM |
| N | NORTHING - NORTH |
| NAVD | NORTH AMERICAN VERTICAL DATUM |
| NEMA | NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION |
| NGVD | NATIONAL GEODETIC VERTICAL DATUM |
| NO | NUMBER |
| NOTAM | NOTICE TO AIRMEN |
| NTS | NOT TO SCALE |
| OC | ON CENTER |
| OD | OUTSIDE DIAMETER |
| PAPI | PRECISION APPROACH PATH INDICATOR |
| PC | POINT OF CURVATURE |
| PI | POINT OF INTERSECTION |
| PROP | PROPOSED |
| PSI | POUNDS PER SQUARE INCH |
| PT | POINT OF TANGENCY |
| PVC | POLYVINYL CHLORIDE |
| PVI | POINT OF VERTICAL INTERSECTION |
| R | RADIUS |
| RP | RADIUS POINT |
| RPZ | RUNWAY PROTECTION ZONE |
| RSA | RUNWAY SAFETY AREA |
| RT | RIGHT |
| R/W | RUNWAY |
| RW | RIGHT-OF-WAY |
| S | SLOPE OR SOUTH |
| SF | SEMI-FLUSH - SQUARE FEET |
| STA | STATION |
| STD | STANDARD |
| SWPPP | STORMWATER POLLUTION PREVENTION PLAN |
| SY | SQUARE YARDS |
| TOFA | TAXIWAY OBJECT FREE AREA |
| TWY | TAXIWAY |
| TSA | TAXIWAY SAFETY AREA OR TRANSPORTATION SECURITY ADMINISTRATION |
| TW | TAXIWAY |
| TYP | TYPICAL |
| VERT | VERTICAL |
| VC | VERTICAL CURVE |
- CALL 48 HOURS BEFORE YOU DIG
-
- IT'S THE LAW! DIAL 811
- Know what's below. Call before you dig.
- SUNSHINE STATE ONE CALL OF FLORIDA, INC.
- CALL 48 HOURS BEFORE DIGGING
FAA FACILITIES 954-356-7212
-
- HDR ENGINEERING, INC.**
3250 WEST COMMERCIAL BLVD, SUITE 100
FORT LAUDERDALE, FLORIDA, 33309
T: 954.535.1876 F:954.233.4953
CA# 4213
- State of Florida
Professional Engineer
License No. 58431

JOSEPH SAWMILLER
- | | | | | | |
|-----------|----------|--------------|--------|-------------|-------------|
| DRAWN BY: | DATE: | DESIGNED BY: | SCALE: | CHECKED BY: | FIELD BOOK: |
| RD | 05/10/18 | PS | N/A | JS | |
- CITY OF FORT LAUDERDALE

PUBLIC WORKS DEPARTMENT

ENGINEERING & ARCHITECTURE

100 North Andrews Avenue, Fort Lauderdale, Florida 33301
- | REVISIONS | | DESCRIPTION | |
|-----------|------|-------------|-------|
| NO. | DATE | BY | CHK'D |
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| | | | |
| | | | |
- PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
GENERAL NOTES
6000 NW 21st Ave, Fort Lauderdale, FL 33309
- | | |
|------------------|------------------|
| SHEET NO. | OF |
| G001 | 4 |
| TOTAL: | 19 |
| CAD FILE: | 12357-MULTI-NOTE |
| DRAWING FILE NO. | 4-140-01 |
- CAM 18-0915
Exhibit 2
Page 266 of 318
p. 266
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CAM 18-0915
Exhibit 2
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p. 26

CONSTRUCTION SAFETY NOTES:

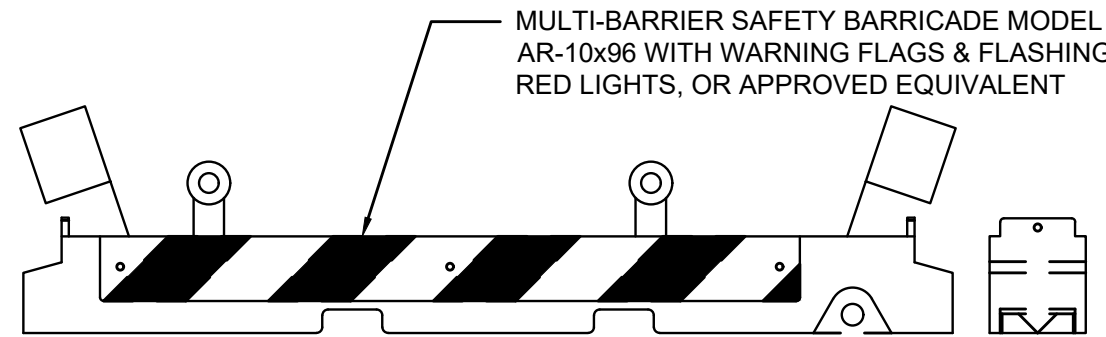
- ALL CONSTRUCTION FOR THIS PROJECT SHALL CONFORM TO THE GUIDELINES SET FORTH IN FEDERAL AVIATION ADMINISTRATION (FAA) AC150/5370-2G "OPERATIONAL SAFETY AIRPORTS DURING CONSTRUCTION" OR CURRENT EDITION, AND THESE PLANS AND SPECIFICATIONS.
- CONSTRUCTION ACTIVITIES ARE NOT PERMITTED WITHIN 500' OF THE CENTERLINE OF ANY RUNWAY WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER.
- CONSTRUCTION ACTIVITIES ARE NOT PERMITTED WITHIN 93' OF THE CENTERLINE OF AN ACTIVE TAXIWAY OR AN ON- APRON TAXILANE WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER.
- NO CONSTRUCTION TRAFFIC SHALL ENTER OR CROSS ANY ACTIVE AIRPORT OPERATIONAL AREA EXCEPT UPON AUTHORIZATION BY THE OWNER. THIS SPECIFICALLY INCLUDES THE RUNWAY PROTECTION ZONES AND THE RUNWAY AND TAXIWAY CONSTRUCTION SAFETY LIMITS.
- NO CONSTRUCTION TRAFFIC SHALL ENTER OR CROSS ANY LOCALIZER OR GLIDE SLOPE CRITICAL AREA EXCEPT UPON AUTHORIZATION BY THE OWNER AND ATCT.
- IN ORDER FOR THE CONTRACTOR TO OPERATE WITHIN THE AIR OPERATIONS AREA, APPROPRIATE NOTICES TO AIRMEN (NOTAMS) MUST BE ISSUED BY THE OWNER THROUGH THE FAA FLIGHT SERVICE STATION. THESE NOTICES PROVIDE INFORMATION ON CLOSED, LIMITED, OR HAZARDOUS CONDITIONS TO AIRMEN AND USERS OF THE AIRPORT. A 72-HOUR NOTICE IS REQUIRED FOR ISSUANCE OF THE NOTAM. ALL CONSTRUCTION OPERATIONS MUST BE CLOSELY COORDINATED WITH THE OWNER FOR NOTAM ISSUANCE.
- AIRCRAFT OPERATIONS SHALL AT ALL TIMES HAVE PRIORITY OVER ALL VEHICLES, EQUIPMENT AND PERSONNEL. THE CONTRACTOR SHALL EMPLOY STRICT MEASURES TO PREVENT ANY CONFLICT BETWEEN HIS PERSONNEL AND AIRCRAFT ON ANY ACTIVE AIRFIELD PAVEMENT. THE CONTRACTOR SHALL REMAIN CLEAR OF ACTIVE RUNWAYS AND TAXIWAYS.

- ALL CONTRACTOR VEHICLES, INCLUDING HAULING VEHICLES, THAT ARE AUTHORIZED TO OPERATE WITHIN THE SECURITY FENCE ON THE AIRPORT WITHIN THE DESIGNATED LIMITS OF CONSTRUCTION OR HAUL ROUTES AS DEFINED HEREIN, SHALL DISPLAY IN FULL VIEW ABOVE THE VEHICLE A 3'x3' OR LARGER ORANGE AND WHITE CHECKERBOARD FLAG, EACH CHECKERBOARD COLOR BEING 1' SQUARE. WHEN OPERATING DURING PERIODS OF DARKNESS OR LIMITED VISIBILITY, CONTRACTOR'S VEHICLES SHALL BE EQUIPPED WITH ROTATING OR FLASHING AMBER LIGHTS. DURING SUCH PERIODS, HAULING VEHICLES NOT SO EQUIPPED SHALL BE ESCORTED BY A VEHICLE SO EQUIPPED.
- CONTRACTOR SHALL CONTROL THE ON-AIRPORT MOVEMENT AND ACTIVITIES OF ITS EMPLOYEES AND SUBCONTRACTORS.
- OPEN-FLAME WELDING OR TORCH-CUTTING OPERATIONS ARE PROHIBITED UNLESS ADEQUATE FIRE AND SAFETY PRECAUTIONS ARE PROVIDED AND HAVE BEEN APPROVED BY THE OWNER.
- OPEN TRENCHES, EXCAVATIONS AND STOCKPILED MATERIALS AT THE CONSTRUCTION SITE SHALL BE PROMINENTLY MARKED WITH ORANGE FLAGS AND LIGHTED WITH FLASHING AMBER LIGHT UNITS (ACCEPTABLE TO THE OWNER) DURING HOURS OF RESTRICTED VISIBILITY OR DARKNESS.
- STOCKPILED MATERIAL SHALL BE CONSTRAINED IN A MANNER TO PREVENT MOVEMENT AS A RESULT OF AIRCRAFT, WIND, AND/OR OTHER REASON.
- ANY DAMAGE TO THE EXISTING AIRPORT LIGHTING SYSTEM CAUSED BY CONSTRUCTION OPERATIONS SHALL BE IMMEDIATELY REPORTED TO THE OWNER AND REPAIRED BY THE CONTRACTOR AT ITS OWN EXPENSE.
- CONTRACTOR GENERATED DEBRIS, WASTE AND LOOSE MATERIAL CAPABLE OF CAUSING DAMAGE TO AIRCRAFT LANDING GEAR, PROPELLERS AND ROTORS, OR OF BEING INGESTED BY JET ENGINES SHALL NOT BE LEFT ON ACTIVE AIRCRAFT MOVEMENT AREAS. MATERIAL DROPPING WITHIN THESE AREAS SHALL BE REMOVED IMMEDIATELY AND CONTINUOUSLY DURING WORKING HOURS.

- CONTRACTOR SHALL BE RESPONSIBLE FOR INFORMING ALL PERSONS UNDER ITS CONTROL THAT UNAUTHORIZED CONSTRUCTION PERSONNEL FOUND IN RESTRICTED AREAS OF THE AIRPORT SHOWN ON THE SAFETY PLAN ARE SUBJECT TO ARREST FOR A PUNISHABLE FEDERAL OFFENSE AND WILL PROMPTLY AND PERMANENTLY BE REMOVED FROM THE JOB.
- CONTRACTOR ACCESS GATES SHALL BE MANNED BY A CONTRACTOR SUPPLIED GATE GUARD OR REMAIN LOCKED AT ALL TIMES. APPROVED GATE GUARD SHALL CONTROL ACCESS TO ALLOW ONLY AUTHORIZED CONSTRUCTION TRAFFIC TO ENTER THE SITE.
- CONTRACTOR SHALL PROVIDE TRAINED FLAGMEN TO COORDINATE AND CONTROL CONSTRUCTION TRAFFIC WHEN OPERATING ACROSS ANY ACTIVE TAXIWAY OR RUNWAY. FLAGMEN SHALL ALSO BE PROVIDED FOR CONTROLLING EQUIPMENT ENTERING AND LEAVING THE PROJECT AREA.
- CONTRACTOR SHALL CONTROL ALL CONSTRUCTION TRAFFIC ENTERING THE SECURED AREA OF THE AIRPORT TO PREVENT CONFLICTS WITH AIRCRAFT OPERATIONS. NO PRIVATE VEHICLES WILL BE ALLOWED ON THE AIRPORT, EXCEPT IN STAGING AREA.
- SPECIAL ACCESS REQUIREMENTS AND OPERATING LIMITATIONS ARE REQUIRED INSIDE THE SECURITY FENCE. THE CONTRACTOR SHALL DELINEATE WORK LIMITS WITHIN THESE AREAS USING SILT FENCE, CONFINEMENT MEN, EQUIPMENT AND MATERIALS OUTSIDE OF THE TAXIWAY OBJECT FREE AREA (TOFA) WHEN TAXIWAY IS ACTIVE.
- CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY LIGHTED BARRICADES EVERY 50 FEET BOTH SIDE OF HARD ROAD TO CLEARLY MARK THE DESIGNATED ACCESS ROUTES TO AFFECTED AREAS OF AIRPORT PROPERTY. CONTRACTOR SHALL CONTROL ACCESS TO THE WORKING AREA BY CONSTRUCTION VEHICLES AS DELINEATED ON THIS PLAN.

- THE CONTRACTOR SHALL HAVE ACCESS TO THE SECURED AREA OF THE AIRPORT ONLY AT THE LOCATION DESIGNATED ON THE PLANS OR APPROVED BY THE OWNER. ALL OTHER ACCESS SHALL BE BY SPECIAL REQUEST AND SUBJECT TO APPROVAL BY THE OWNER. THE CONTRACTOR SHALL PROVIDE FLAGMEN TO COORDINATE AND CONTROL CONSTRUCTION TRAFFIC WHEN OPERATING ACROSS ANY ACTIVE TAXIWAY OR APRON.
- THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN FLASHING LIGHTS AND BARRICADES ALONG TAXIWAY EDGES WHEREVER OPEN EXCAVATIONS OR IRREGULAR GRADES ARE LEFT WITHIN THE SAFETY AREA OF AN ACTIVE TAXIWAY OR WHERE TEMPORARY PAVEMENT CLOSURES OR AIRCRAFT LIMITATIONS ARE REQUIRED. BARRICADES SHALL BE SPACED NO MORE THAN 12 FEET ON CENTER OR AS NOTED ALONG THE AFFECTED PAVEMENT EDGE OR ACROSS THE PAVEMENT OF A CLOSED TAXIWAY. THE CONTRACTOR SHALL DAILY MAINTAIN THE LIGHTS AND BARRICADES IN AN OPERABLE CONDITION FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL FURNISH THE OWNER A CONTACT NUMBER FOR 24-HOUR MAINTENANCE OF LIGHTS AND BARRICADES.
- THE CONTRACTOR SHALL PERFORM CONSTRUCTION OPERATIONS AS NECESSARY TO PREVENT ATTRACTION OF BIRDS CAUSED BY PONDED WATER AND GRASS SEED.
- REFER TO THE GENERAL NOTES FOR REQUIREMENTS PERTAINING TO STORAGE OF CONSTRUCTION EQUIPMENT AND MATERIALS WHEN NOT IN USE.
- THE CONTRACTOR SHALL COMPLY WITH ALL SECURITY REQUIREMENTS SPECIFIED HEREIN OR MANDATED BY FAA OR TSA. THE CONTRACTOR SHALL DESIGNATE IN WRITING TO THE OWNER THE NAME OF ITS "CONTRACTOR SECURITY OFFICER". THE CONTRACTOR SECURITY OFFICER SHALL REPRESENT THE CONTRACTOR ON THE SECURITY REQUIREMENTS OF THE CONTRACT.

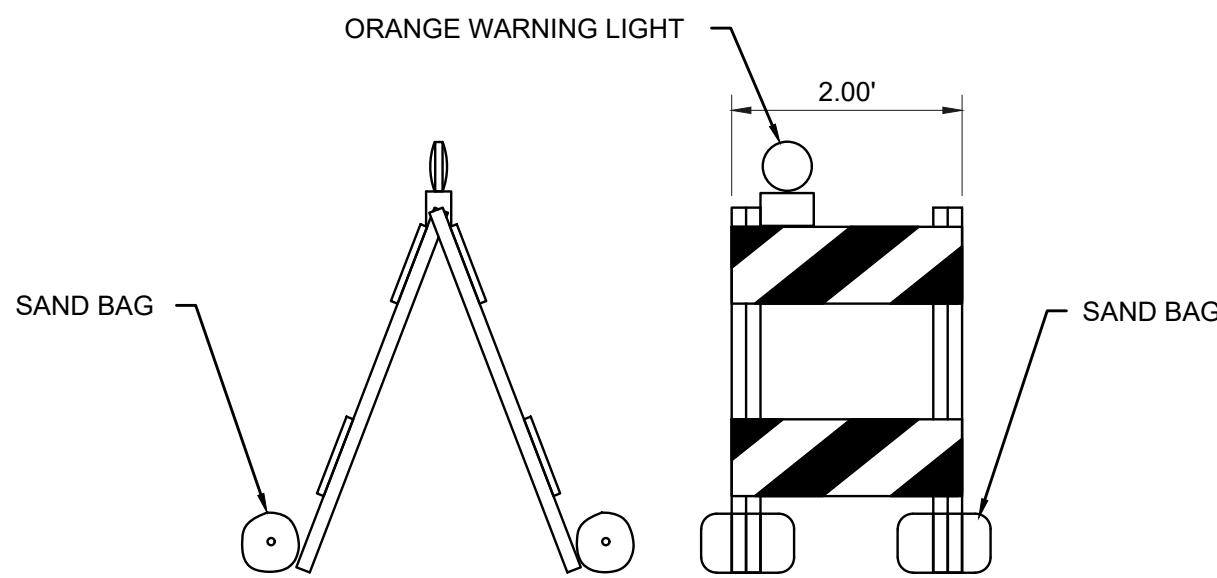
- THE CONTRACTOR'S SECURITY OFFICER SHALL BE RESPONSIBLE FOR BRIEFING ALL CONTRACTOR PERSONNEL ON THESE REQUIREMENTS. CONTRACTOR EMPLOYEES WHO REQUIRE ACCESS TO THE SECURE AREA OF THE AIRPORT SHALL ATTEND THE OWNER'S SECURITY TRAINING SESSION AND SHALL BE BRIEFED ON THESE REQUIREMENTS PRIOR TO WORKING IN THE CONSTRUCTION AREAS.
- ALL CONTRACTOR PERSONNEL WHO REQUIRE ACCESS TO THE SECURE AREA OF THE AIRPORT SHALL HAVE OWNER ISSUED IDENTIFICATION BADGES DISPLAYED AT ALL TIMES WHEN WORKING INSIDE THE AIRCRAFT OPERATIONS AREA. THE AIRPORT ID PROGRAM IS UNDER CONSTANT REVIEW BY THE FAA AND THE AUTHORITY AND ALL CONTEMPORARY REQUIREMENTS WILL GOVERN. THE CONTRACTOR SHALL ASSIGN THE CONTRACTOR SECURITY OFFICER DESCRIBED ABOVE AS THE SINGLE POINT CONTACT FOR ALL IDENTIFICATION BADGING REQUIREMENTS.
- THE CONTRACTOR SHALL ACQUAINT ITS SUPERVISORS AND EMPLOYEES WITH THE AIRPORT ACTIVITIES AND OPERATIONS THAT ARE INHERENT AT THIS AIRPORT AND SHALL CONDUCT ITS CONSTRUCTION ACTIVITIES TO CONFORM TO ALL ROUTINE AND EMERGENCY AIR TRAFFIC REQUIREMENTS AND TO THE GUIDELINES ON SAFETY.
- SEE PHASING PLANS SHEETS FOR BARRICADE LOCATIONS.



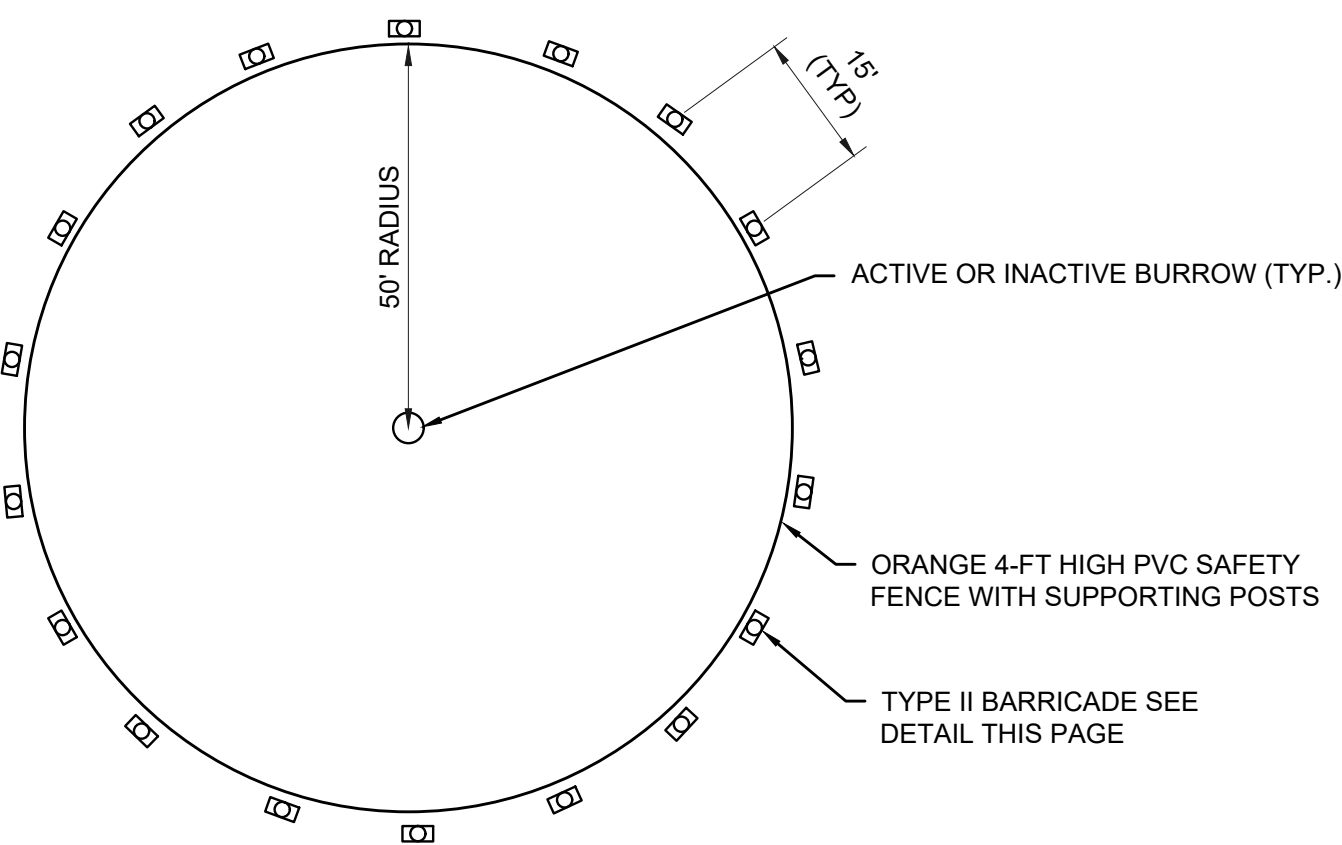
LOW LEVEL AIRFIELD BARRICADE DETAIL
N.T.S.

NOTES:

- BARRICADES SHALL BE PLACED AS SHOWN IN THE PHASING PLAN SHEETS TO DELINEATE THE CONTRACTOR'S WORK AREAS.
- BARRICADE SECTIONS SHALL BE WHITE OR ORANGE. ALL INCIDENTAL CONNECTORS, SPACERS, SPLICE PLATES, ETC., SHALL BE PAINTED WHITE.
- ALL BARRICADES SHALL BE CHECKED VISUALLY FOR SIGNS OF WEAR AND TEAR ON A WEEKLY BASIS AND SHALL BE REPAINTED WHEN DEEMED APPROPRIATE BY THE ENGINEER. THE CONDITIONS OF LIGHTING UNITS SHALL BE CHECKED DAILY. ALL LIGHT FIXTURES SHALL BE VERIFIED OPERATING BY THE CONTRACTOR ON A DAILY BASIS BEFORE THE CONTRACTOR CEASES OPERATION FOR THE DAY. THE AREAS AROUND ALL BARRICADES SHALL BE CLEANED AS DIRECTED IN THE GENERAL NOTES AND THE SAFETY NOTES.
- BARRICADES ALONG ACTIVE APRON OR TAXIWAY PAVEMENT SHALL BE PLACED APPROXIMATELY 10 FEET FROM THE EDGE OF THE FULL STRENGTH PAVEMENT. BARRICADES SHALL BE PLACED END TO END.
- ALTERNATE FORMS OF BARRICADES MAY BE PROPOSED BY THE CONTRACTOR WHICH MEET THESE FUNCTIONAL REQUIREMENTS. APPROVALS OF ANY SUCH SUBSTITUTION (IF GRANTED) SHALL BE BY THE OWNER AT NO ADDITIONAL COST TO THE OWNER.
- THE FINAL LOCATION FOR THE BARRICADES SHALL BE ESTABLISHED IN THE FIELD WITH CONCURRENCE FROM THE OWNER.
- THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, RELOCATE AND REMOVE ALL BARRICADES. ALL WORK SHALL BE INCIDENTAL TO MAINTENANCE OF TRAFFIC IN THE A.O.A.
- THE CONTRACTOR SHALL DAILY MAINTAIN THE LIGHTS AND THE BARRICADES IN OPERABLE CONDITION. THE CONTRACTOR SHALL HAVE REPLACEMENT LIGHTS AND BATTERIES ON SITE AND SHALL REPLACE LIGHTS AND/OR BATTERIES WITHIN ONE HOUR OF NOTIFICATION BY THE ENGINEER OR AIRPORT PERSONNEL. CONTRACTOR SHALL FURNISH THE OWNER WITH THE NAME AND TELEPHONE NUMBER FOR AN ON-CALL REPRESENTATIVE 24 HOURS PER DAY, SEVEN DAYS PER WEEK TO REPLACE BATTERIES AND INOPERATIVE LIGHTS AND MAINTAIN THE BARRICADES.
- FLASHING LIGHTS SHALL BE PLACED AT THE ENDS AND AT CORNERS OF EACH LINE OF BARRICADES, ALL OTHER LIGHTS ON BARRICADES SHALL BE STEADY-BURN.
- COVER AFFECTED T/W EDGE LIGHTS WITH A PVC SLEEVE DURING CONSTRUCTION HOURS AT NIGHT.



TYPE II BARRICADE DETAIL
N.T.S.

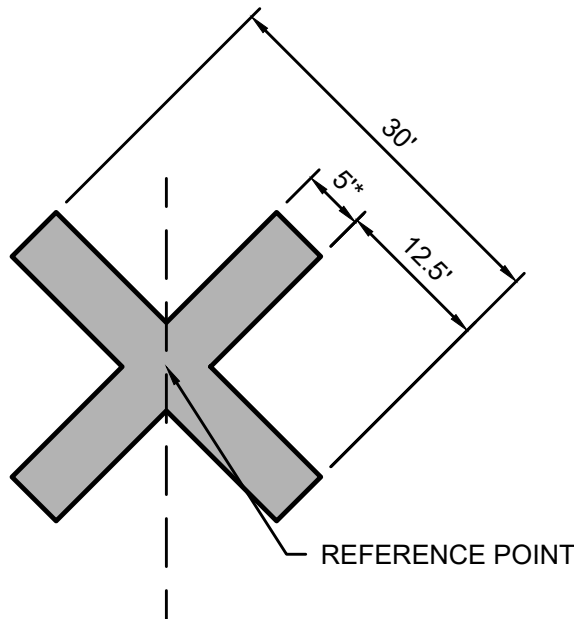


NOTES:

- IF FULL FENCE ENCLOSURE IS NOT USED IT IS PAID AS A FRACTION.
- BARRICADES ARE REQUIRED WHEN BURROWS (ACTIVE) ARE DISCOVERED IN THE AREA WHERE STAGING OR CONSTRUCTION IS BEING PERFORMED. DETAILED INSTALLATION IS AS DIRECTED BY OPS.

BURROW FENCING DETAIL

N.T.S.



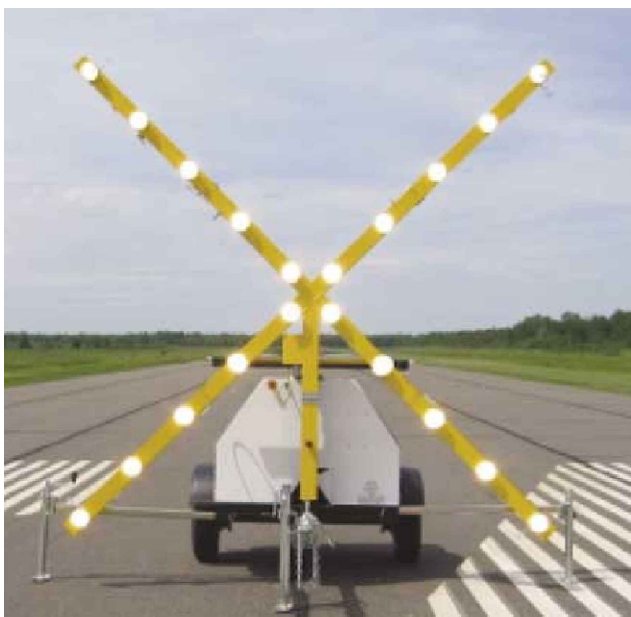
* FOR TEMPORARY X'S THIS DIMENSION MAY BE CHANGED TO 4 FEET.

CLOSED TAXIWAY MARKING NOTES:

- TEMPORARY CLOSED TAXIWAY MARKINGS SHALL BE CONSTRUCTED OF AN EASILY REMOVABLE MATERIAL, SUCH AS PLYWOOD OR FABRIC, AND HELD IN PLACE WITH SAND BAGS PAINTED YELLOW. TEMPORARY CLOSED TAXIWAY MARKING SHALL BE YELLOW IN COLOR.
- THE CONTRACTOR SHALL PLACE TEMPORARY CLOSED TAXIWAY MARKINGS ON THE CENTERLINE OF THE FACILITY TO BE CLOSED AS SHOWN ON PLANS OR AS DIRECTED BY THE AIRPORT ENGINEER.
- NO PAYMENT WILL BE MADE FOR RELOCATIONS OF TEMPORARY CLOSED TAXIWAY MARKINGS.
- PAYMENT FOR ITEM IS INCLUDED IN MOT. NO SEPARATE PAYMENT SHALL BE MADE FOR THIS ITEM.

TEMPORARY TAXIWAY CLOSURE MARKER

N.T.S.



FAA L-893 PORTABLE LIGHTED RUNWAY CLOSURE MARKER
N.T.S.

NOTES:

- MARKERS WILL NOT BE PROVIDED BY THE AIRPORT. CONTRACTOR WILL BE RESPONSIBLE TO PROVIDE THE PORTABLE LIGHTED RUNWAY CLOSURE MARKERS. SEE SPECIFICATION FOR ADDITIONAL INFORMATION ON MOBILIZATION AND MAINTENANCE OF TRAFFIC.

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FORT LAUDERDALE, FLORIDA, 33309
T: 954.535.1876 F: 954.233.4953
CA# 4213

State of Florida
Professional Engineer
License No. 58431

JOSEPH SAWMILLER

DRAWN BY:	DATE:
RD	05/10/18
DESIGNED BY:	SCALE:
PS	N/A
CHECKED BY:	
JS	
FIELD BOOK:	

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

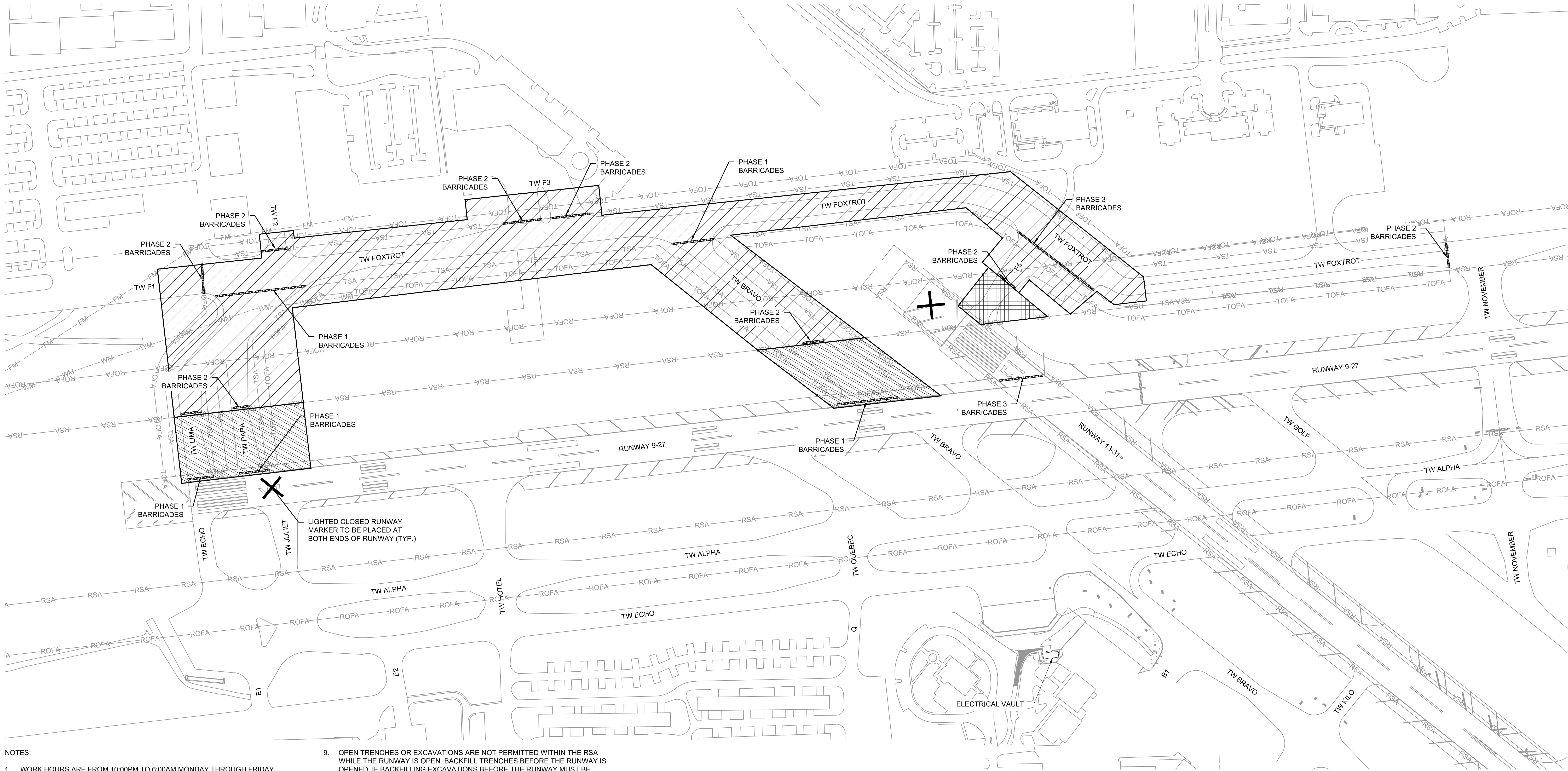
REVISONS		DESCRIPTION	
NO.	DATE	BY	CHK'D

PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
CONSTRUCTION STAGING DETAILS
6000 NW 21st Ave, Fort Lauderdale, FL 33309

SHEET NO.	OF
G003	4
TOTAL:	19
CAD FILE:	12357-MULTI-NOTE
DRAWING FILE NO.	4-140-01

BID SET

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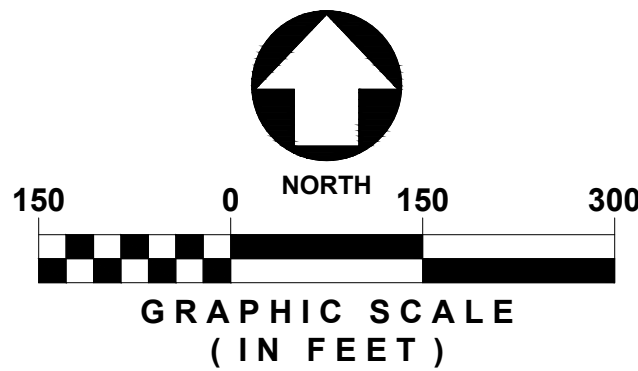
- NOTES:
- WORK HOURS ARE FROM 10:00PM TO 6:00AM MONDAY THROUGH FRIDAY (UNLESS OTHERWISE APPROVED BY THE OWNER).
 - PHASE 1 REQUIRES LIGHTED RUNWAY CLOSURE MARKERS ON RUNWAY 9-27.
 - PHASE 3 REQUIRES LIGHTED RUNWAY CLOSURE MARKERS ON RUNWAY 13-31.
 - HOMERUN WORK (AS SHOWN ON SHEETS E06 AND E11) SHALL BE PERFORMED IN THE FOLLOWING PHASES:
 - ALL WORK WITHIN THE RW 9-27 SAFETY AREA: PHASE 1
 - ALL REMAINING WORK: PHASE 2
 - THIS WORK, INCLUDING ACCESS TO OTHER AREAS OF THE AIRFIELD OUTSIDE OF THE PHASING LIMITS, SHALL BE CLOSELY COORDINATED WITH THE OWNER AND ENGINEER.
 - TAXIWAY LIGHTING CIRCUITS SERVING CLOSED TAXIWAYS ARE TO BE DEACTIVATED. WHEN DEACTIVATION IS NOT POSSIBLE (FOR EXAMPLE OTHER TAXIWAYS ON THE SAME CIRCUIT ARE TO REMAIN OPEN), COVER THE LIGHT FIXTURE IN A WAY AS TO PREVENT LIGHT LEAKAGE.
 - RUNWAY EXIT SIGNS ARE TO BE COVERED FOR CLOSED RUNWAY EXITS. OUTBOUND DESTINATION SIGNS ARE TO BE COVERED FOR CLOSED RUNWAYS. ANY TIME A SIGN DOES NOT SERVE ITS NORMAL FUNCTION OR WOULD PROVIDE CONFLICTING INFORMATION, IT MUST BE COVERED OR REMOVED TO PREVENT MISDIRECTING PILOTS.
 - INFORMATION SIGNS IDENTIFYING A CROSSING TAXIWAY WILL CONTINUE TO PERFORM THEIR NORMAL FUNCTION EVEN IF THE CROSSING TAXIWAY IS CLOSED.
 - NO CONSTRUCTION MAY OCCUR WITHIN THE EXISTING RSA WHILE THE RUNWAY IS OPEN FOR AIRCRAFT OPERATIONS.

- OPEN TRENCHES OR EXCAVATIONS ARE NOT PERMITTED WITHIN THE RSA WHILE THE RUNWAY IS OPEN. BACKFILL TRENCHES BEFORE THE RUNWAY IS OPENED. IF BACKFILLING EXCAVATIONS BEFORE THE RUNWAY MUST BE OPENED IS IMPRACTICABLE, COVER THE EXCAVATIONS USING AN APPROPRIATE METHOD APPROVED BY THE OWNER.
- CONSTRUCTION, INCLUDING EXCAVATIONS, MAY BE PERMITTED IN THE ROFA. HOWEVER, EQUIPMENT MUST BE REMOVED FROM THE ROFA WHEN NOT IN USE, AND MATERIAL SHOULD NOT BE STOCKPILED IN THE ROFA IF NOT NECESSARY. STOCKPILING MATERIAL IN THE OFA REQUIRES SUBMITTAL OF A 7460-1 FORM AND JUSTIFICATION PROVIDED TO THE APPROPRIATE FAA AIRPORTS REGIONAL OR DISTRICT OFFICE FOR APPROVAL.
- OPEN TRENCHES OR EXCAVATIONS ARE NOT PERMITTED WITHIN THE TSA WHILE THE TAXIWAY IS OPEN. TRENCHES SHOULD BE BACKFILLED BEFORE THE TAXIWAY IS OPENED. IF BACKFILLING EXCAVATIONS BEFORE THE TAXIWAY MUST BE OPENED IS IMPRACTICABLE, COVER THE EXCAVATIONS APPROPRIATELY. COVERING FOR OPEN TRENCHES MUST BE DESIGNED TO ALLOW THE SAFE OPERATION OF THE HEAVIEST AIRCRAFT OPERATING ON THE TAXIWAY ACROSS THE TRENCH WITHOUT DAMAGE TO THE AIRCRAFT.

PROJECT SCHEDULE		
DESCRIPTION		DURATION (WORKING DAYS)
MOBILIZATION		45
PHASE 1		5
PHASE 2		20
PHASE 3		3
CLOSEOUT		30
TOTAL:		103

LEGEND:

- PHASE 1 WORK AREA
- PHASE 2 WORK AREA
- PHASE 3 WORK AREA
- LOW-PROFILE LIGHTED BARRICADES. SEE DETAIL ON G003.
- EXST. 42" RAW WATER MAIN
- EXST. 18" SANITARY FORCE MAIN
- RSA RUNWAY SAFETY AREA
- ROFA RUNWAY OBJECT FREE AREA
- TOFA TAXIWAY OBJECT FREE AREA
- TSA TAXIWAY SAFETY AREA
- LIGHTED CLOSED RUNWAY MARKER (PROVIDED BY CONTRACTOR)



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FAA FACILITIES 954-356-7212

KEY MAP

HDR ENGINEERING, INC.

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JOSEPH SAWMILLER

DRAWN BY: DATE: 05/10/18
RD
DESIGNED BY: SCALE: 1" = 150'
PS
CHECKED BY: JS
FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE

100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS		DESCRIPTION	
NO.	DATE	BY	CHK'D

PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
CONSTRUCTION PHASING PLAN
6000 NW 21st Ave, Fort Lauderdale, FL 33309

SHEET NO.	OF
G004	4
TOTAL:	19
CAD FILE:	12357-MULTI-NOTE
DRAWING FILE NO.	4-140-01

GENERAL NOTES

1. THE ELECTRICAL CONTRACTOR SHALL COMPLETE ALL ITEMS ON THE FOLLOWING ELECTRICAL SHEETS:

A. CONTRACTOR SHALL PROVIDE AND INSTALL NEW TAXIWAY EDGE LIGHTING AND SIGNAGE SYSTEMS ALONG TAXIWAY F WITHIN THE PROJECT LIMITS COMPLETE IN PLACE, AS SHOWN ON PLANS.
2. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR TO INSTALL THE ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS. ITEMS NOT SHOWN BUT OBVIOUSLY NECESSARY FOR COMPLETION OF THE WORK SHALL BE INCLUDED.
3. THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, LOCAL CODES, CITY CODES, ALL LATEST FEDERAL AVIATION ADMINISTRATION STANDARDS AND ADVISORIES, AND ALL CITY OF FORT LAUDERDALE FLORIDA BUILDING CODES.
4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS, AND APPROVALS.
5. THE CONTRACTOR SHALL COORDINATE THEIR WORK WITH THE SITE ELECTRICAL ENGINEER, CITY OF FORT LAUDERDALE AND FAA.
6. THE CONTRACTOR SHALL, BEFORE SUBMITTING THEIR BID, VISIT THE SITE OF THE PROJECT AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS. NO ALLOWANCE WILL BE MADE FOR EXISTING CONDITIONS OR FAILURE OF THE CONTRACTOR TO OBSERVE THEM.
7. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE BEFORE BIDDING WITH ALL LOCAL UTILITIES INCLUDING THE POWER, TELEPHONE, FEDERAL AVIATION ADMINISTRATION, FUEL PIPE LINES, WATER AND SEWER MAINS AND TO MEET ALL OF THEIR INSTALLATION REQUIREMENTS. ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO MEET THESE REQUIREMENTS IS TO BE INCLUDED IN THE BID. THE CONTRACTOR SHALL OBTAIN, DELIVER AND INSTALL ALL CONDUITS, PULLBOXES AND EQUIPMENT REQUIRED BY THE UTILITIES TO THEIR SPECIFICATIONS.
8. FXE REPRESENTATIVES ARE AS FOLLOWS:

CITY OF FORT LAUDERDALE AIRPORT – NICK SLAGLE – 954–828–4963

CITY OF FORT LAUDERDALE PROJECT MANAGER – FERNANDO BLANCO – 954–828–6536

FAA REPRESENTATIVE – KHALID NOEL – 954–359–5687

AIRPORT ELECTRICAL MAINTENANCE – FRANK CHESSEY – 954–828–7491
9. GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH SPEC SECTION L–108. THE COUNTEROISE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS. THE EARTH SHALL BE DRY FOR 48 HOURS PRIOR TO TESTING. ADDITIONAL GROUNDING TO MEET THIS REQUIREMENT SHALL BE INSTALLED AT NO EXTRA COST, GROUNDING AND BONDING SHALL NOT BE PAINTED.
10. AN EQUIPMENT GROUND WIRE SIZED PER NEC SHALL BE PULLED IN ALL AIRFIELD VAULT ELECTRICAL CONDUITS, POWER AND CONTROL, WHETHER OR NOT INDICATED ON DRAWINGS.
11. ALL EQUIPMENT SHALL BE NEW AND UNUSED, U.L. LISTED AND FAA APPROVED.
12. SHOP DRAWINGS SHALL BE SUBMITTED FOR THE FOLLOWING EQUIPMENT: LIGHTING ASSEMBLIES, BASE CANS, SPLICE KITS, CONDUITS, CABLES, TRANSFORMERS, GROUNDING AND OTHERS AS REQUESTED.
13. THE CONTRACTOR IS RESPONSIBLE TO TEST ALL SYSTEMS AND REPAIR OR REPLACE ALL DEFECTIVE WORK TO THE SATISFACTION OF THE ENGINEER AND CITY OF FORT LAUDERDALE.
14. ALL EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE OF ENTIRE PROJECT.
15. COORDINATE ALL ELECTRICAL EQUIPMENT, LOCATIONS, AND POWER REQUIREMENTS AND VERIFY ALL OBSTRUCTIONS WITH ALL SUBCONTRACTORS AND EQUIPMENT SUPPLIERS PRIOR TO ANY INSTALLATION.
16. THE DRAWINGS ARE NOT INTENDED TO SHOW THE EXACT LOCATION OF CONDUIT RUNS. THESE ARE TO BE COORDINATED WITH OTHER TRADES SO THAT CONFLICTS ARE AVOIDED PRIOR TO INSTALLATIONS.
17. AIRFIELD CONDUCTORS SHALL BE FAA APPROVED 5KV L–824 CABLE. GROUND CONDUCTORS SHALL BE 600V, XHHW. COUNTERPOISE SHALL BE BARE SOLID COPPER UNLESS OTHERWISE INDICATED.
18. SCHEDULE 40 PVC SHALL BE USED UNDERGROUND. ALL ABOVE GROUND CONDUITS SHALL BE RIGID GALVANIZED STEEL. MINIMUM CONDUIT SIZE SHALL BE 3/4”.
19. FLEXIBLE CONDUITS SHALL BE USED TO TERMINATE ALL MOTORS AND OTHER VIBRATING EQUIPMENT AND SHALL BE BETWEEN 18” AND 3’ IN LENGTH.
20. TYPEWRITTEN PANEL SCHEDULES SHALL BE INSTALLED IN EACH PANELBOARD AND TERMINAL BLOCK SCHEDULES IN EACH CONTROL CABINET.
21. ALL REFERENCES TO A MANUFACTURER ARE GIVEN ON AN “FAA APPROVED EQUAL” BASIS.
22. ALL SPARE CONDUITS SHALL HAVE PULL STRINGS AND BE CAPPED WITH A PVC CAP.
23. ALL CIRCUITS SHALL BE IDENTIFIED IN PULL BOXES, LIGHTING FIXTURES, MANHOLES, BASE CANS, DUCT BANKS, AND PANELBOARDS. IDENTIFICATIONS SHALL MATCH PANEL SCHEDULE.
24. EXPOSED RUNS OF CONDUITS SHALL BE INSTALLED WITH RUNS PARALLEL OR PERPENDICULAR TO WALL, STRUCTURAL MEMBERS OR INTERSECTIONS OF VERTICAL PLANES AND CEILINGS, WITH RIGHT ANGLE TURNS CONSISTING OF SYMMETRICAL BENDS OR PULL BOXES AS INDICATED ON THE DRAWINGS. BENDS AND OFFSETS SHALL BE AVOIDED WHERE POSSIBLE.
25. ALL CONDUITS PENETRATING RATED FIRE WALLS OR RATED FIRE FLOORS SHALL BE U.L. APPROVED DEVICES TO MAINTAIN THE FIRE RATING OF THE FLOOR OR WALL PENETRATED.
26. BALANCE ALL LOADS AT END OF PROJECT WITH ALL LIGHTS ON.

GENERAL INSTALLATION NOTES:

1. INFORMATION PROVIDED ON THE DRAWINGS FOR EXISTING UTILITIES, CABLES, DUCTS, MANHOLES, FIXTURES, ETC. ARE APPROXIMATE AND ARE NOT INTENDED TO PROVIDE EXACT LOCATIONS, TYPE OF COMPONENT OR MANNER OF CONSTRUCTION AND SHOULD NOT BE SCALED FROM DRAWINGS. THE LOCATION OF MANHOLES, PULL BOXES, JUNCTION BOXES, ETC. ALONG WITH THE ROUTE(S) (AND IDENTIFICATION) FOR CIRCUITS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. IT IS THE CONTRACTOR’S RESPONSIBILITY TO VERIFY AND SATISFY HIMSELF/HERSELF AS TO THE LOCATION OF ALL UNDERGROUND FACILITIES WITHIN THE AREA OF CONSTRUCTION. THE CONTRACTOR SHALL REQUEST TO THE CONSTRUCTION MANAGER IN WRITING FOR ALL RECORD DRAWINGS OF THE AREA IN CONSTRUCTION. THE CONTRACTOR SHALL REVIEW ALL RECORD DRAWINGS AND BECOME FAMILIAR WITH EXISTING CONDITIONS PRIOR TO ANY CONSTRUCTION. ALL EXISTING UTILITIES, CABLES, EQUIPMENT, DEVICES DAMAGED IN THE COURSE OF THIS CONTRACT SHALL BE IMMEDIATELY REPAIRED AT THE EXPENSE OF THE CONTRACTOR TO THE SATISFACTION OF THE OWNER. WHERE ANY ITEM IS FOUND TO BE LOCATED DIFFERENTLY THAN IS SHOWN ON THE DRAWINGS, THE ACTUAL LOCATION SHALL BE IMMEDIATELY MEASURED AND RECORDED ON THE RECORD DRAWING.
2. VARIOUS DIRECT BURIED FAA CABLES PASS THROUGH THE WORK AREA. THESE CABLES SERVE FAA FACILITIES (NAVAIDS) WHICH ARE CRITICAL FOR SAFE AIRPORT OPERATION. IT IS OF THE UTMOST IMPORTANCE THAT DAMAGE TO THESE CABLES BE PREVENTED. CABLE LOCATIONS SHOWN ON THE DRAWINGS ARE BASED ON THE BEST INFORMATION AVAILABLE, BUT ARE NOT INTENDED TO BE PRECISE. THE CONTRACTOR IS SPECIFICALLY WARNED AGAINST SCALING FAA CABLE LOCATIONS FROM THE APPROXIMATE DATA SHOWN ON DRAWINGS. THE CONTRACTOR SHALL KEEP THE CONSTRUCTION MANAGER INFORMED OF HIS EXCAVATION SCHEDULE AND OPERATIONS AT LEAST FIVE WORKING DAYS IN ADVANCE. THE CONTRACTOR SHALL NOTIFY THE FAA AND OTHER UTILITY COMPANIES AND REQUEST THAT THE CABLES AND UTILITIES BE STAKED IN THE FIELD. EVEN AFTER THE CABLES AND UTILITIES ARE STAKED, THE CONTRACTOR SHALL USE ELECTRONIC DETECTION DEVICES AND CAREFUL HAND EXCAVATION TO LOCATE CABLES AND UTILITIES. AFTER CABLES AND UTILITIES ARE LOCATED, CONTRACTOR SHALL SPECIFY EXACT LOCATIONS (STATIONING, OFFSET, ELEVATION, AND TYPE OF CABLE AND UTILITIES) AND SHALL BE ACCURATELY MEASURED AND RECORDED ON THE RECORD DRAWING. COPIES OF THIS MEASUREMENT AND RECORDING OF THE DATA SHALL BE CONSIDERED AN IMPORTANT PART OF THE CONTRACT REQUIREMENTS. WHEN ENCASED EXISTING FAA CABLES IN DUCT OR OTHERWISE EXCAVATING IN THEIR VICINITY, CONTRACTOR SHALL USE EXTREME CAUTION TO AVOID DAMAGING CABLES AND UTILITIES. ANY DAMAGE, EVEN IF APPEARING TO BE SUPERFICIAL, SHALL BE IMMEDIATELY REPORTED TO THE CONSTRUCTION MANAGER.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING UTILITY COMPANIES AND FAA TO IDENTIFY AND LOCATE ANY UNDERGROUND UTILITIES AND/OR CABLE WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL ASSIST UTILITY COMPANIES IN EFFORTS TO FIELD VERIFY UNDERGROUND UTILITIES. THE CONTRACTOR SHALL REVIEW ALL AIRFIELD UTILITIES WITH AIRFIELD MAINTENANCE BEFORE BEGINNING WORK.
4. TEMPORARY WIRING SHALL BE REQUIRED TO MAINTAIN THE TAXIWAY EDGE LIGHTING SYSTEM AND RUNWAY EDGE LIGHT SYSTEMS INCLUDING LIGHTED SIGNS AND HOLD BARS. EDGE LIGHTING, SIGNS AND HOLD BARS TEMPORARY TAKEN OUT OF SERVICE SHALL BE RETURNED TO OPERATING CONDITION AT THE END OF EACH WORK PERIOD. CONTRACTOR SHALL PROVIDE TEMPORARY CABLES DURING CONSTRUCTION FOR TEMPORARY LIGHTS. TAXIWAY/RUNWAY EDGE LIGHTS SHALL REMAIN IN OPERATING CONDITION FOR ALL TAXIWAYS WHICH ARE OR COULD BE OPENED TO TRAFFIC AT THE END OF THE WORK PERIOD. OTHER LIGHTING SYSTEMS WITHIN THE WORK AREA, WHICH WILL BE TAKEN OUT OF SERVICE WHEN REQUIRED BY CONSTRUCTION SHALL BE RESTORED AT THE EARLIEST POSSIBLE DATE. IT IS NOT PERMISSIBLE TO ALLOW PORTIONS OF EXISTING SYSTEMS EXTENDING BEYOND THE WORK AREA TO BE AFFECTED. TEMPORARY WIRING SHALL BE PROVIDED TO MAINTAIN CONTINUITY OF TAXIWAY EDGE LIGHTS AND RUNWAY EDGE LIGHTS, ETC. EXTENDING BEYOND THE WORK AREA.
5. TEMPORARY CABLE SHALL BE INSTALLED IN CONDUIT AND ANCHORED AT FREQUENT INTERVALS TO PREVENT MOVING. IF TEMPORARY CABLES MUST BE INSTALLED IN AREAS SUBJECT TO VEHICULAR TRAFFIC, CABLES SHALL BE INSTALLED IN RIGID GALVANIZED STEEL CONDUIT ANCHORED AT FREQUENT INTERVALS TO PREVENT MOVING. ALL TEMPORARY CABLES SHALL BE CLEARLY LABELED AND MARKED SO AS TO BE VISIBLE FROM A DISTANCE. SOME JUMPERS MAY BE OF SIGNIFICANT LENGTH, SEE PHASING DRAWINGS FOR ADDITIONAL INFORMATION.
6. PRIOR TO WORKING ON ANY CIRCUIT, THE CONTRACTOR SHALL PROVIDE TO THE ELECTRICAL MAINTENANCE DEPARTMENT A WRITTEN LOCKOUT PROCEDURE FOR APPROVAL. THE ELECTRICAL MAINTENANCE DEPARTMENT SHALL REVIEW AND STATE FINAL LOCKOUT RULES. CONTRACTOR SHALL NOT RELY UPON DEACTIVATION OF THE CIRCUITS BY THE TOWER OR BY OTHERS. CONTRACTOR SHALL NOTIFY ELECTRICAL MAINTENANCE 48 HOURS PRIOR TO LOCKOUT/TAGOUT.
7. THERE SHALL BE NO SPLICES OF CONDUCTORS BETWEEN LIGHTS OR IN CONDUITS OR DUCTS. SPLICES SHALL BE PERMITTED IN MANHOLES, JUNCTION BOXES, LIGHT BASES, AND OTHER APPROVED LOCATIONS USING L–823 CONNECTORS.
8. CONTRACTOR SHALL IDENTIFY ALL CABLES IN AFFECTED MANHOLES AND BASE CANS. CONTRACTOR SHALL USE A MINIMUM OF OF 1–STAINLESS STEEL TAG PER CABLE AND 1–TAG ON EACH SIDE OF A L–823 CONNECTOR.
9. WHEN CONTRACTOR IS WORKING WITH EXISTING CONDUITS, HE/SHE SHALL REMOVE ALL ABANDONED CABLES WITHIN PROJECT LIMITS AND IDENTIFY ALL ACTIVE CIRCUITS ON RECORD DRAWINGS.

10. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING ALL CABLE ROUTING AND CIRCUIT DESIGNATIONS ON THE RECORD DRAWINGS.
11. CONTRACTOR SHALL PROVIDE AND INSTALL CONCRETE DUCT/CABLE MARKERS AS PER FAA SPECIFICATIONS. CONTRACTOR SHALL MARK THE LOCATION OF ALL NEW DUCT BANKS WITH CONCRETE DUCT MARKERS IN UNPAVED AREAS SPACED NOT MORE THAN 200’ APART AND WITH PAINTED MARKINGS AT THE EDGE OF PAVED AREAS.
12. CONTRACTOR SHALL PROVIDE ALL CONNECTOR KITS, TESTING, HEAT SHRINK KITS, STAINLESS TAGS, AND ALL INCIDENTALS THAT WILL ALLOW FOR QUALITY ASSURANCE OF SUCCESSFULLY DISCONNECTING AND RECONNECTING CIRCUITS.
13. ALL IDENTIFICATION OF CONTROL PANEL INSTALLATIONS, CONSTANT CURRENT REGULATORS, BREAKER LABELS, ETC. SHALL BE PERFORMED BY THE CONTRACTOR. THE CONTRACTOR SHALL RECORD ALL CALLOUT CHANGES ON THE “RECORD” DRAWINGS FOR THIS PROJECT.
14. NAMEPLATES SHALL BE PROVIDED FOR ALL ELECTRICAL EQUIPMENT TO IDENTIFY FUNCTION, CIRCUIT, VOLTAGE, AND PHASE. WHERE EQUIPMENT CONTAINS FUSES, INCLUDE THE FUSE RATINGS.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL CABLES AND UTILITIES, THEIR DEPTHS, ETC. INCLUDING THE USE OF SOFT DIG OR OTHER MEANS AVAILABLE TO ACCURATELY LOCATE ALL CABLES AND UTILITIES AND TO SURVEY AND STAKE THOSE CABLES AND UTILITIES ON RECORD DRAWINGS PRIOR TO CONSTRUCTION.
16. ALL EXISTING CONDUCTORS SHALL BE TESTED FOR INSULATION RESISTANCE PRIOR TO WORKING ON CIRCUIT, USING A 1000V MEGOHMMETER AND SHALL BE RETURNED TO SERVICE WITH MATCHING OR BETTER INSULATION RESISTANCE READINGS. ALL PROPOSED CONDUCTORS SHALL BE TESTED FOR INSULATION RESISTANCE PRIOR TO CONNECTING TO EXISTING CIRCUIT, USING A 1000V MEGOHMMETER. CIRCUITS OR NEW PORTIONS OF CIRCUITS SHALL BE AS COMPLETE AS POSSIBLE FOR TESTING. ALL TESTING SHALL BE WITNESSED BY THE CONSTRUCTION MANAGER AND REPORT TURNED OVER TO OWNER.
17. CONNECTION OF CONDUCTORS MUST BE MADE BY USING CRIMP CONNECTORS AND CRIMPING TOOL APPROVED BY THE CONNECTOR/LUG MANUFACTURER. THE TOOL MUST PRODUCE A COMPLETE CRIMP BEFORE IT CAN BE REMOVED. THE CRIMPING TOOL USED MUST BE LISTED BY THE L–823 KIT MANUFACTURER. MAKE THE NUMBER AND TYPE OF CRIMPS PER KIT MANUFACTURER’S INSTRUCTIONS. ELECTRICIANS THAT WILL BE MAKING CONNECTOR KIT TERMINATIONS SHALL BE TRAINED AND CERTIFIED BY THE CONNECTOR KIT MANUFACTURER.
18. THE OWNER SHALL HAVE THE RIGHT TO SALVAGE MATERIALS THAT ARE TO BE REMOVED IN THE DEMOLITION PLANS. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER PRIOR TO DEMOLITION AND DELIVER SALVAGE MATERIAL TO THE AIRPORT ELECTRICAL MAINTENANCE.
19. ALL BOLTS FOR LIGHT FIXTURES, SIGNS, JUNCTION CANS SHALL BE CARBON STEEL COATED COLORED ORANGE AND INSTALLED PER FAA ENGINEERING BRIEF 83 AND MANUFACTURER’S RECOMMENDATIONS.
20. CONTRACTOR SHALL DRILL AND TAP OUT ANY DAMAGED BOLTS AND PROVIDE AND INSTALL MISSING BOLTS IN EXISTING LIGHT FIXTURES, SIGN PADS, JUNCTION CAN PLAZAS THAT THE CONTRACTOR IS UTILIZING TO INSTALL NEW CABLE. COST SHALL BE INCIDENTAL TO THE LINE ITEMS FOR INSTALLATION/INTERCEPTION.
21. CONTRACTOR TO USE LOCTITE LB803 MARINE GRADE NEVER SEIZE OR APPROVED EQUAL ON COUPLINGS AND ANY APPLICATION WHERE NEVER SEIZE IS REQUIRED.

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State of Florida
Professional Engineer
License No. 73735


Amy L.
Champagne-Baker

DRAWN BY: DEU	DATE: 05–10–18	DESIGNED BY: SCALE: NONE	CHECKED BY: JWK	FIELD BOOK:

CITY OF FORT LAUDERDALE

PUBLIC WORKS DEPARTMENT

ENGINEERING & ARCHITECTURE



100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS		DESCRIPTION	
NO.	DATE	BY	CHK'D

PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
ELECTRICAL GENERAL NOTES
6000 NW 21st Ave, Fort Lauderdale, FL 33309

SHEET NO.	OF
E01	15
TOTAL:	19
CAD FILE:	12357–E01–NOTE
DRAWING FILE NO.	4–140–01

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CA# 4213

BID SET

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ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	NEW L-861TL, LED, MITL, ELEVATED T/W EDGE LIGHT MOUNTED ON A EXISTING BASE CAN WITH PROPERLY SIZED L-830 TRANSFORMER AND L-823 CONNECTORS.
	NEW DIRECT BURIED SCHEDULE 40 PVC CONDUIT INSTALLED IN EARTH, COUNTERPOISE SHALL BE INSTALLED ABOVE CONDUIT PER DETAIL. SEE PLANS FOR AMOUNT/SIZE AND LOCATION OF CONDUITS.
	NEW HDPE DIRECTIONAL BORE CONDUIT INSTALLED A MINIMUM OF 48” UNDER EXISTING PAVEMENT SEE SITE PLAN FOR LOCATION AND NUMBER OF CONDUITS.
	NEW 3/4” X 20’ MIN. GROUND ROD, EXOTHERMICALLY WELDED AND CONNECTED TO COUNTERPOISE SYSTEM AT A MAX OF 500’ SPACING
	2-X - 2 INDICATES NUMBER OF CONDUCTORS, X INDICATES CIRCUIT ID 1C - 1 INDICATES NUMBER OF #6 SOLID COUNTERPOISE 1W2” - 1 INDICATES NUMBER OF CONDUITS, 2 INDICATES CONDUIT SIZE # = QUANTITY OF CONDUITS
	2-X - 2 INDICATES NUMBER OF CONDUCTORS, X INDICATES CIRCUIT ID 1W2” - 1 INDICATES NUMBER OF EXISTING CONDUITS, 2 INDICATES EXISTING CONDUIT SIZE
	2-X - 2 INDICATES NUMBER OF EXISTING CONDUCTORS, X INDICATES CIRCUIT ID 1W2” - 1 INDICATES NUMBER OF EXISTING CONDUITS, 2 INDICATES EXISTING CONDUIT SIZE
	NEW SIZE 1 L-858(L), LED LIGHTED GUIDANCE SIGN ON NEW SIGN PAD. SEE SIGN SCHEDULE FOR ADDITIONAL INFORMATION # = INDICATES SIGN NUMBER
	NEW SIZE 1 L-858(L), LED LIGHTED GUIDANCE SIGN ON EXISTING SIGN PAD. SEE SIGN SCHEDULE FOR ADDITIONAL INFORMATION # = INDICATES SIGN NUMBER
	NEW L-867 16” DIA X 24” DEEP BOTTOMLESS 2 CAN JUNCTION CAN PLAZA INSTALLED IN EARTH.
	NEW L-867 16” DIA X 24” DEEP BOTTOMLESS 4 CAN JUNCTION CAN PLAZA INSTALLED IN EARTH.
	EXISTING TAXIWAY EDGE CAN WITH NEW L-867B COVER.
	DEMOLISH OR MODIFY ITEM, SEE NOTES FOR INFORMATION
	SEE DEMOLITION AND INSTALLATION NOTES # = INDICATES THE NOTE NUMBER Yx = INDICATES THE QUANTITY OF NOTES PER LOCATION
	EXISTING ELEVATED TAXIWAY EDGE LIGHT
	EXISTING RUNWAY EDGE LIGHT
	EXISTING AIRFIELD GUIDANCE SIGN # = SIGN NUMBER
	EXISTING JUNCTION CAN
	EXISTING PULLBOX
	EXISTING FPL TRANSFORMER
	EXISTING FPL SPLICE BOX
	EXISTING L-867 JUNCTION CAN PLAZA.
	EXISTING CONDUIT SYSTEM
	EXISTING AIRFIELD LIGHTING DUCTBANK
	EXISTING FAA CABLE/CONDUIT
	EXISTING FPL CABLE/CONDUIT
	EXISTING COMMUNICATIONS CONDUIT/DUCTBANK

DEMOLITION NOTES

- 1
- CONTRACTOR SHALL REMOVE THE EXISTING TAXIWAY LIGHT, DISCONNECT THE EXISTING CIRCUITS AND REMOVE CONDUCTORS BACK TO THE LAST UNAFFECTED LOCATION. CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING CONDUCTORS, TRANSFORMERS, AND FIXTURE. EXISTING BASE CAN TO REMAIN. CONTRACTOR TO PROVIDE TEMPORARY COVERS AS NEEDED. PROVIDE, MAINTAIN AND INSTALL TEMPORARY CONDUITS AND CONDUCTOR SYSTEMS TO MAINTAIN CIRCUITS BEYOND WORK AREA IN OPERATIONAL CONDITION AT ALL TIMES DURING CONSTRUCTION. THE LINE ITEM COST SHALL INCLUDE DEWATERING EXISTING CONDUITS, DUCTBANKS, BASE CANS AND MANHOLES.
- 2
- CONTRACTOR SHALL DISCONNECT THE EXISTING CIRCUIT CONDUCTORS AND REMOVE BACK TO THE LAST UNAFFECTED PULLBOX/JUNCTION CANS AND REMOVE EXISTING PULLBOX, COMPLETE. BACKFILL AND RESTORE SOD ACCORDINGLY. PROVIDE, MAINTAIN AND INSTALL TEMPORARY CONDUITS AND CONDUCTOR SYSTEMS TO MAINTAIN CIRCUITS BEYOND WORK AREA IN OPERATIONAL CONDITION AT ALL TIMES DURING CONSTRUCTION. THE LINE ITEM COST SHALL INCLUDE DEWATERING EXISTING CONDUITS, DUCTBANKS, BASE CANS AND MANHOLES.
- 3
- CONTRACTOR SHALL DISCONNECT THE EXISTING AIRFIELD GUIDANCE SIGN FROM THE LIGHTING CIRCUIT, AND PULL BACK THE EXISTING CONDUCTORS TO THE EXISTING LIGHT FIXTURE/JUNCTION CAN/MANHOLE AND RECONNECT THE EXISTING EDGE LIGHT CONDUCTORS AS NECESSARY. REMOVE AND DISPOSE OF THE EXISTING TRANSFORMER AND CABLES. PROVIDE, MAINTAIN AND INSTALL TEMPORARY CONDUITS AND CONDUCTOR SYSTEMS TO MAINTAIN CIRCUITS BEYOND WORK AREA IN OPERATIONAL CONDITION AT ALL TIMES DURING CONSTRUCTION. COORDINATE WITH PHASING PLANS FOR SEQUENCING OF WORK. THE LINE ITEM COST SHALL INCLUDE DEWATERING EXISTING CONDUITS, DUCTBANKS, BASE CANS AND MANHOLES.
- 4
- CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING TAXIWAY FW HOME RUN CONDUCTORS. CONTRACTOR SHALL DEWATERING EXISTING CONDUITS, DUCTBANKS, BASE CANS AND MANHOLES. REMOVAL OF CONDUCTORS SHALL BE INCLUSIVE TO THE COST OF INSTALLATION OF NEW CONDUCTORS.
- 5
- CONTRACTOR SHALL REMOVE THE EXISTING TAXIWAY LIGHT AND DISCONNECT THE EXISTING CIRCUITS. CONTRACTOR TO PROTECT EXISTING CONDUCTORS UP TO THE LAST TO THE LAST UNAFFECTED LOCATION. CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING TRANSFORMERS AND FIXTURE. PROVIDE, MAINTAIN AND INSTALL TEMPORARY CONDUITS AND CONDUCTOR SYSTEMS TO MAINTAIN CIRCUITS BEYOND WORK AREA IN OPERATIONAL CONDITION AT ALL TIMES DURING CONSTRUCTION. THE LINE ITEM COST SHALL INCLUDE DEWATERING EXISTING CONDUITS, DUCTBANKS, BASE CANS AND MANHOLES.
- 6
- CONTRACTOR SHALL DISCONNECT THE EXISTING AIRFIELD GUIDANCE SIGN FROM THE LIGHTING CIRCUIT, AND PULL BACK THE EXISTING CONDUCTORS TO THE EXISTING LIGHT FIXTURE/JUNCTION CAN/MANHOLE AND RECONNECT THE EXISTING EDGE LIGHT CONDUCTORS TO REMOVE THE SIGN FROM THE CIRCUIT. REMOVE AND DISPOSE OF THE EXISTING CONCRETE BASE, TRANSFORMER, CONDUITS AND CABLES AND BACKFILL AND RESTORE SOD ACCORDINGLY. PROVIDE, MAINTAIN AND INSTALL TEMPORARY CONDUITS AND CONDUCTOR SYSTEMS TO MAINTAIN CIRCUITS BEYOND WORK AREA IN OPERATIONAL CONDITION AT ALL TIMES DURING CONSTRUCTION. COORDINATE WITH PHASING PLANS FOR SEQUENCING OF WORK. THE LINE ITEM COST SHALL INCLUDE DEWATERING EXISTING CONDUITS, DUCTBANKS, BASE CANS AND MANHOLES.
- 7
- CONTRACTOR SHALL REMOVE THE EXISTING TAXIWAY LIGHT, DISCONNECT THE EXISTING CIRCUITS AND REMOVE CONDUCTORS BACK TO THE LAST UNAFFECTED LOCATION. CONTRACTOR SHALL REMOVE AND DISPOSE OF THE EXISTING CONDUCTORS, TRANSFORMERS, AND FIXTURE. EXISTING BASE CAN TO REMAIN AND ABANDON IN PLACE. CONTRACTOR TO PROVIDE NEW L-867B 1 1/2” STEEL BASE COVER. PROVIDE, MAINTAIN AND INSTALL TEMPORARY CONDUITS AND CONDUCTOR SYSTEMS TO MAINTAIN CIRCUITS BEYOND WORK AREA IN OPERATIONAL CONDITION AT ALL TIMES DURING CONSTRUCTION. THE LINE ITEM COST SHALL INCLUDE DEWATERING EXISTING CONDUITS, DUCTBANKS, BASE CANS AND MANHOLES.

INSTALLATION NOTES:

- 1
- CONTRACTOR SHALL HAND EXCAVATE, CORE DRILL THE EXISTING JUNCTION CAN/BASE CAN AND PROVIDE AND INSTALL NEW CONDUIT AND CONDUCTOR SYSTEM, COMPLETE. SEAL, PATCH AND REPAIR JUNCTION CAN/BASE CAN, BACKFILL AND SOD ACCORDINGLY AND MAKE ALL NECESSARY CONNECTIONS FOR A COMPLETE WORKING SYSTEM IN PLACE.
- 2
- CONTRACTOR SHALL HAND EXCAVATE AND LOCATE EXISTING CONDUIT SYSTEM, INTERCEPT AND CONNECT TO THE EXISTING CONDUIT SYSTEM AND EXTEND TO NEW LIGHT BASE/JUNCTION CAN/SIGN. CLEAN OUT AND DEWATER THE EXISTING CONDUIT SYSTEM. CONTRACTOR SHALL INCLUDE THE DEWATERING IN THE LINE ITEM COST FOR THE INTERCEPTION OF THE CONDUIT SYSTEM.
- 3
- CONTRACTOR SHALL IDENTIFY AND INTERCEPT THE EXISTING CIRCUIT CONDUCTORS IN THE EXISTING BASE CAN/MANHOLE/JUNCTION CAN AND PROVIDE AND INSTALL NEW SPLICE KITS AND EXTEND THE NEW CIRCUIT CONDUCTORS ACCORDINGLY. MAKE ALL NECESSARY CONNECTIONS FOR A COMPLETE WORKING SYSTEM IN PLACE.
- 4
- CONTRACTOR SHALL HAND EXCAVATE AND LOCATE EXISTING 1W4” CONDUIT, INTERCEPT AND EXTEND TO NEW JUNCTION CAN PLAZA. CLEAN OUT AND DEWATER THE EXISTING CONDUIT SYSTEM. CONTRACTOR SHALL INCLUDE THE DEWATERING AND 4” CONDUIT IN THE LINE ITEM COST FOR THE INTERCEPTION OF THE CONDUIT SYSTEM.

CIRCUIT ID:	TYPE OF CABLE	CABLE JACKET COLOR
FC = TAXIWAY FOXTROT CENTRAL CIRCUIT	#8, L-824, 5KV CABLE	BLACK
FW = TAXIWAY FOXTROT WEST CIRCUIT	#8, L-824, 5KV CABLE	BLACK
RW9 = RUNWAY 9-27 CIRCUIT	#8, L-824, 5KV CABLE	RED/BLACK

Junction Can Identification with Future Circuit ID				
JCP ID	1	2	3	4
JCP-1	FW	9W	SP	SP
JCP-2	FW	9W	SP	SP
JCP-3	FW	9W	SP	SP
JCP-4	FW	SP		
JCP-5	FW	SP		
SP = SPARE CODUIT				

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CA# 4213

State of Florida
Professional Engineer
License No. 73735

Amy L.
Champagne-Baker

DRAWN BY: DEU	DATE: 05-10-18	DESIGNED BY: SCALE: NONE	CHECKED BY: JWK	FIELD BOOK:

CITY of FORT LAUDERDALE

PUBLIC WORKS DEPARTMENT

ENGINEERING & ARCHITECTURE

100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS		DESCRIPTION	
NO.	DATE	BY	CHK'D

PROJECT # 12357

TAXIWAY F WEST

LIGHTING IMPROVEMENTS

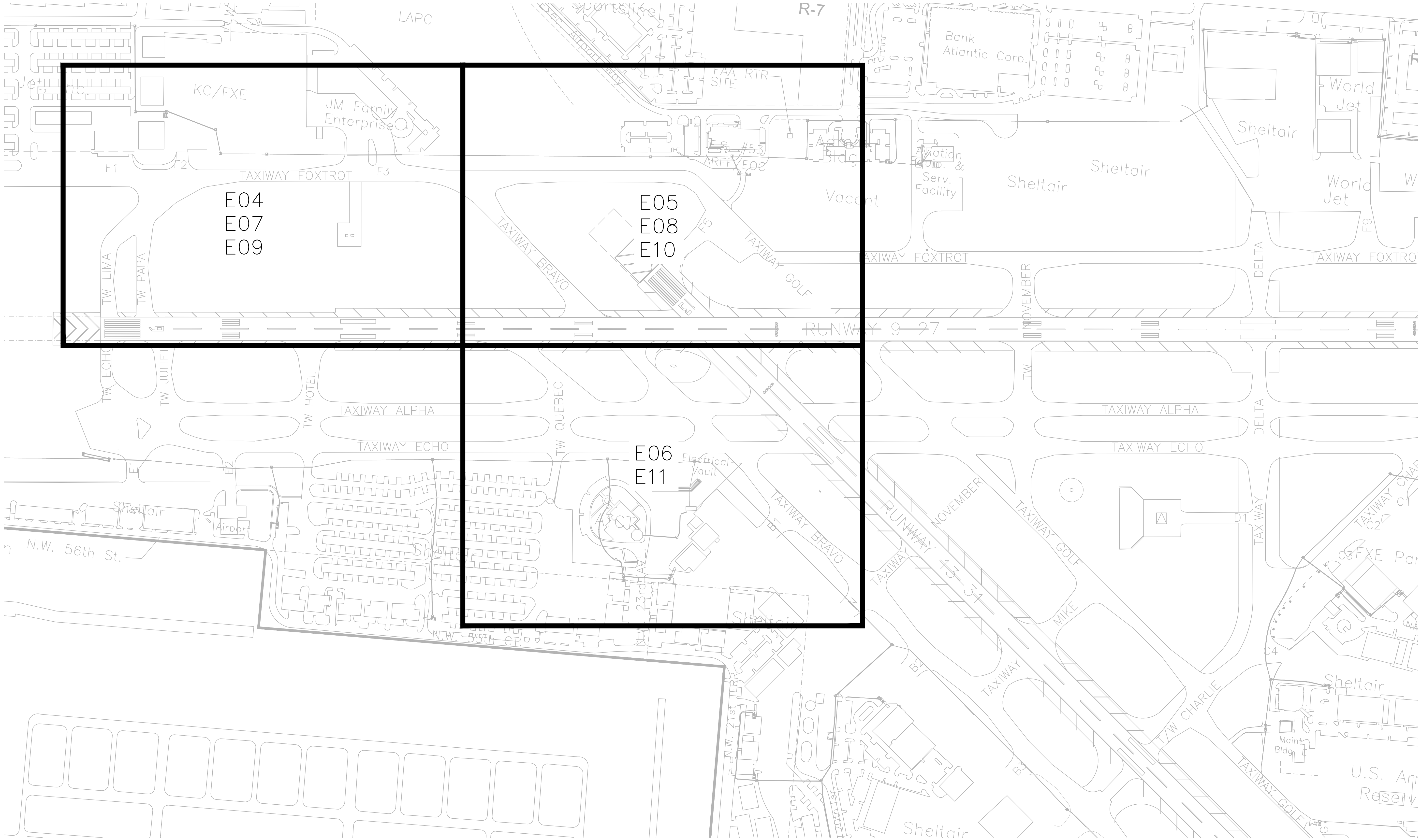
ELECTRICAL LEGEND

6000 NW 21st Ave, Fort Lauderdale, FL 33309

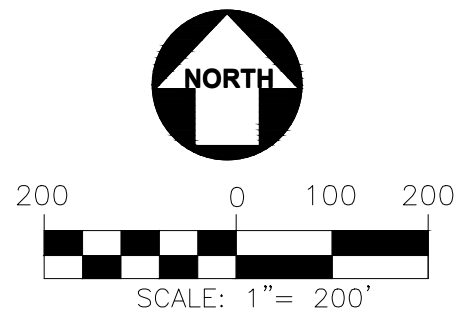
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TOTAL:	19
CAD FILE:	12357-E02-LEGN
DRAWING FILE NO.	4-140-01

BID SET

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WARNING!!!
THERE ARE A NUMBER OF AIRPORT, PUBLIC UTILITIES, AND FAA LIGHTING, COMMUNICATIONS, UNDERGROUND CABLES AND PIPES TRAVERSING THE AIRFIELD PAVEMENTS AREAS. THE ENGINEER HAS MADE EVERY ATTEMPT TO SHOW THE APPROXIMATE LOCATION OF ALL ITEMS. HOWEVER, THE ENGINEER IS NOT RESPONSIBLE FOR SHOWING OR LOCATING EVERY ITEM CURRENTLY IN PLACE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE EVERY ITEM LOCATED, FLAGGED, AND IDENTIFIED PRIOR TO STARTUP OF CONSTRUCTION. ANY DAMAGE DONE TO ANY OF THE EXISTING ITEMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL REPAIR ANY ITEM DAMAGED, CAUSED BY HIS ACTIONS, WITH NO ADDITIONAL COMPENSATION.



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23267 STATE ROAD 7, SUITE 100
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(561) 451-4886 FAX



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CA# 4213

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CHECKED BY: JWK
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100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS		DESCRIPTION	
NO.	DATE	BY	CHK'D

PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
ELECTRICAL LEGEND
6000 NW 21st Ave, Fort Lauderdale, FL 33309

SHEET NO.		OF
E03		15
TOTAL:		19
CAD FILE:		12357-E03-KMAP
DRAWING FILE NO.		4-140-01

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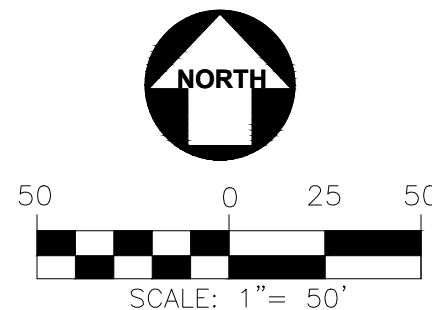
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PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
ELECTRICAL DEMOLITION
6000 NW 21st Ave, Fort Lauderdale, FL 33309

SHEET NO.	OF
E04	15
TOTAL:	19
CAD FILE:	
12357-MULTI-DEMO	
DRAWING FILE NO.	
4-140-01	

CAM 18-0915
Exhibit 2
Page 272 of 318

WARNING!!! WARNING!!! WARNING!!!
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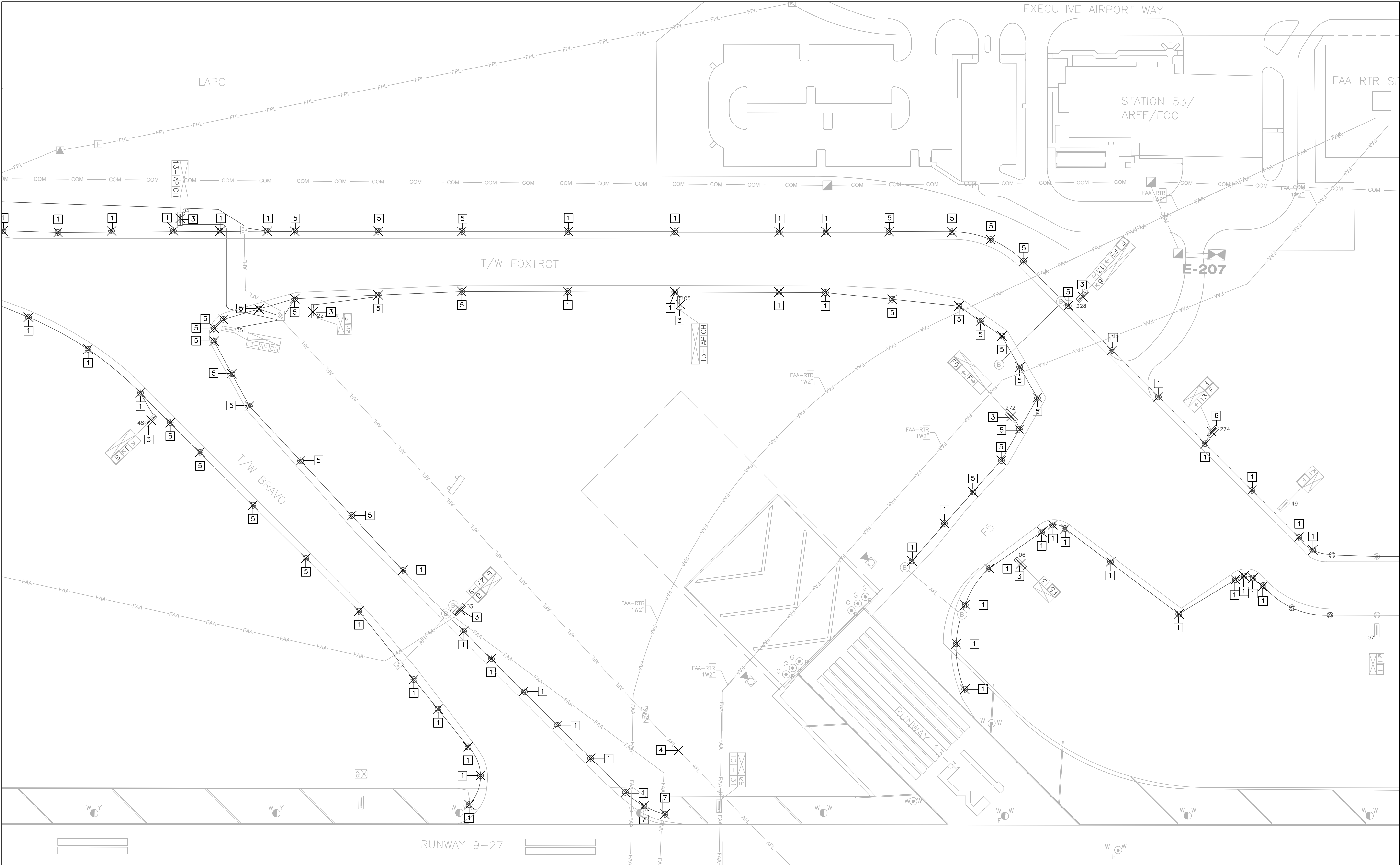
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BOCA RATON, FLORIDA 33428
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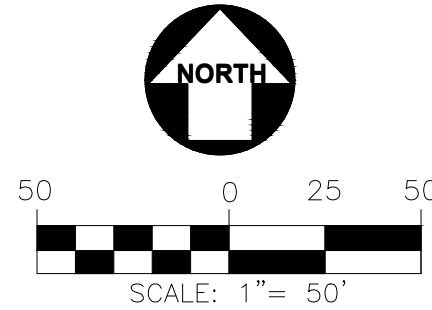
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MATCH LINE - E04



MATCH LINE - E06

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PROJECT # 12357
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LIGHTING IMPROVEMENTS
ELECTRICAL DEMOLITION
6000 NW 21st Ave, Fort Lauderdale, FL 33309

REVISIONS		DESCRIPTION	
NO	DATE	BY	CHK'D

DESIGNED BY	DEU	DATE	05-10-18
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FIELD BOOK	JWK		

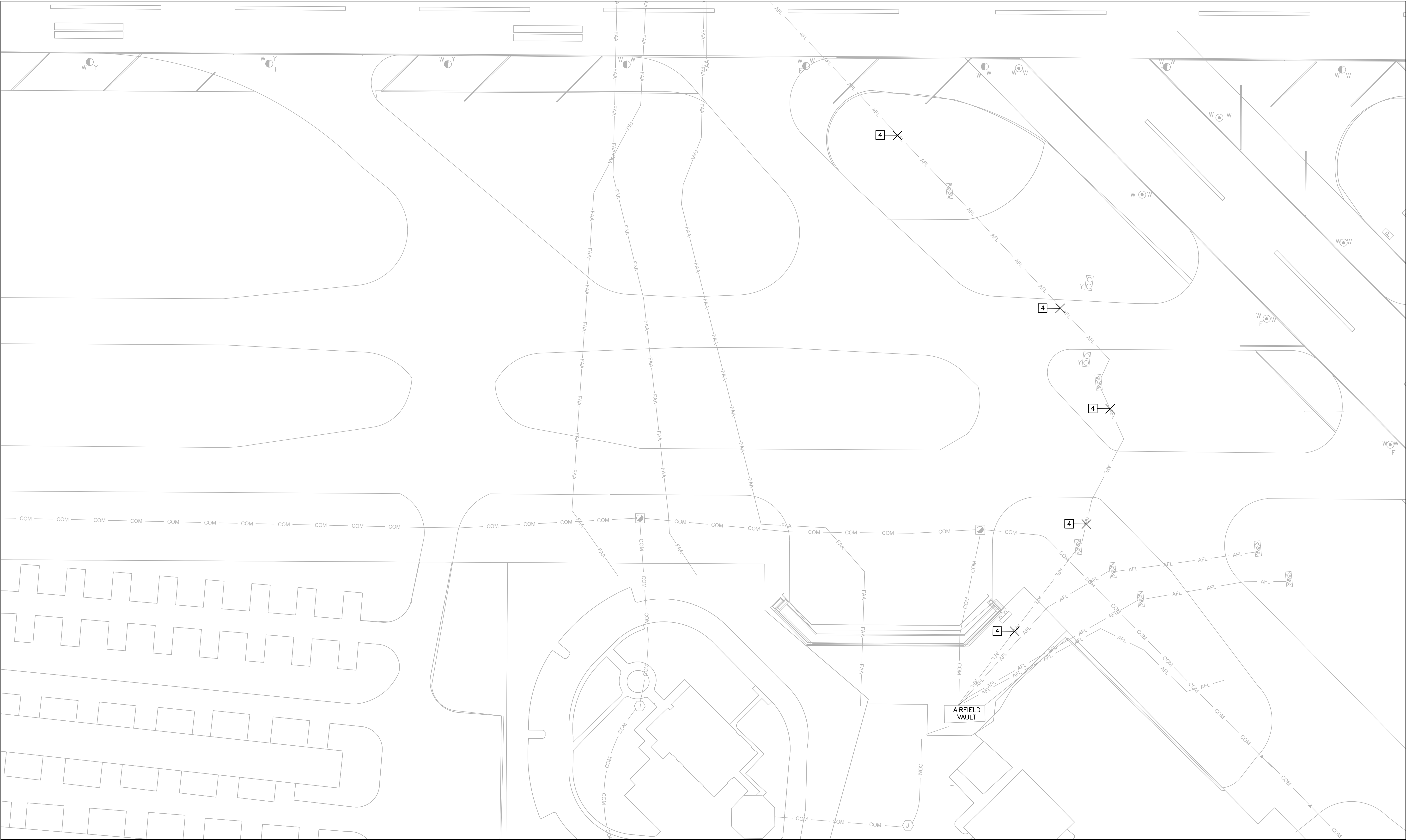
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PUBLIC WORKS DEPARTMENT
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Amy L.
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SHEET NO.	OF
E05	15
TOTAL:	19
CAD FILE:	12357-MULTI-DEMO
DRAWING FILE NO.	4-140-01

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CA# 4213

State of Florida
Professional Engineer
License No. 73735

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DESIGNED BY	DATE	05-10-18
DESIGNED BY	SCALE	1" = 50'
CHECKED BY	ALC	JWK
FIELD BOOK		

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PUBLIC WORKS DEPARTMENT

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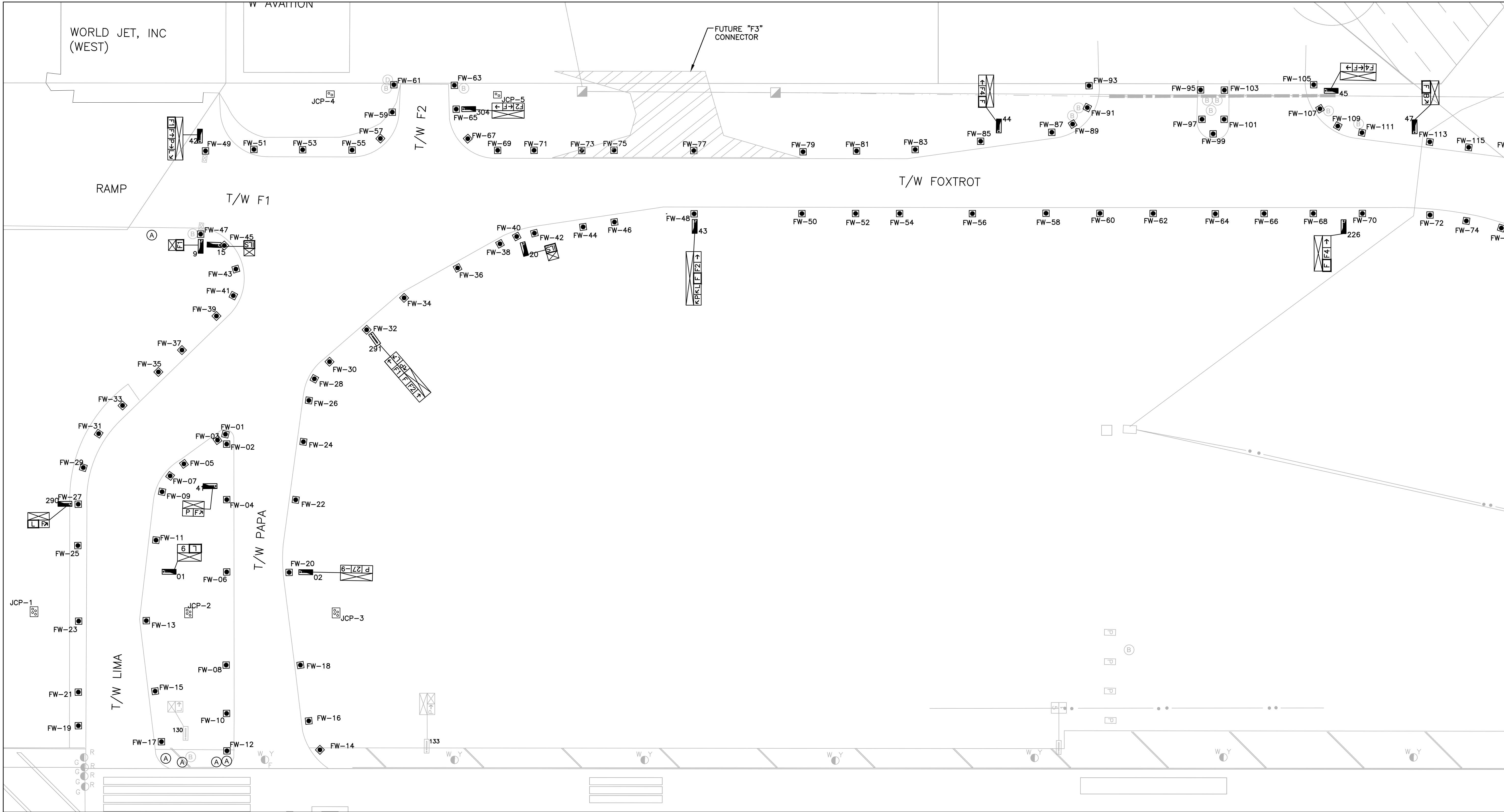
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

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NO	DATE	BY	CHK'D

PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
ELECTRICAL DEMOLITION
6000 NW 21st Ave, Fort Lauderdale, FL 33309

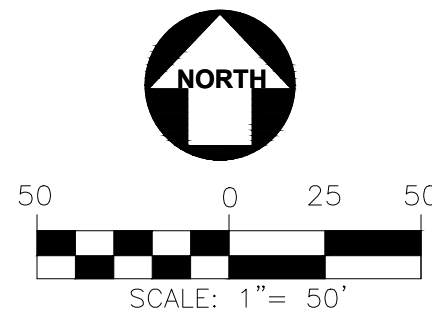
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TOTAL:	19
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DRAWING FILE NO.	4-140-01

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MATCH LINE - E08

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ENGINEERING & ARCHITECTURE

100 North Andrews Avenue, Fort Lauderdale, Florida 33301

DATE: 05-10-18
DESIGNED BY: DEU
SCALE: 1" = 50'
CHECKED BY: JWK
FIELD BOOK:

State of Florida
Professional Engineer
License No. 73735

Amy L.
Champagne-Baker

REVISIONS		DESCRIPTION	
NO	DATE	BY	CHK'D

PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
SIGNAGE LAYOUT
6000 NW 21st Ave, Fort Lauderdale, FL 33309

SHEET NO. OF
E07 15

TOTAL: 19

CAD FILE:
12357-MULTI-ELC1

DRAWING FILE NO.
4-140-01

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100% SUBMITTAL

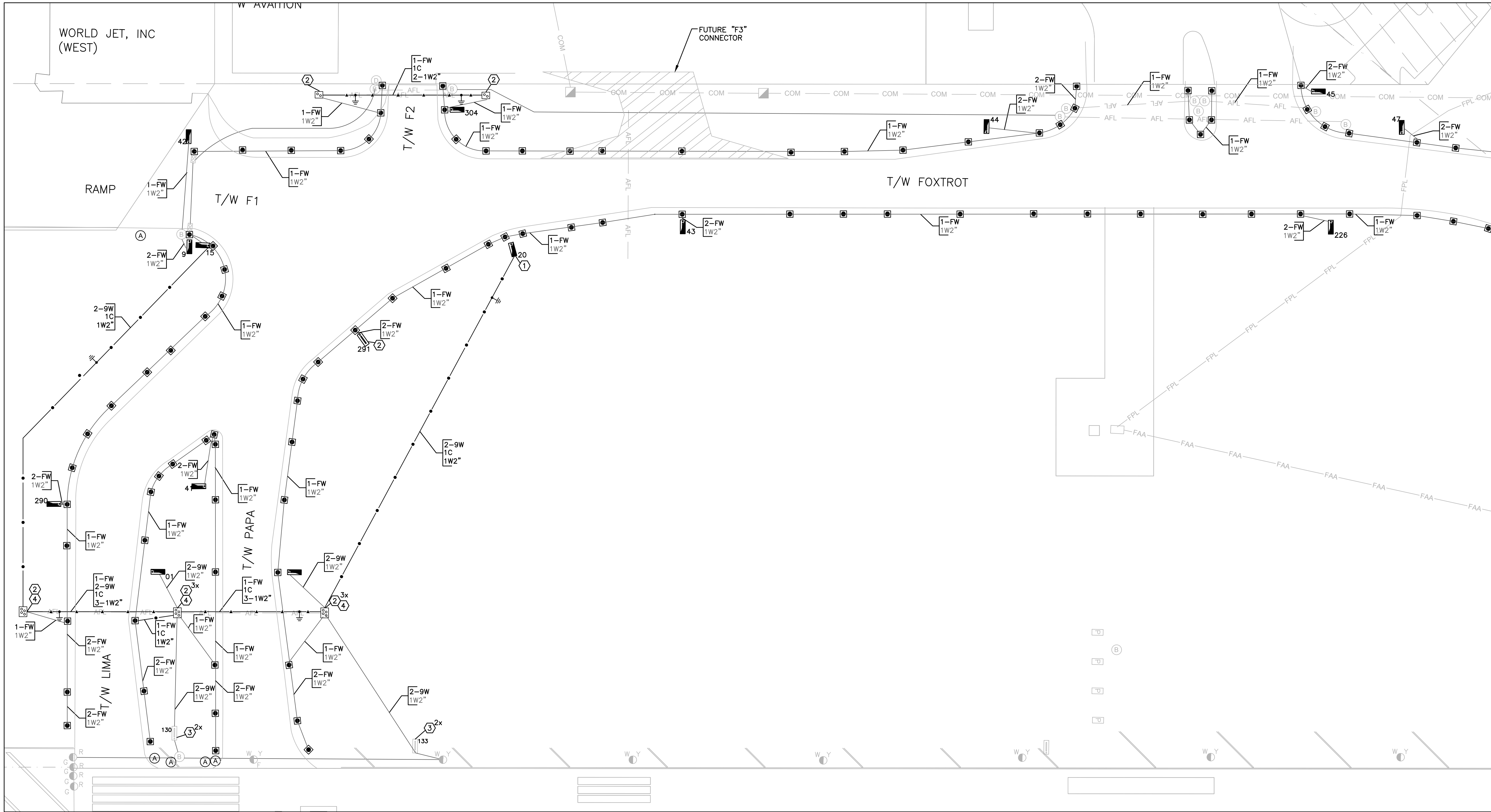
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DRAWN BY: DEU	DATE: 05-10-18
DESIGNED BY: ALC	SCALE: 1" = 50'
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FIELD BOOK:	

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100 North Andrews Avenue, Fort Lauderdale, Florida 33301

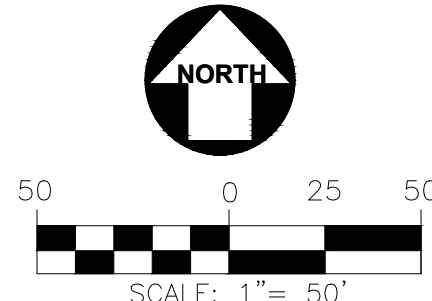
PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
SIGNAGE LAYOUT
6000 NW 21st Ave, Fort Lauderdale, FL 33309

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MATCH LINE - E10

WARNING!!!
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State of Florida
Professional Engineer
License No. 73735
Amy L.
Champagne-Baker

DATE: 05-10-18
DESIGNED BY: DEU
CHECKED BY: JWK
SCALE: 1" = 50'
FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS		DESCRIPTION	
NO	DATE	BY	CHK'D

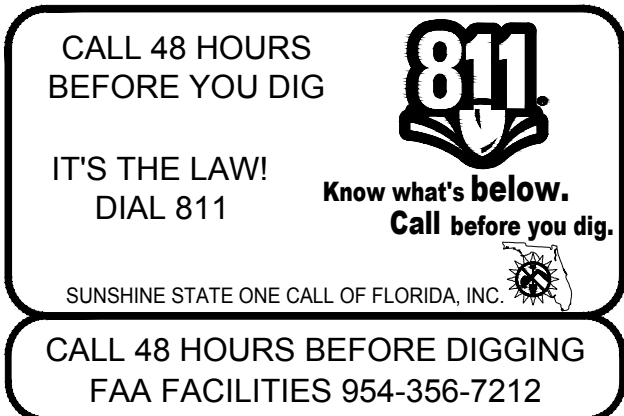
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TAXWAY F WEST
LIGHTING IMPROVEMENTS
ELECTRICAL CIRCUITRY
6000 NW 21st Ave, Fort Lauderdale, FL 33309

SHEET NO. OF
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TOTAL: 19
CAD FILE: 12357-MULTI-ELC2
DRAWING FILE NO. 4-140-01

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SHEET NO. E10	OF 15
TOTAL: 19	
CAD FILE: 12357-MULTI-ELC2	
DRAWING FILE NO. 4-140-01	

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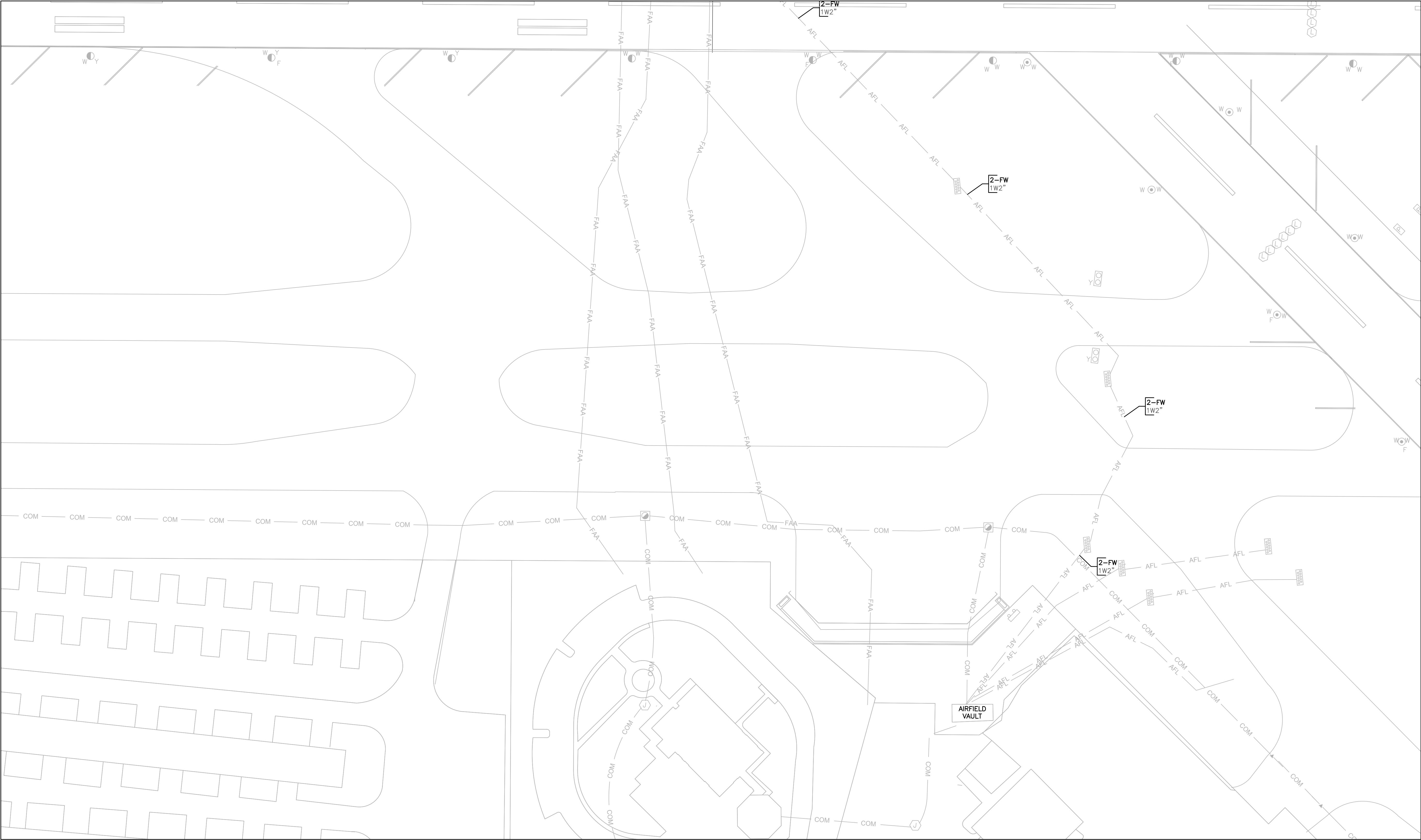
Amy L.
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DESIGNED BY: ALC	SCALE: 1" = 50'
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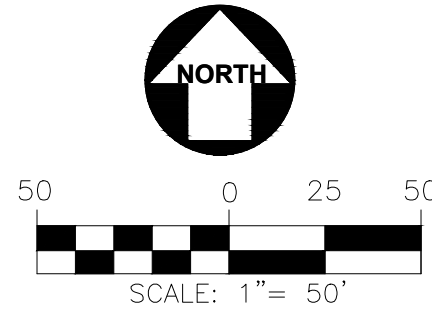
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ENGINEERING & ARCHITECTURE
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MATCH LINE - E10



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Amy L.
Champagne-Baker

DRAWN BY:	DEU	DATE:	05-10-18
DESIGNED BY:	ALC	SCALE:	1" = 50'
CHECKED BY:	JWK		
FIELD BOOK:			

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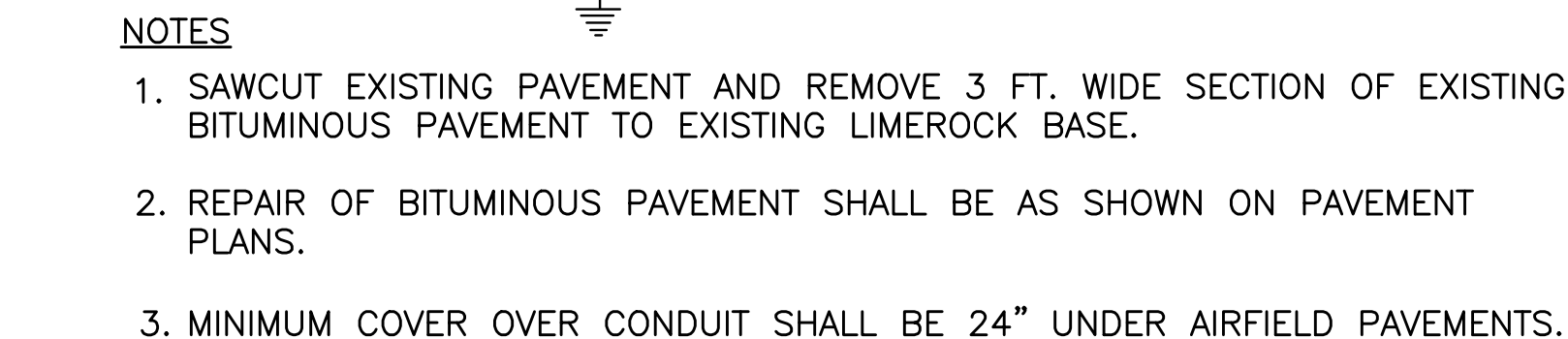
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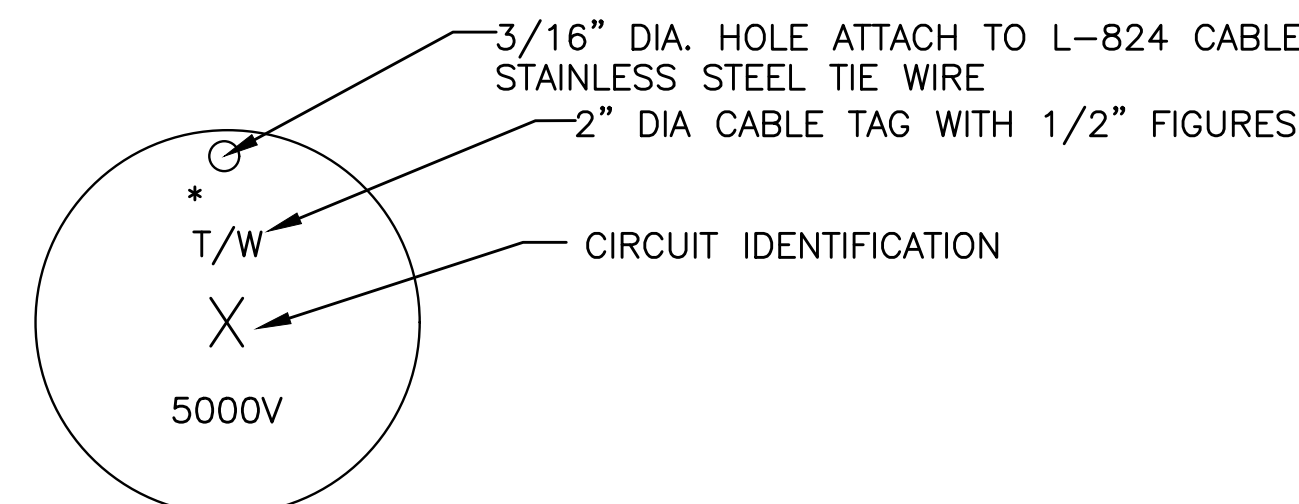
REVISIONS		DESCRIPTION	
NO	DATE	BY	CHK'D

PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
ELECTRICAL CIRCUITRY
6000 NW 21st Ave, Fort Lauderdale, FL 33309

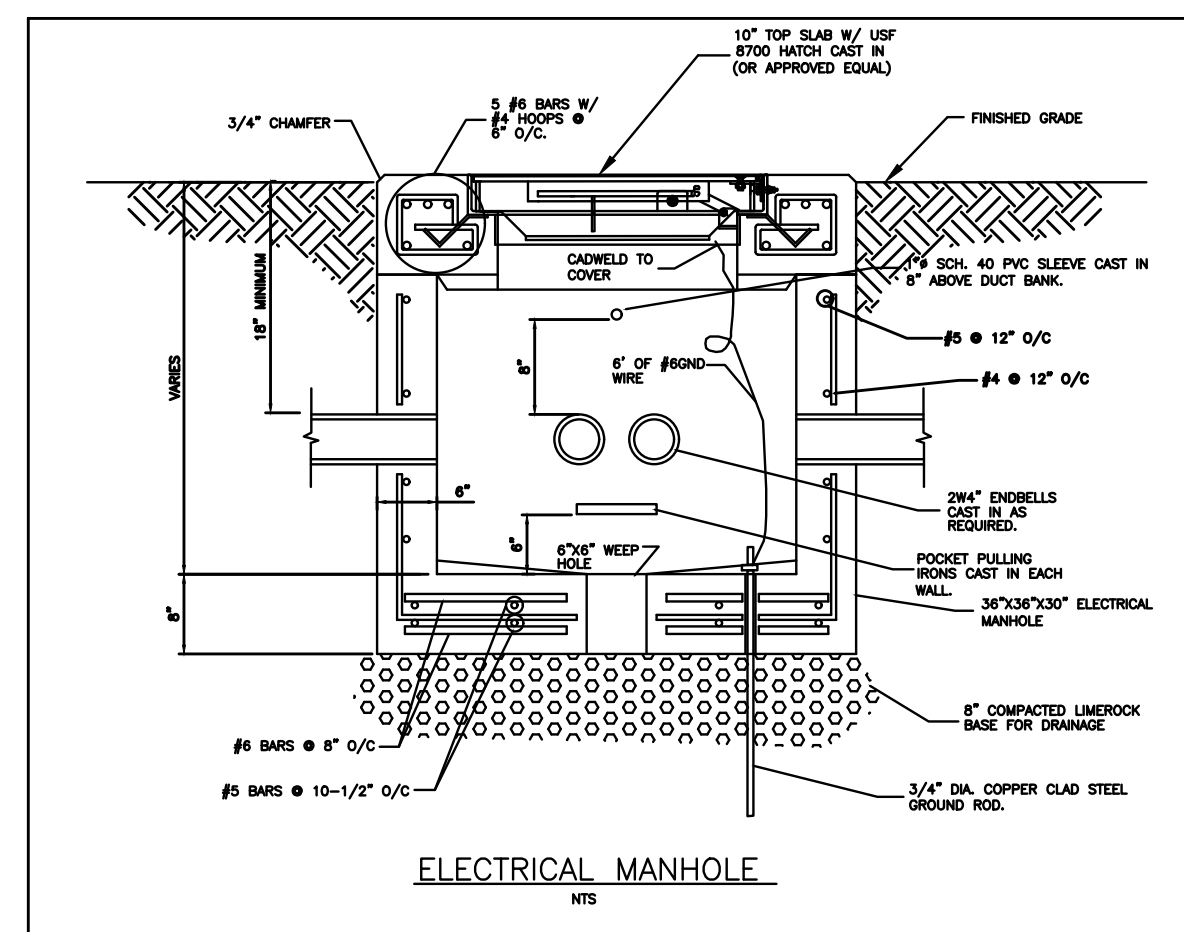
SHEET NO.	OF
E11	15
TOTAL:	19
CAD FILE:	12357-MULTI-ELC2
DRAWING FILE NO.	4-140-01



TYPICAL CONDUIT INSTALLED IN EXISTING FULL
STRENGTH/SHOULDER PAVEMENT



STAINLESS STEEL CABLE
ID TAG DETAIL
NOT TO SCALE



NOTE: THE TWO PICTURES AND DETAIL SHOWN ABOVE ARE EXAMPLES OF THE TYPE OF PULLBOX THAT IS TO BE REMOVED IN THIS PROJECT.

EXISTING PULLBOX TO BE REMOVED REFERENCES

CONCRETE FOR BACKFILL, SIGN PADS AND BASE CANS NOT IN THE RUNWAY/TAXIWAY SAFETY AREAS OR IN EXISTING PAVEMENT WHERE AIRCRAFT TRAFFIC WILL RESUME IMMEDIATELY UPON RE-OPENING, SHALL CONFORM TO THE REQUIREMENTS OF P-610 CONCRETE WITH A MINIMUM 28 DAY STRENGTH OF 4,000 PSI. A CONCRETE MIX DESIGN SHALL BE SUBMITTED AND APPROVED BEFORE COMMENCEMENT OF WORK.

H2R

HDR ENGINEERING, INC.
3250 WEST COMMERCIAL BLVD., SUITE 100
FORT LAUDERDALE, FLORIDA, 33309
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CA# 4213

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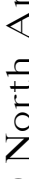
PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
ELECTRICAL DETAILS
6000 NW 21st Ave, Fort Lauderdale, FL 33309

SHEET NO.	OF
E12	15
TOTAL:	19
CAD FILE: 12357-E12-DETL	
DRAWING FILE NO. 4-140-01	

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License No. 73735

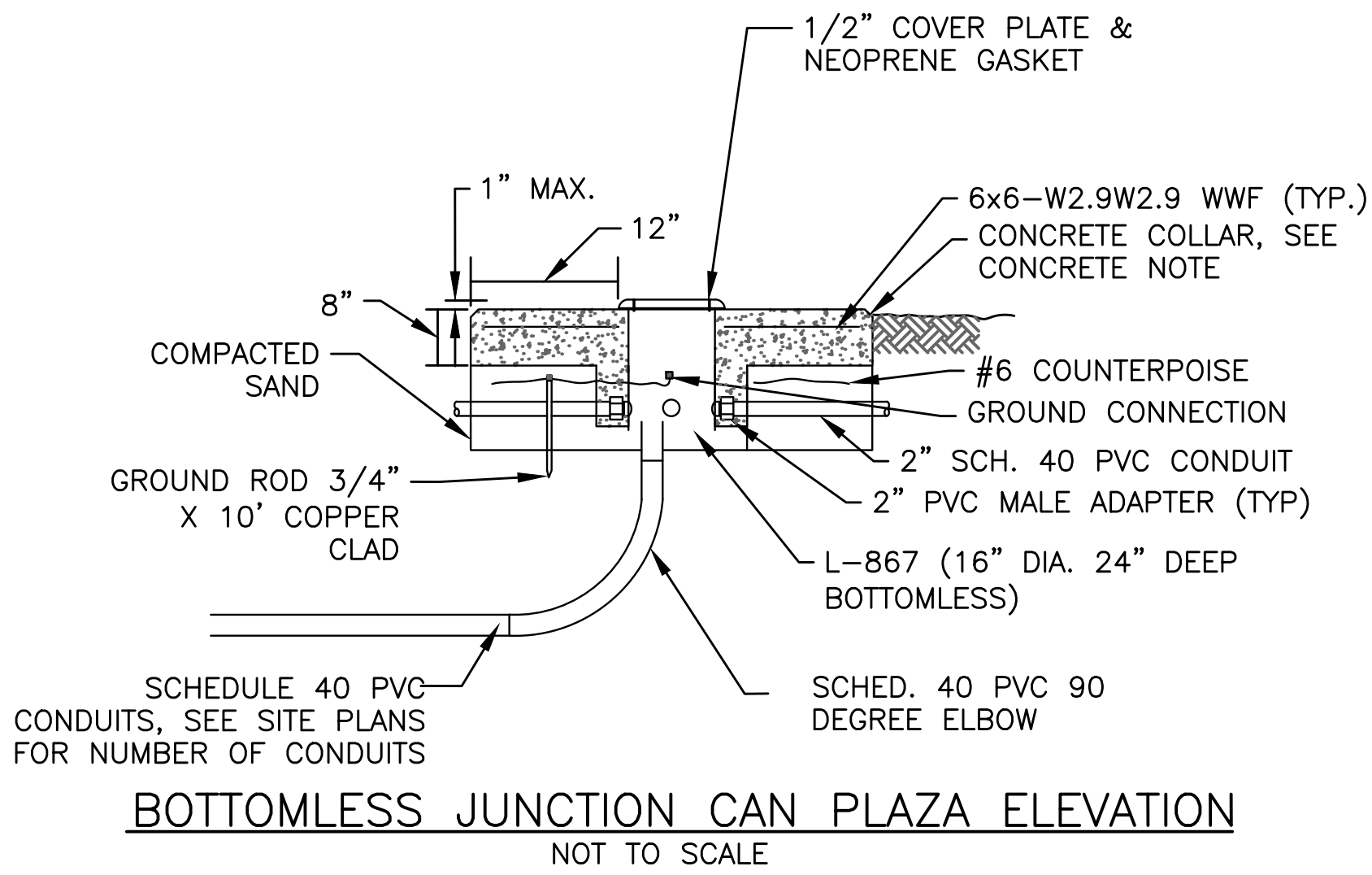
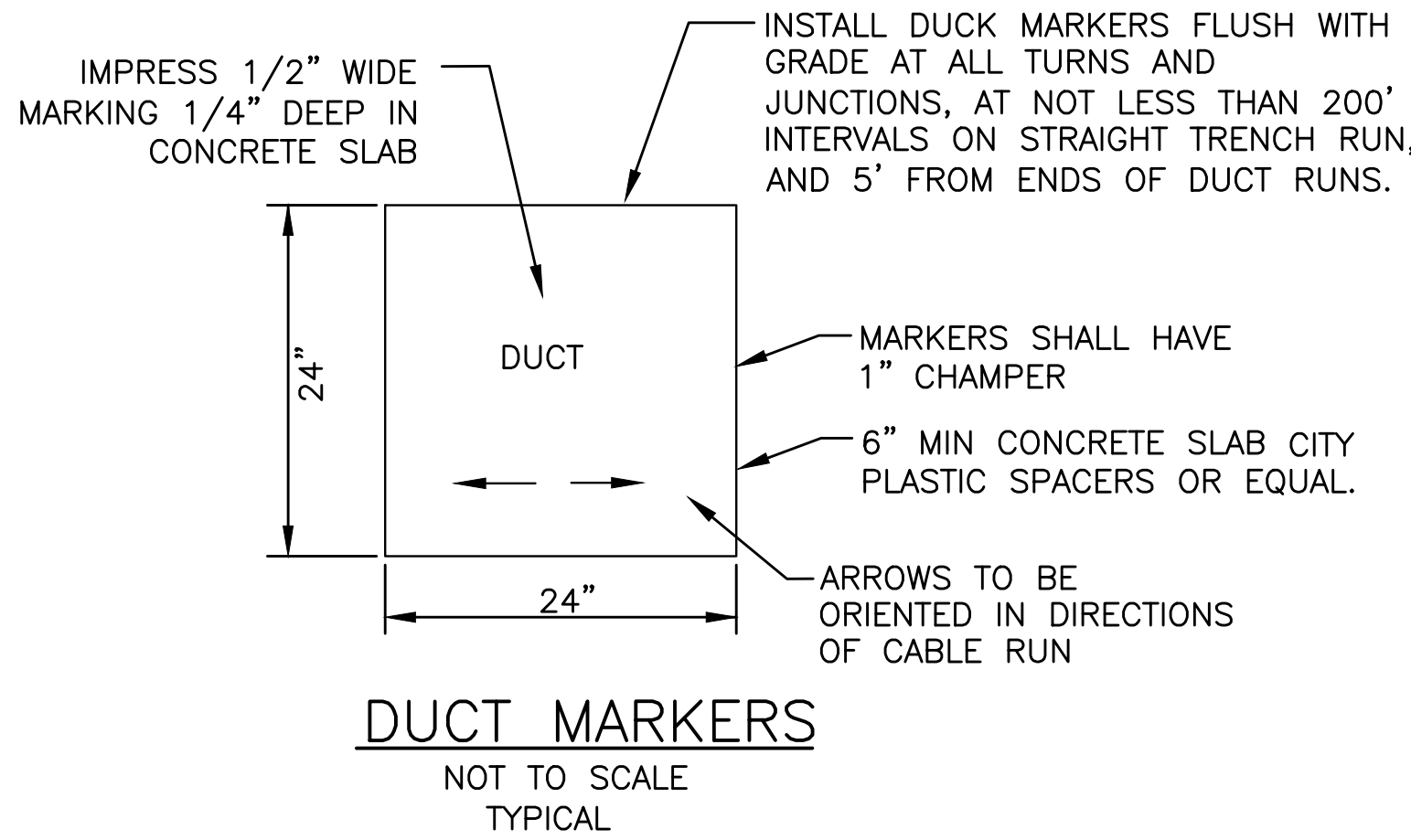
Amy L.
Champagne-Baker

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DESIGNED BY: ALC	SCALE: NTS
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FIELD BOOK:	



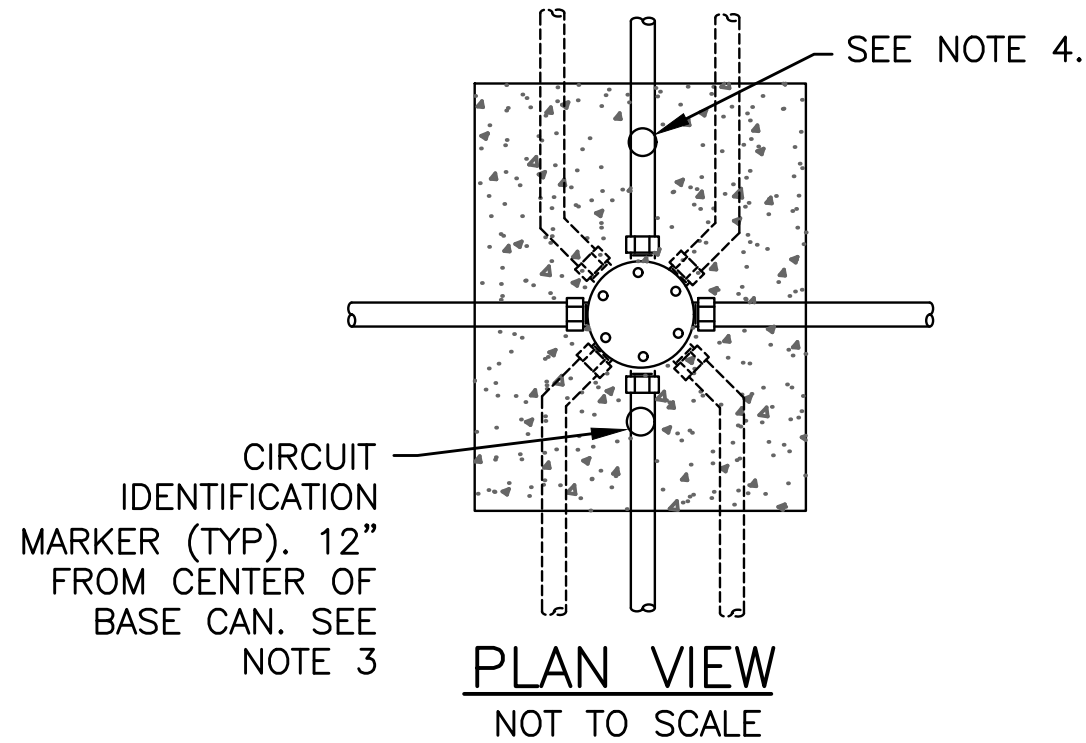
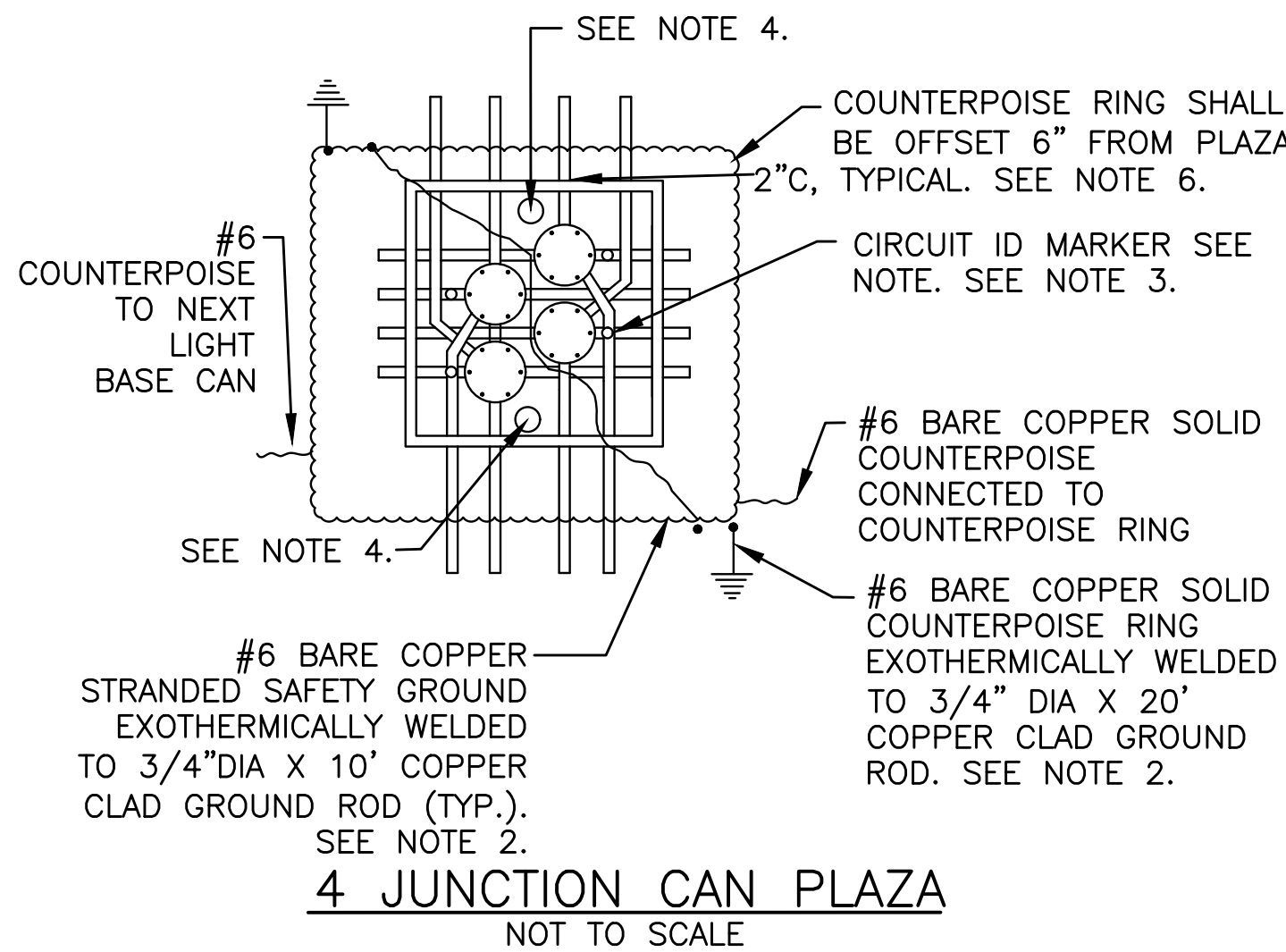
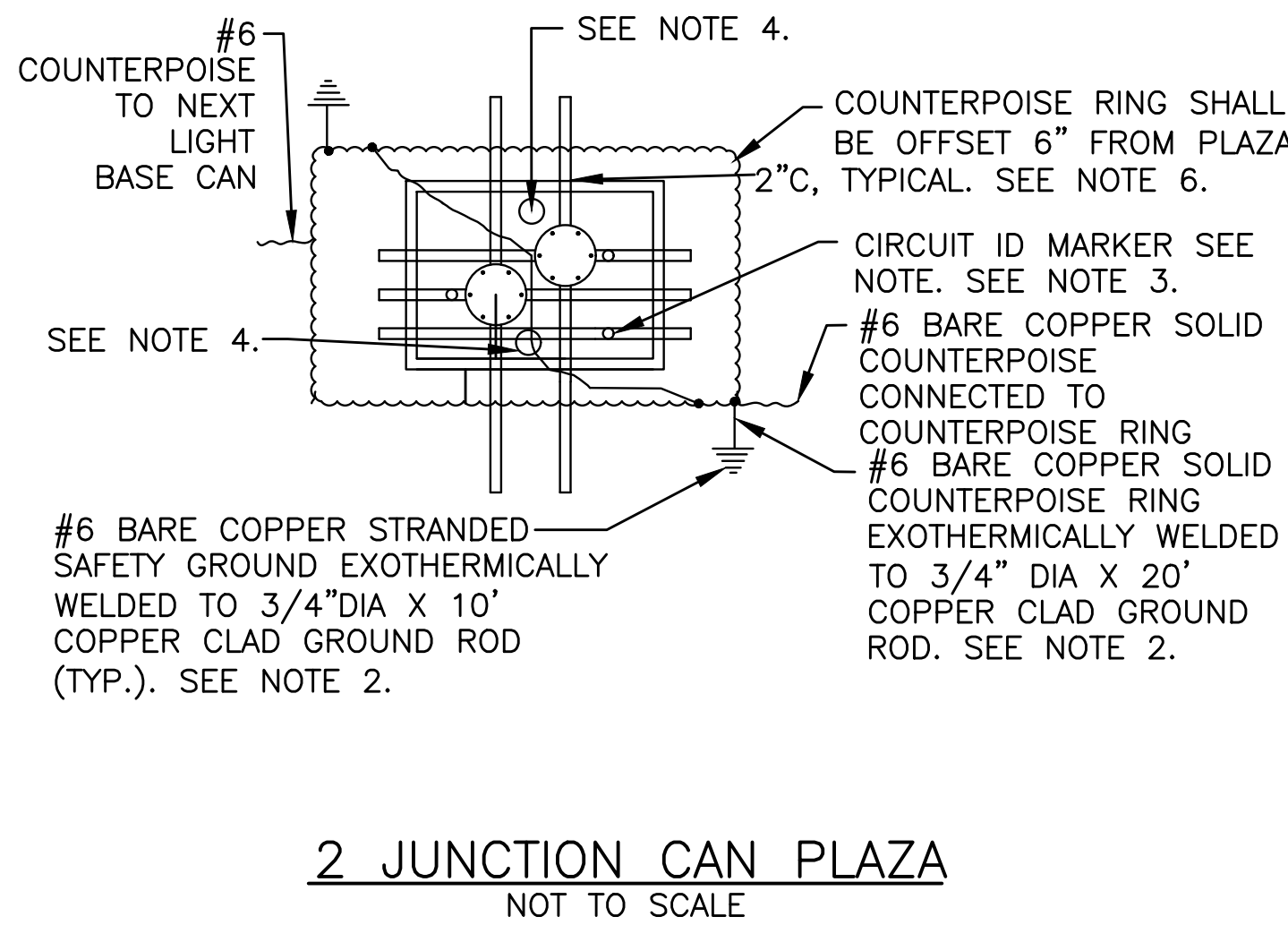
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PUBLIC WORKS DEPARTMENT
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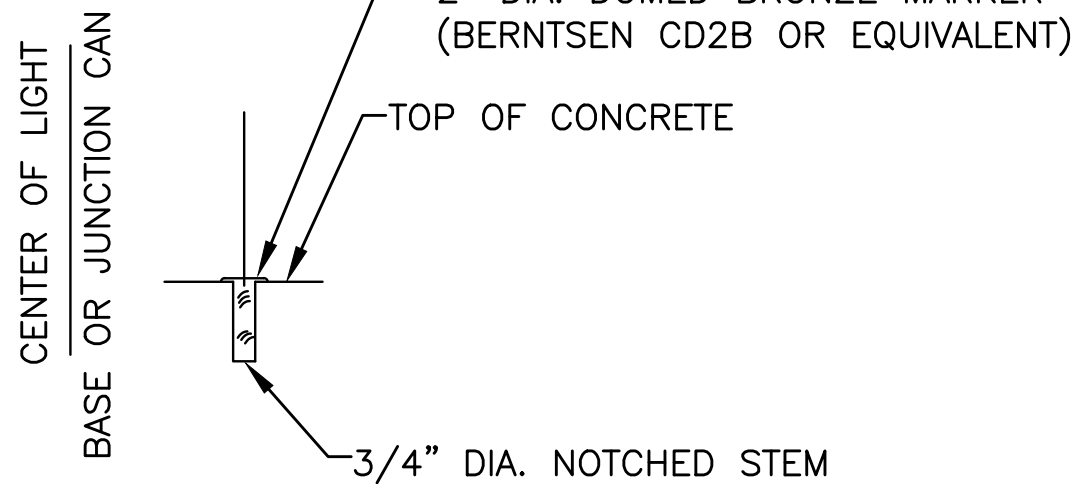
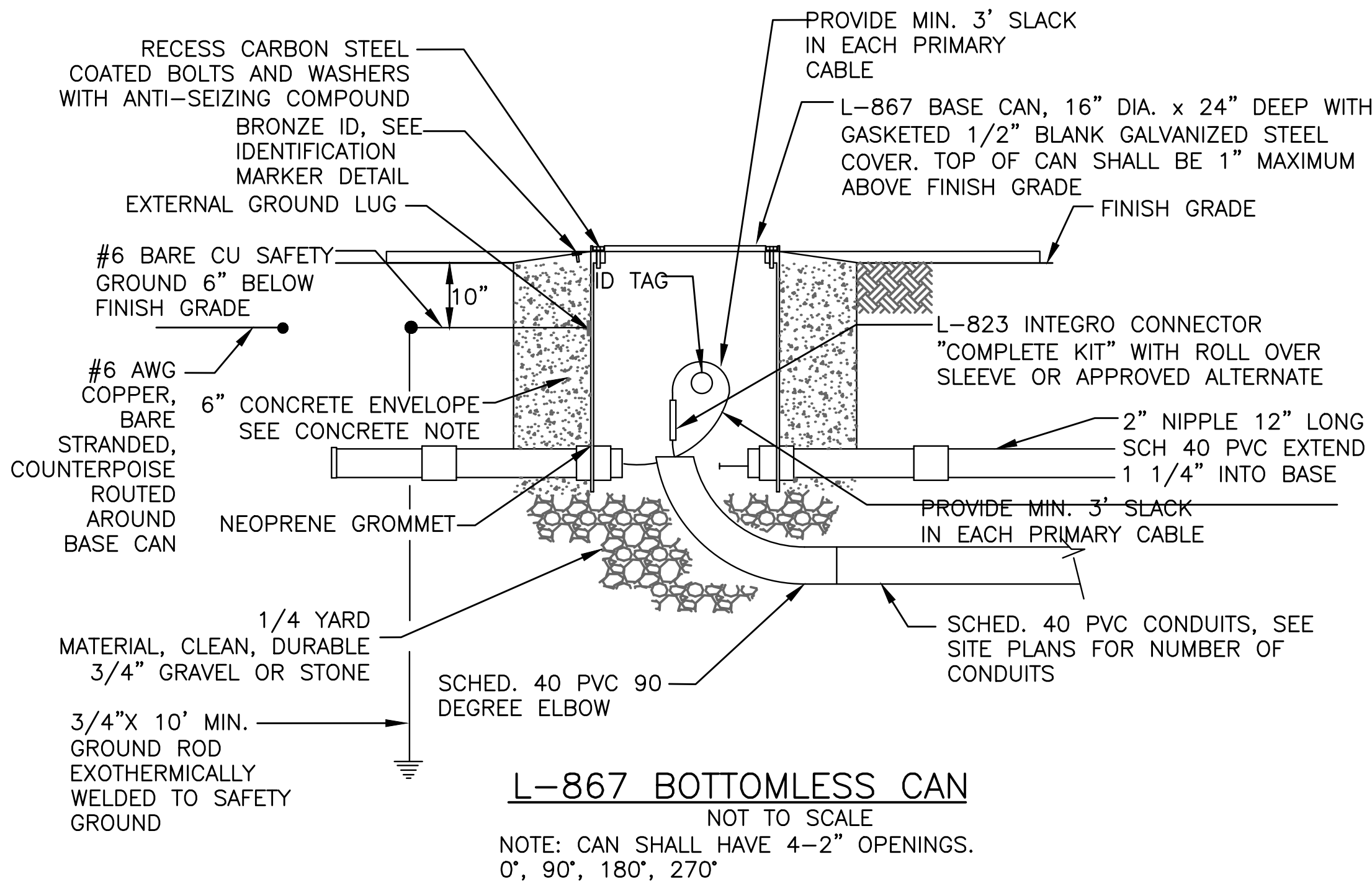
CONCRETE NOTE: CONCRETE FOR BACKFILL, SIGN PADS AND BASE CANS IN THE RUNWAY/TAXIWAY SAFETY AREAS AND IN EXISTING PAVEMENT WHERE AIRCRAFT TRAFFIC WILL RESUME IMMEDIATELY UPON RE-OPENING, OR IN AREAS OTHERWISE INDICATED IN THE DETAILS AND DRAWINGS SHALL CONFORM TO THE REQUIREMENTS OF P-610 CONCRETE WITH A MINIMUM 5 HOUR STRENGTH OF 2,500 PSI AND A MINIMUM 28 DAY STRENGTH OF 5,000 PSI. A CONCRETE MIX DESIGN SHALL BE SUBMITTED AND APPROVED BEFORE COMMENCEMENT OF WORK.

CONCRETE FOR BACKFILL, SIGN PADS AND BASE CANS NOT IN THE RUNWAY/TAXIWAY SAFETY AREAS OR IN EXISTING PAVEMENT WHERE AIRCRAFT TRAFFIC WILL RESUME IMMEDIATELY UPON RE-OPENING, SHALL CONFORM TO THE REQUIREMENTS OF P-610 CONCRETE WITH A MINIMUM 28 DAY STRENGTH OF 4,000 PSI. A CONCRETE MIX DESIGN SHALL BE SUBMITTED AND APPROVED BEFORE COMMENCEMENT OF WORK.



NOTES:

1. NUMBER AND ORIENTATION OF CONDUITS VARY. SEE PLAN SHEETS FOR DETAILS.
2. INSTALL GROUND RODS AT ALL JUNCTION CAN PLAZAS AS SHOWN. TWO GROUND RODS PER PLAZA LOCATED AT OPPOSITE CORNERS SHALL BE PROVIDED.
3. CONTRACTOR SHALL PROVIDE A 2" DIA DOMED BRONZE MARKER AT EACH JUNCTION CAN AS SHOWN. MARKER SHALL BE STAMPED WITH CIRCUIT IDENTIFICATION AS COORDINATED WITH AIRPORT AND ENGINEER.
4. CONTRACTOR SHALL PROVIDE A 2" DIA DOMED BRONZE MARKER STAMPED WITH THE PLAZA IDENTIFICATION NUMBER AS SHOWN ON THE DRAWINGS.
5. 3 L-867 JUNCTION CANS AND CONDUIT CONFIGURATION. SEE LAYOUT PLAN SHEETS FOR ORIENTATION.
6. EACH CAN SHALL HAVE A MINIMUM OF FOUR OPENINGS. LOCATIONS OF OPENINGS CAN BE AT 0,45, 90, 135, 180, 225, 270 AND 315 DEGREE THAT EXTEND 3 FEET BEYOND PLAZA EDGE. LOCATIONS WILL VARY DEPENDING ON SIZE OF JUNCTION CAN PLAZA. CONDUIT OPENINGS AT 45, 135, 225 AND 315 DEGREES WILL HAVE A 3" OFFSET FROM THE REMAINING THREE OPENINGS. CONTRACTOR SHALL COORDINATE OPENINGS PRIOR TO INSTALLATION. CANS SHALL NOT BE CONNECTED TOGETHER INSIDE JUNCTION PLAZA. ALL CONDUITS EXITING THE CANS SHALL BE DEDICATED. CONDUITS WHICH ARE NOT USED IN THIS PROJECT SHALL BE CAPPED.
7. CONDUITS WHICH ARE NOT USED IN THIS PROJECT SHALL BE CAPPED 12" OUTSIDE OF PLAZA CONCRETE.
8. CONTRACTOR SHALL COORDINATE THE ORIENTATION OF THE PLAZA WITH THE ENGINEER AND CPM PRIOR INSTALLATION.
9. SEE DETAIL FOR CONNECTION TO JUNCTION CANS.



1. IDENTIFICATION SHALL BE STAMPED USING 1/2" FIGURES AND LETTERS UNIFORMLY SPACED ON THE BRONZE MARKER.
2. IDENTIFICATION MARKERS SHALL BE UNIFORMLY INSTALLED ADJACENT TO TAXIWAY AND RUNWAY ELEVATED EDGE LIGHTS. PREFERRED LOCATION IS ON A LINE PERPENDICULAR TO RUNWAY OR TAXIWAY CENTERLINE, INBOARD OF LIGHT FIXTURE. HOWEVER, DO NOT INTERFERE WITH EMERGENCY RUNWAY EDGE LIGHT MOUNTING CLEAT.

IDENTIFICATION MARKER FOR LIGHT BASE CANS, JUNCTION CANS AND JUNCTION CAN PLAZAS

NOT TO SCALE

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State of Florida
Professional Engineer
License No. 73735

Amy L.
Champagne-Baker

DRAWN BY:	DATE:	DESIGNED BY:	SCALE:	NTS
DEU	05-10-18	ALC		
CHECKED BY:		JWK		
FIELD BOOK:				

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

NO.	DATE	BY	CH'D	DESCRIPTION

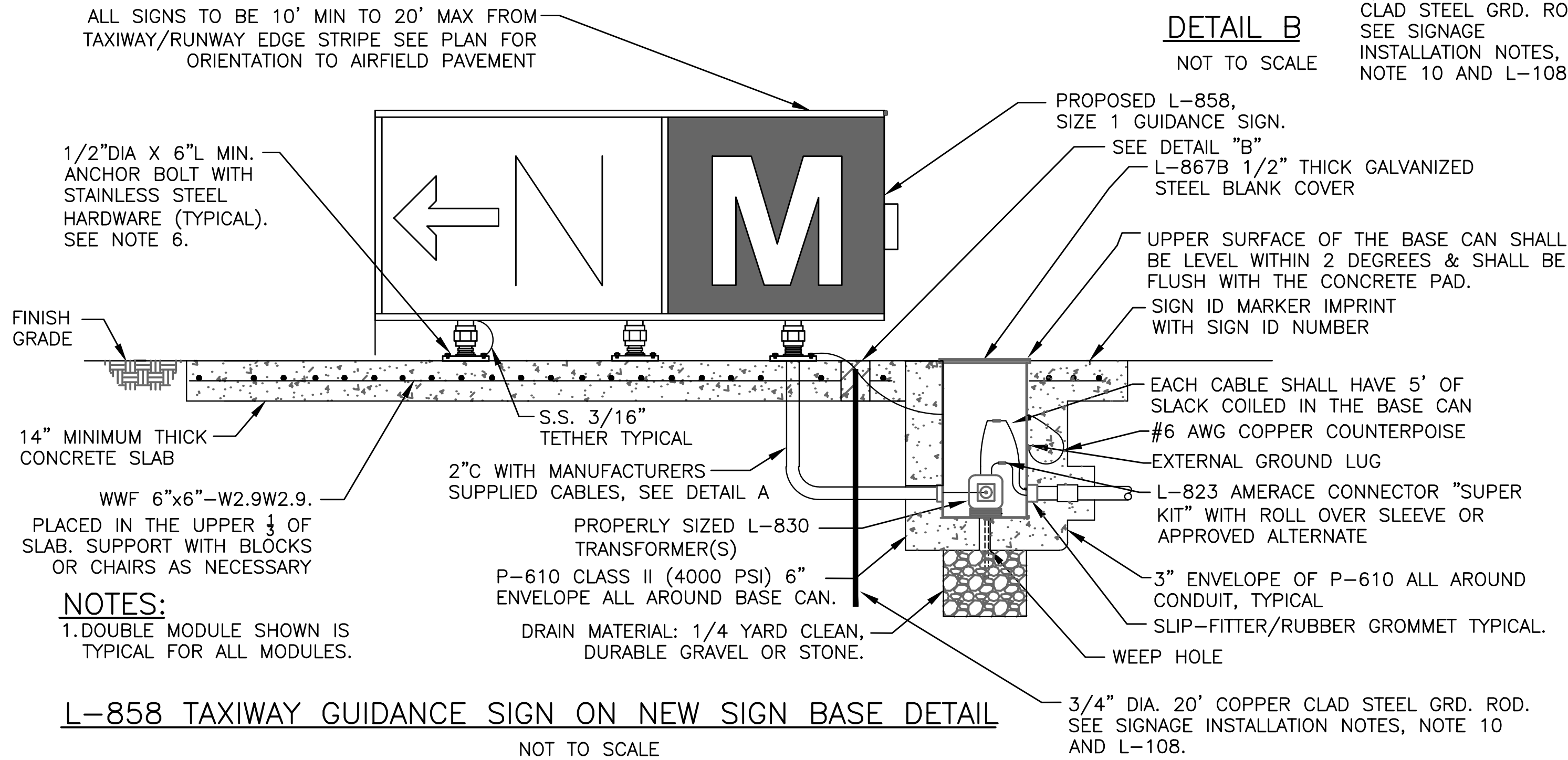
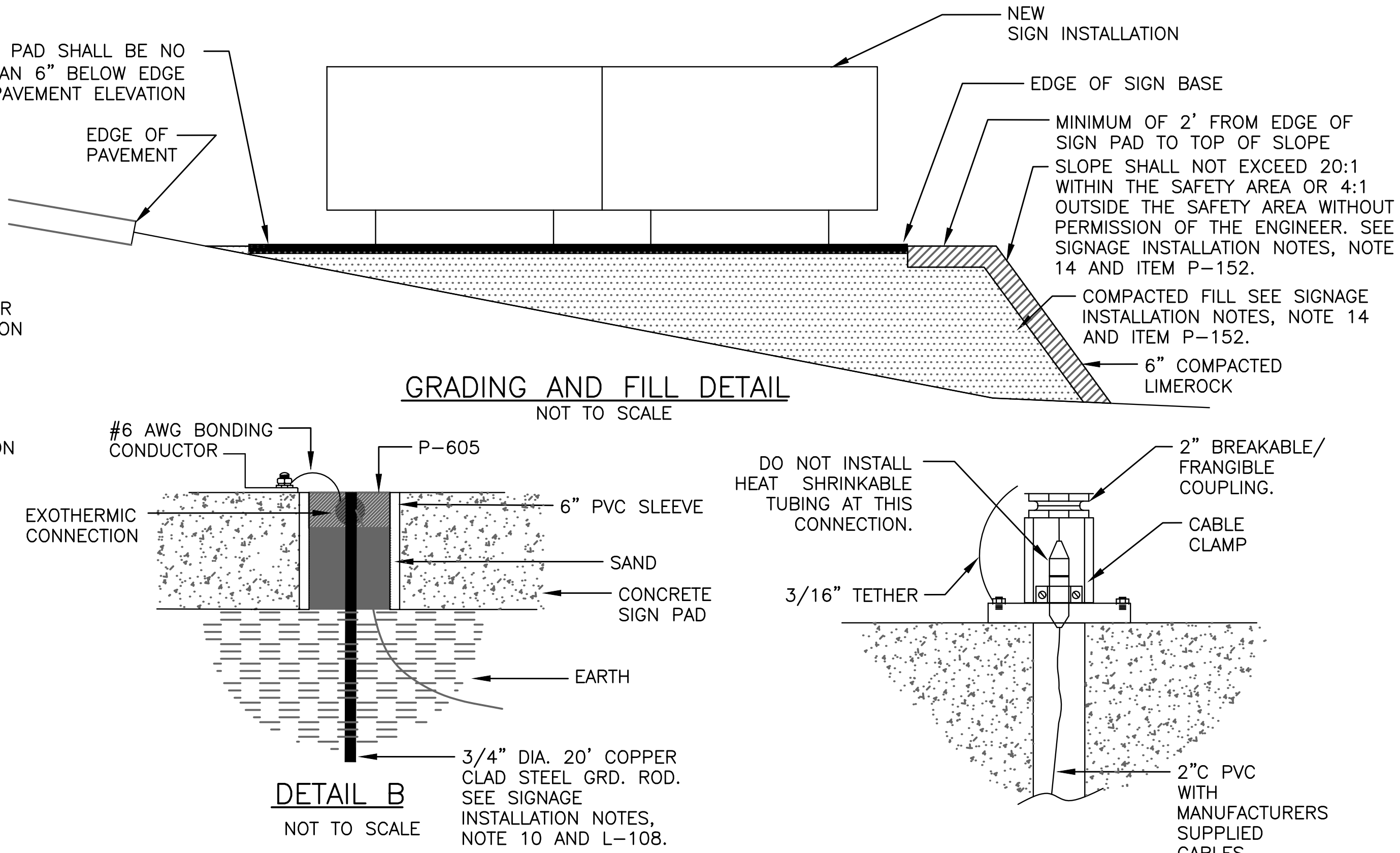
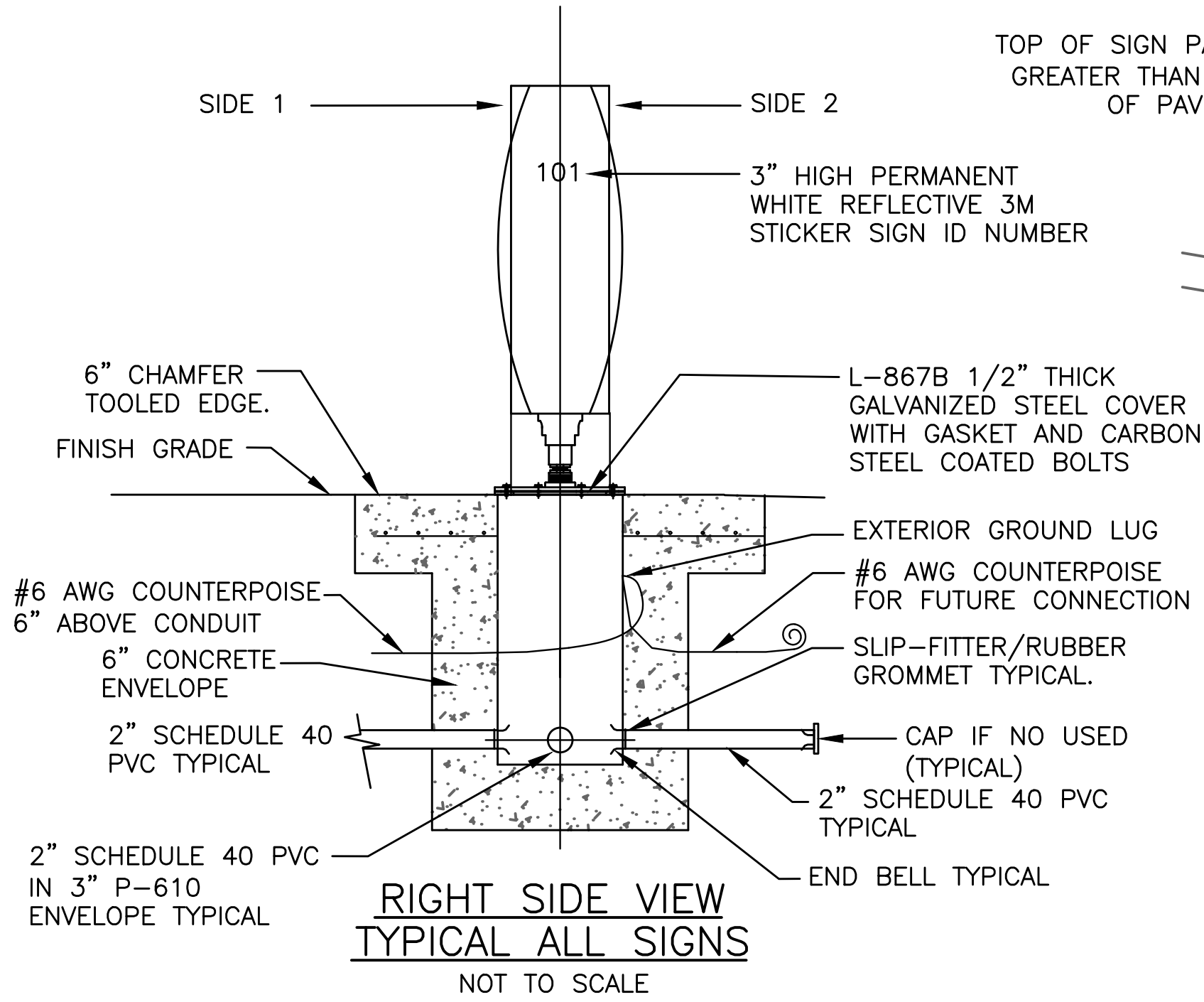
PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
ELECTRICAL DETAILS
6000 NW 21st Ave, Fort Lauderdale, FL 33309

SHEET NO.	OF
E13	15
TOTAL:	19
CAD FILE:	12357-E13-DETL
DRAWING FILE NO.	4-140-01

BID SET

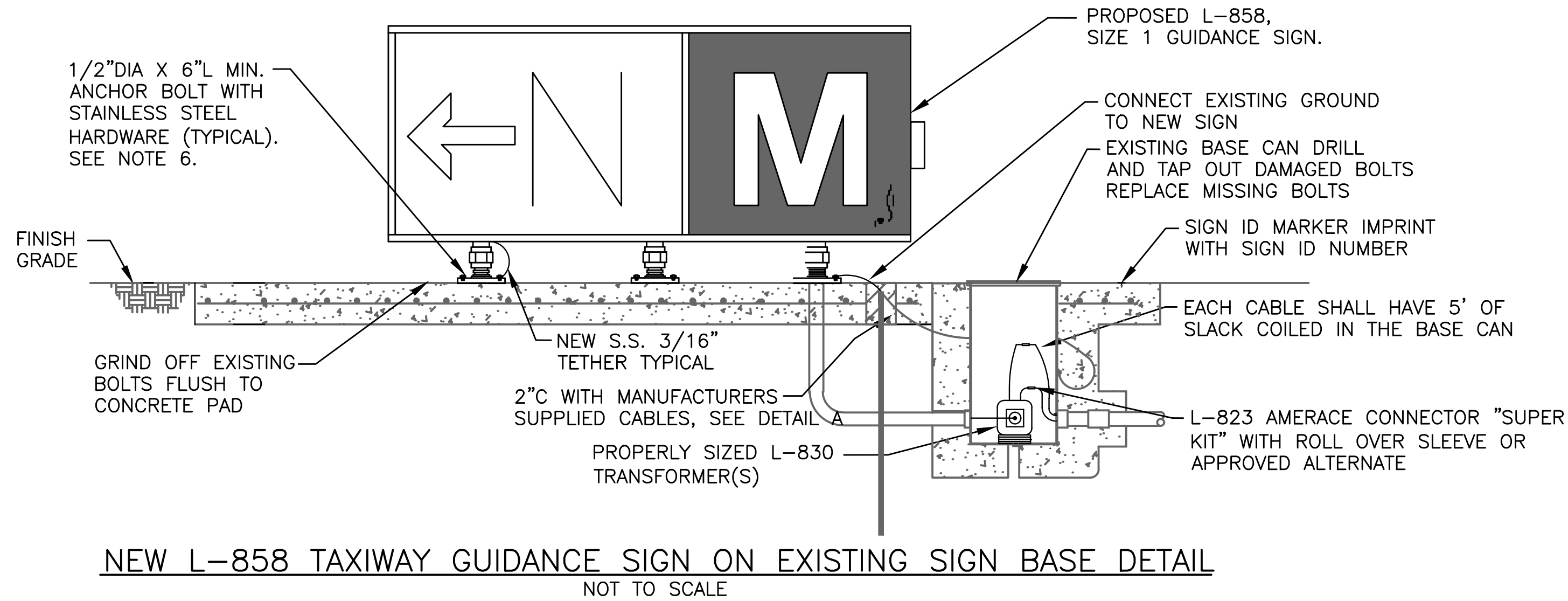
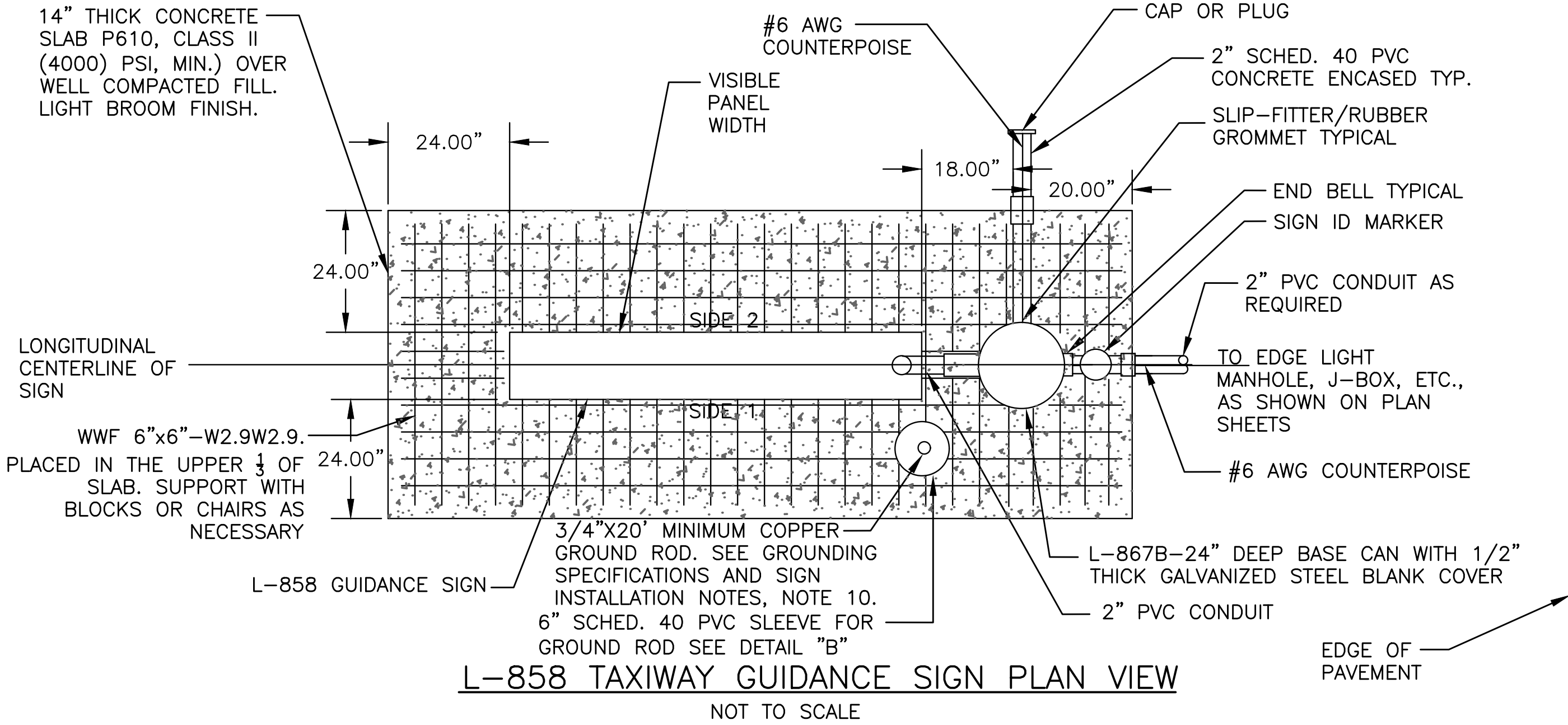
SIGN INSTALLATION NOTES

- SIGN IDENTIFICATIONS STICKERS, MATERIALS, SIGN BASE DETAILS, ETC. SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- THE CONCRETE SHALL COMPLY WITH P-610 SPECIFICATION, CLASS II.
- P-610 CONCRETE STEEL REINFORCEMENT SHALL BE TYPE ATM A615 GRADE 60. ALL REINFORCEMENTS SHALL HAVE A 2" MINIMUM CONCRETE COVER. REINFORCEMENT MAY BE ADJUSTED TO MISS INTERFERENCES.
- FOR LOCATION AND ORIENTATION OF SIGN AND FOUNDATION SEE PLANS.
- THE ORIENTATION, INSTALLATION AND DEPTH OF THE 2" CONDUIT FOR SIGN CIRCUITS SHALL BE COORDINATED WITH THE PLANS.
- METHODS OF SIGN INSTALLATION INCLUDING BOLT PATTERNS, ANCHOR METHODS AND ATTACHMENT DETAILS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS.
- ALL SIGNS SHALL BE INSTALLED WITH TETHERS ON A MINIMUM OF 2 LEGS PER SIGN. TETHERS SHALL BE 3/16" STAINLESS STEEL AIRCRAFT CABLE WITH A FORMED EYE ON BOTH ENDS. THE TETHER SHALL BE OF SUFFICIENT LENGTH TO HAVE 2" LACK (MIN.) WHEN ATTACHED BETWEEN SIGN AND THE FIXTURE PLATE.
- SIDE VIEW, PLAN VIEW, GRADE AND FILL DETAILS AND DETAILS A AND B ARE TYPICAL FOR ALL SIGNS.
- ALL CONDUIT SHALL BE 2" SCHEDULE 40 PVC UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL VERIFY THAT THE 6" SLEEVE IS LARGE ENOUGH TO ACCOMMODATE THE EXOTHERMIC CONNECTION. THE TOP OF THE GROUND ROD SHALL BE FLUSH WITH THE TOP OF THE SLAB. THE GROUND ROD SHALL NOT BE DRIVEN AFTER THE GROUNDING CONNECTION HAS BEEN MADE.
- SIGN LOCATIONS INDICATED ON THE PLANS ARE 10' MIN TO 20' MAX PERPENDICULAR DISTANCE FROM THE OUTSIDE EDGE OF THE TAXIWAY EDGE STRIP TO THE NEAREST SIDE OF SIGN. SIGNS SHALL BE STAKED IN THE FIELD, ORIENTATION AND LOCATION SHALL BE APPROVED BY THE OAR PRIOR TO INSTALLATION.
- THE SIGN TETHER AND BONDING CONDUCTOR SHALL NOT BE ATTACHED AT THE SAME ANCHOR BOLT. AN APPROVED MECHANICAL OR COMPRESSION LUG SHALL BE USED TO CONNECT THE BONDING CONDUCTOR TO THE SIGN FLANGE AND SIGN. THE TETHERS AND BONDING CONDUCTORS SHALL BE OF SUFFICIENT LENGTH TO ALLOW THE FRANGIBLE COUPLING TO OPERATE WITHOUT RESTRICTIONS AND TO ALLOW THE CABLE TO UNPLUG IF THE SIGN FALLS OVER.
- STRUCTURAL FILL FOR SIGN CONCRETE FOUNDATION PADS SHALL BE FREE-DRAINING, AS APPROVED BY THE ENGINEER SHALL BE PLACED IN HORIZONTAL LIFTS NOT TO EXCEED 4" IN LOOSE DEPTH AND COMPACT TO 95% MAXIMUM DENSITY AT 0 TO 2% ABOVE OPTIMUM MOISTURE AS DETERMINED BY ASTM D698 PAYMENT FOR EMBANKMENT MATERIALS AND PLACEMENT SHALL BE INCIDENTAL TO SIGN BID ITEM. SLOPE SHALL NOT EXCEED 1:20 WITHOUT PERMISSION OF THE ENGINEER.
- ALL AREAS FOR THE LEG FLANGE PLATES SHALL BE IN THE SAME PLANE.
- MINIMUM BURIAL DEPTH OF 2" SCHEDULE 40 PVC CONDUIT IS 24" TO FINISHED GRADE.



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Professional Engineer
License No. 73735
Amy L.
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DRAWN BY: DEU
DESIGNED BY: SCALE: NONE
CHECKED BY: JWK
FIELD BOOK: 33301

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

NO.	DATE	BY	CHKD	DESCRIPTION

PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
SIGNAGE DETAILS
6000 NW 21st Ave, Fort Lauderdale, FL 33309

SHEET NO. OF
E14 15
TOTAL: 19
CAD FILE: 12357-E14-DETL
DRAWING FILE NO. 4-140-01

BID SET

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NEW LIGHTED SIGN PANEL SCHEDULE									
SIGN NO.	NO. OF CHARACTERS	SIZE	STYLE	LAMP	TYPE		CIRCUIT	Sheet No.	Remarks
					SIDE 1 LEGEND	SIDE 2 LEGEND			
01	2	1	2	LED	L R	BLANK	RW 9W	E07	INSTALLED ON EXISTING CONCRETE PAD
					L 9				
02	5	1	2	LED	L R	BLANK	RW 9W	E07	INSTALLED ON EXISTING CONCRETE PAD
					P 27-9				
03	5	1	2	LED	L R	L BLANK	RW 9W	E08	INSTALLED ON EXISTING CONCRETE PAD
					B 27-9	B			
04	7	1	2	LED	R	BLANK	RW 13	E08	INSTALLED ON EXISTING CONCRETE PAD
					13-APCH				
05	7	1	2	LED	R	BLANK	RW 13	E08	INSTALLED ON EXISTING CONCRETE PAD
					13-APCH				
06	4	1	2	LED	L R	BLANK	RW 13	E08	INSTALLED ON EXISTING CONCRETE PAD
					F5 13				
09	2	1	2	LED	L	BLANK	FW	E07	INSTALLED ON EXISTING CONCRETE PAD
					F1				
15	3	1	2	LED	BLANK	R	RW 9W	E07	INSTALLED ON EXISTING CONCRETE PAD
						ILS			
20	3	1	2	LED	R	BLANK	RW 9W	E07	INSTALLED ON EXISTING CONCRETE PAD
					ILS				
41	3	1	2	LED	L Y	BLANK	FW	E07	INSTALLED ON EXISTING CONCRETE PAD
					P F↗				
42	8	1	2	LED	L Y	BLANK	FW	E07	INSTALLED ON EXISTING CONCRETE PAD
					F1 F↗P→L↘				
43	8	1	2	LED	Y L Y	BLANK	E07	E07	INSTALLED ON EXISTING CONCRETE PAD
					↖P↖L F F2→				
44	4	1	2	LED	Y	L	FW	E07	INSTALLED ON EXISTING CONCRETE PAD
					←F4	F			
45	5	1	2	LED	L Y	BLANK	FW	E07	INSTALLED ON EXISTING CONCRETE PAD
					F4 ←F→				
47	3	1	2	LED	L Y	BLANK	FW	E07	INSTALLED ON EXISTING CONCRETE PAD
					F B↗				
48	4	1	2	LED	L Y	BLANK	FW	E08	INSTALLED ON EXISTING CONCRETE PAD
					B ↖F↘				
226	4	1	2	LED	L Y	BLANK	FW	E07	INSTALLED ON EXISTING CONCRETE PAD
					F F4→				
227	3	1	2	LED	Y L	BLANK	FC	E08	INSTALLED ON EXISTING CONCRETE PAD
					↙B F				
228	7	1	2	LED	L Y	Y BLANK	RW 13	E08	INSTALLED ON EXISTING CONCRETE PAD
					F F5→13→	↖9			
272	5	1	2	LED	L Y	BLANK	FC	E08	INSTALLED ON EXISTING CONCRETE PAD
					F5 ←F→				
274	7	1	2	LED	L BLANK	Y L	FC	E08	INSTALLED ON EXISTING CONCRETE PAD
					F ←13←F5	F			
290	3	1	2	LED	L Y	BLANK	FW	E07	INSTALLED ON EXISTING CONCRETE PAD
					L F↗				
291	7	1	2	LED	Y L Y	Y BLANK	FW	E07	INSTALLED ON NEW CONCRETE PAD
					←F1 F F2↑	↖P L↑			
304	5	1	2	LED	L Y	BLANK	FW	E07	INSTALLED ON EXISTING CONCRETE PAD
					F2 ←F→				

SIGN NOTES:

SIGN TYPES:

L = TAXI LOCATION SIGN, BLACK BACKGROUND WITH YELLOW LETTERING AND A YELLOW BORDER.

D = RUNWAY DISTANCE TO GO SIGN, BLACK BACKGROUND WITH WHITE LETTERING.

Y = TAXIWAY DIRECTIONAL SIGN, YELLOW BACKGROUND WITH BLACK LETTERING.

R = MANDATORY HOLD SIGN, RED BACKGROUND WITH WHITE LETTERING OUTLINED IN BLACK. SEE NOTE 2

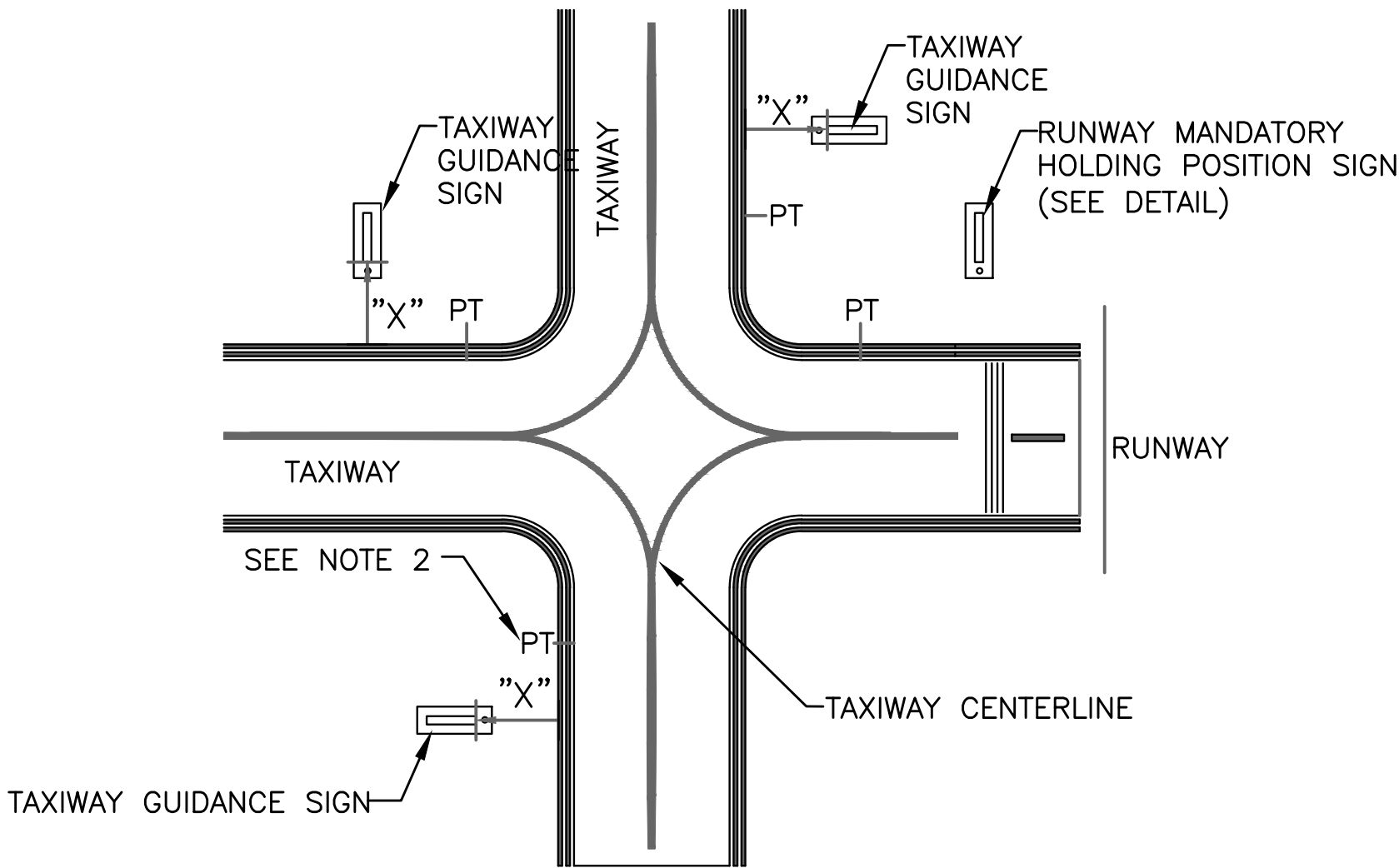
I = INFORMATIONAL SIGN WITH YELLOW BACKGROUND WITH BLACK LETTERING

SIGN PANEL NOTES:

1. ARROWS INDICATE DIRECTION OF TAXIWAYS.
2. CONTRACTOR SHALL PROVIDE AND INSTALL NEW MANDATORY HOLD SIGNS IN LINE WITH THE HOLDING POSITION MARKINGS WITH A TOLERANCE OF +10FT AS PER THE FAA CIRCULAR AC 150/5340-18, LATEST EDITION.
3. IT IS THE RESPONSIBILITY OF CONTRACTOR TO ENSURE THAT THE DIRECTIONAL ARROWS ON ANGLED TAXIWAYS (NOT 90°) MATCHES CENTERLINE OF REFERENCED TAXIWAY TO THE NEAREST 22.5°: SEE ROSE COMPASS FOR GUIDANCE.
4. CONTRACTOR SHALL PROVIDE ALL SIGN LEGENDS AND BLANK PANELS REQUIRED BY THE SIGN PANEL SCHEDULE, MANUFACTURER AND FAA AC150/5340-18, LATEST EDITION.
5. CONTRACTOR SHALL PROVIDE MESSAGE DIVIDERS ON NEW AND EXISTING SIGNS TO BE REPANELED PER AC150/5340-18, LATEST EDITION. MESSAGE DIVIDERS SHALL BE INCLUSIVE TO THE LINE ITEMS FOR SIGNAGE.
6. SIGNS SHALL BE PAID BY CHARACTER, UNLESS OTHERWISE INDICATED. ONE CHARACTER SHALL BE DEFINED AS 1 LETTER, NUMERAL OR SPECIAL CHARACTER/PUNCTUATION REGARDLESS OF TEXT OR BACKGROUND COLOR CHANGES. SIGNS SHALL BE PAID FOR BY THE SIGN SIDE THAT HAS THE GREATEST NUMBER OF CHARACTERS AND SHALL NOT ACCOUNT FOR MESSAGE DIVIDERS OR CHANGE OF BACKGROUND COLOR. PANELS FOR BOTH SIDES OF SIGN SHALL BE INCLUSIVE TO THE LINE ITEM.

SIGN LAYOUT AND OFFSET NOTES:

1. MANDATORY HOLDING POSITION SIGNS ARE LOCATED IN-LINE WITH THE FIRST STRIPE CLOSEST TO THE TAXIWAY CENTERLINE OF THE HOLDING POSITION MARKINGS WITH A TOLERANCE OF +10FT FARTHER AWAY FROM HOLD POSITION MARKING, SEE FAA AC150/5340-18, LATEST EDITION.
2. RUNWAY EXIT SIGNS AND TAXIWAY GUIDANCE SIGNS SHALL BE TYPICALLY LOCATED 15' PRIOR TO THE POINT OF TANGENCY (PT). SEE GEOMETRY PLANS FOR PT LOCATIONS. ALL SIGNS SHALL BE STAKED IN THE FIELD AND THE FINAL LOCATION APPROVED BY CPM PRIOR TO INSTALLATION.
3. ALL SIZE 1 SIGNS SHALL BE INSTALLED AT 15' FROM THE DEFINED EDGE OF PAVEMENT TO THE NEAREST EDGE OF THE GUIDANCE SIGN FRAME. IF A SIGN CANNOT BE INSTALLED AT ITS STANDARD LOCATION DUE TO AN OBSTRUCTION, A TOLERANCE OF 10 TO 20 FEET FROM THE DEFINED EDGE OF PAVEMENT TO THE NEAREST EDGE OF THE GUIDANCE SIGN FRAME IS ALLOWED AS STATED IN FAA AC150/5340-18 LATEST EDITION.

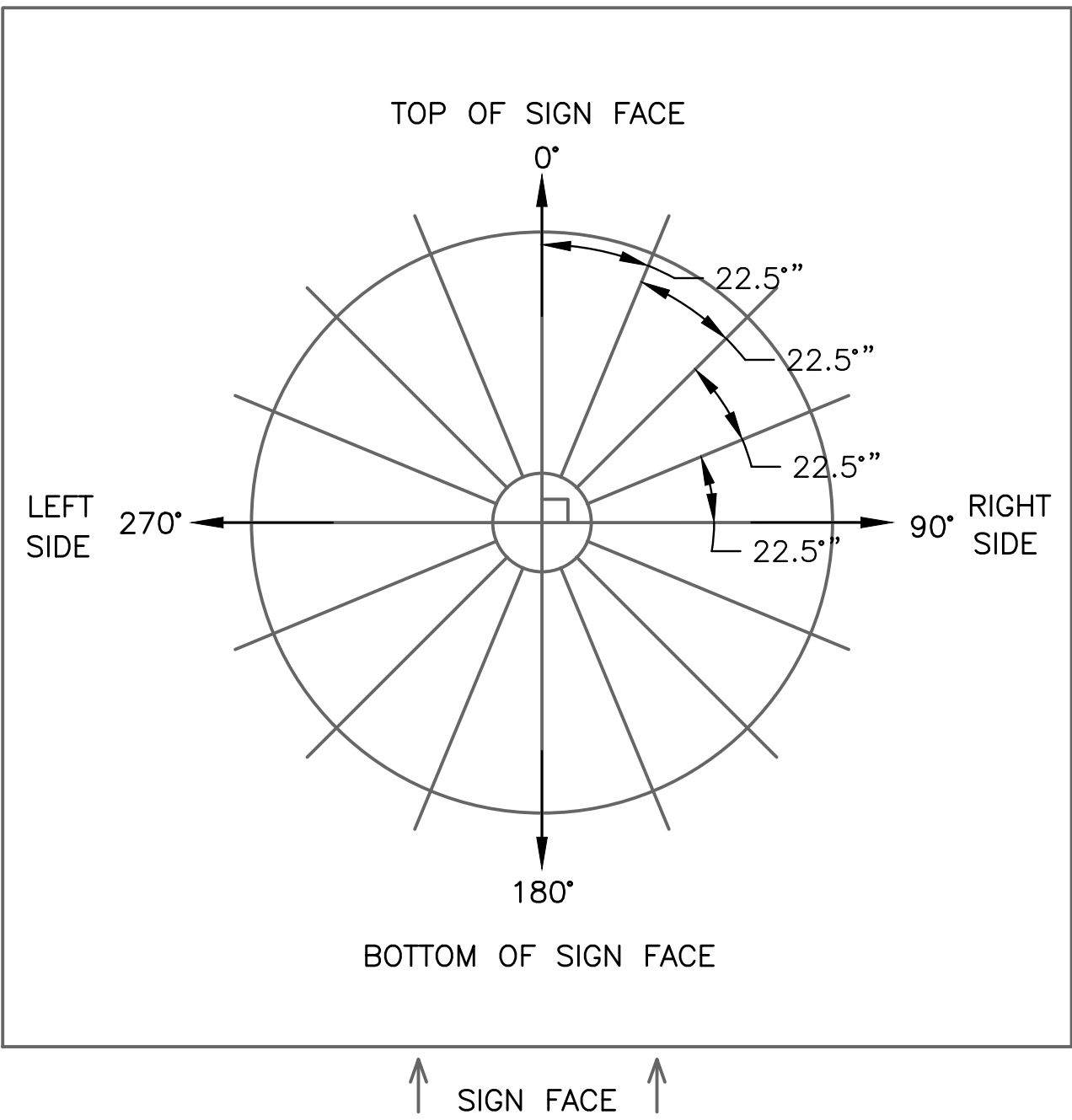


GUIDANCE SIGN TYPICAL OFFSET AND POSITIONS

EXAMPLE OF A PERPENDICULAR TAXIWAY CONNECTOR LESS THAN 150' WIDE

NTS
"X" = OFFSET DISTANCE FROM DEFINED PAVEMENT EDGE (OUTSIDE EDGE OF OUTBOARD STRIPE) TO THE NEAREST EDGE OF THE GUIDANCE SIGN FRAME.
SIZE 1 SIGNS = 15'

ARROW ROTATION ANGLE DATA
AS VIEWED LOOKING AT SIGN FACE



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Amy L.
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DRAWN BY: DATE: 05-10-18
DESIGNED BY: SCALE: NONE
CHECKED BY: JWK
FIELD BOOK:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE

100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS		NO.	DATE	BY	CHK'D	DESCRIPTION

PROJECT # 12357
TAXIWAY F WEST
LIGHTING IMPROVEMENTS
SIGNAGE SCHEDULE AND DETAILS
6000 NW 21st Ave, Fort Lauderdale, FL 33309

SHEET NO. OF
E15 15

TOTAL: 19

CAD FILE: 12357-E14-DETL

DRAWING FILE NO. 4-140-01

BID SET

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT

MINORITY BUSINESS ENTERPRISE (MBE) - WOMEN BUSINESS ENTERPRISE (WBE)

PRIME CONTRACTOR IDENTIFICATION FORM

In order to assist us in identifying the status of those companies doing business with the City of Fort Lauderdale, this form must be completed and returned with your bid package.

Name of Firm:

Address of Firm:

Telephone Number:

Name of Person Completing
Form:

Title:

Signature:

Date:

City Project Number:

City Project Description:

Please check the item(s) which properly identify the status of your firm:

- ☐ Our firm is not a MBE or WBE.
- ☐ Our firm is a MBE, as at least 51 percent is owned and operated by one or more socially and economically disadvantaged individuals.
- ☐ American Indian ☐ Asian ☐ Black ☐ Hispanic
- ☐ Our firm is a WBE, as at least 51 percent is owned and operated by one or more women.
- ☐ American Indian ☐ Asian ☐ Black ☐ Hispanic

MBE/WBE CONTRACTOR INFORMATION

The City, in a continuing effort, is encouraging the increased participation of minority and women-owned businesses in Public Works Department related contracts. Along those lines, we are requiring that each firm provide documentation detailing their own programs for utilizing minority and women-owned businesses.

Submit this information as a part of this bid package and refer to the checklist, to ensure that all areas of concern are covered. The low responsive bidder may be contacted to schedule a meeting to discuss these objectives. It is our intention to proceed as quickly as possible with this project, so your cooperation in this matter is appreciated.

CONTRACTOR CHECKLIST

☐ List Previous City of Fort Lauderdale Contracts

	5
	6

☐ Number of Employees in your firm

--Percent () Women

--Percent () Minorities

--Job Classifications of Women and Minorities

	5
	6

☐ Use of minority and/or women subcontractors on past projects.

	5
	6

☐ Nature of the work subcontracted to minority and/or women-owned firms.

	5
	6

☐ How are subcontractors notified of available opportunities with your firm?

	5
	6

☐ Anticipated amount to be subcontracted on this project.

	5
	6

☐ Anticipated amount to be subcontracted to minority and/or women-owned businesses on this project.

	5
	6

QUESTIONNAIRE SHEET

PLEASE PRINT OR TYPE:

Firm Name: President

Business Address:

<input type="text"/>	5
<input type="text"/>	6

Telephone:

Fax:

E-Mail Address:

What was the last project of this nature which you completed? Include the year, description, and contract value.

<input type="text"/>	5
<input type="text"/>	6

The following are named as three corporations and representatives of those corporations for which you have performed work similar to that required by this contract, and which the City may contact as your references (include addresses, telephone numbers and e-mail addresses). Include the project name, year, description, and contract value.

<input type="text"/>
<input type="text"/>
<input type="text"/>

How many years has your organization been in business?

Have you ever failed to complete work awarded to you; if so, where and why?

The name of the qualifying agent for the firm and his position is: Certificate of Competency Number of Qualifying Agent: Effective Date: Expiration Date: Licensed in: Engineering Contractor's License #

(County/State)

Expiration Date:

NOTE: To be considered for award of this contract, the bidder must submit a financial statement upon request.

NOTE: Contractor must have proper licensing and shall provide copy of same with his proposal.

QUESTIONNAIRE SHEET

1. Have you personally inspected the proposed work and have you a complete plan for its performance?

	5
	6

2. Will you sublet any part of this work? If so, list the portions or specialties of the work that you will.

a)

--

b)

--

c)

--

d)

--

e)

--

f)

--

g)

--

3. What equipment do you own that is available for the work?

	5
	6

4. What equipment will you purchase for the proposed work?

	5
	6

5. What equipment will you rent for the proposed work?

	5
	6

REFERENCES

A minimum of three (3) references shall be provided:

1. **Company Name:**
Address:
Contact:
Phone #: Email:
Contract Value: Year:
Description:
2. **Company Name:**
Address:
Contact:
Phone #: Email:
Contract Value: Year:
Description:
3. **Company Name:**
Address:
Contact:
Phone #: Email:
Contract Value: Year:
Description:
4. **Company Name:**
Address:
Contact:
Phone #: Email:
Contract Value: Year:
Description:
5. **Company Name:**
Address:
Contact:
Phone #: Email:
Contract Value: Year:
Description:

NON-COLLUSION STATEMENT:

By signing this offer, the vendor/contractor certifies that this offer is made independently and *free* from collusion. Vendor shall disclose below any City of Fort Lauderdale, FL officer or employee, or any relative of any such officer or employee who is an officer or director of, or has a material interest in, the vendor's business, who is in a position to influence this procurement.

Any City of Fort Lauderdale, FL officer or employee who has any input into the writing of specifications or requirements, solicitation of offers, decision to award, evaluation of offers, or any other activity pertinent to this procurement is presumed, for purposes hereof, to be in a position to influence this procurement.

For purposes hereof, a person has a material interest if they directly or indirectly own more than 5 percent of the total assets or capital stock of any business entity, or if they otherwise stand to personally gain if the contract is awarded to this vendor.

In accordance with City of Fort Lauderdale, FL Policy and Standards Manual, 6.10.8.3,

3.3. City employees may not contract with the City through any corporation or business entity in which they or their immediate family members hold a controlling financial interest (e.g. ownership of five (5) percent or more).

3.4. Immediate family members (spouse, parents and children) are also prohibited from contracting with the City subject to the same general rules.

Failure of a vendor to disclose any relationship described herein shall be reason for debarment in accordance with the provisions of the City Procurement Code.

NAME**RELATIONSHIPS**

-

In the event the vendor does not indicate any names, the City shall interpret this to mean that the vendor has indicated that no such relationships exist.

**CONTRACTOR'S CERTIFICATE OF COMPLIANCE WITH
NON-DISCRIMINATION PROVISIONS OF THE CONTRACT**

The completed and signed form should be returned with the Contractor's submittal. If not provided with submittal, the Contractor must submit within three business days of City's request. Contractor may be deemed non-responsive for failure to fully comply within stated timeframes.

Pursuant to City Ordinance Sec. 2-17(a)(i)(ii), bidders must certify compliance with the Non-Discrimination provision of the ordinance.

- (a) Contractors doing business with the City shall not discriminate against their employees based on the employee's race, color, religion, gender (including identity or expression), marital status, sexual orientation, national origin, age, disability or any other protected classification as defined by applicable law.

Contracts. Every Contract exceeding \$100,000, or otherwise exempt from this section shall contain language that obligates the Contractor to comply with the applicable provisions of this section.

The Contract shall include provisions for the following:

- (i) The Contractor certifies and represents that it will comply with this section during the entire term of the contract.
- (ii) The failure of the Contractor to comply with this section shall be deemed to be a material breach of the contract, entitling the City to pursue any remedy stated below or any remedy provided under applicable law.

Authorized Signature

Print Name and Title

Date

CONSTRUCTION BID CERTIFICATION

Please Note: All fields below must be completed. If the field does not apply to you, please note N/A in that field. If you are a foreign corporation, you may be required to obtain a certificate of authority from the department of state, in accordance with Florida Statute §607.1501 (visit <http://www.dos.state.fl.us/>).

Company: (Legal Registration)

Address:

City: State: Zip:

Telephone No. FAX No. Email:

Does your firm qualify for MBE or WBE status: MBE ☐ WBE ☐

If a corporation, state the name of the President, Secretary and Resident Agent. If a partnership, state the names of all partners. If a trade name, state the names of the individuals who do business under the trade name.

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Name	Title	Name	Title
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Name	Title	Name	Title

ADDENDUM ACKNOWLEDGEMENT - Bidder acknowledges that the following addenda have been received and are included in the bid:

Addendum No.	Date Received	Addendum No.	Date Received	Addendum No.	Date Received	Addendum No.	Date Received
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

VARIANCES: If you take exception or have variances to any term, condition, specification, or requirement in this bid you must specify such variance in the space provided below or reference in the space provided below all variances contained on other pages within your bid. Additional pages may be attached if necessary. No variances will be deemed to be part of the bid submitted unless such is listed and contained in the space provided below. The City does not, by virtue of submitting a variance, necessarily accept any variances. If no statement is contained in the below space, it is hereby implied that your response is in full compliance with this competitive solicitation. If you do not have variances, simply mark N/A. If submitting your response electronically through BIDS SYNC you must also click the "Take Exception" button.

5

6

The below signatory affirms that he has or will obtain all required permits and licenses from the appropriate agencies, and that his firm is authorized to do business in the State of Florida. The below signatory agrees to furnish all labor, tools, material, equipment and supplies, and to sustain all the expense incurred in doing the work set forth in strict accordance with the bid plans and contract documents at the unit prices indicated if awarded a contract. The below signatory has not divulged to, discussed, or compared this bid with other bidders, and has not colluded with any other bidder or parties to this bid whatsoever. Furthermore, the undersigned guarantees the truth and accuracy of all statements and answers contained in this bid. The below signatory also hereby agrees, by virtue of submitting or attempting to submit a bid, that in no event shall the City's liability for bidder's direct, indirect, incidental, consequential, special or exemplary damages, expenses, or lost profits arising out of this competitive solicitation process, including but not limited to public advertisement, bid conferences, site visits, evaluations, oral presentations, or award proceedings exceed the amount of Five Hundred Dollars (\$500.00). This limitation shall not apply to claims arising under any provision of indemnification or the City's protest ordinance contained in this competitive solicitation.

Submitted by:

Name (printed)

Signature

| _____
Date:


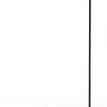

| _____
Title

FXE Taxiway Foxtrot Lighting Improvements

Project Number: 12357 (bid #:12161-283)

Pre-bid Meeting 07/24/18 @ 11:00 AM

SIGN IN SHEET

NAME & TITLE	INITIALS	REPRESENTING	ADDRESS	TELEPHONE	FAX NO.	E-MAIL
1 Fernando Blanco, Airport Engineer/ PM II		City of Fort Lauderdale Public Works Engineering Division	100 North Andrews Ave Fort Lauderdale, FL 33301	OFFICE: 954-828-6536 CELL: 954-415-7292	954-828-5074	fbianco@fortlauderdale.gov
2 Carlton M. Harrison, Asst. Airport Manager		City of Fort Lauderdale Executive Airport	6000 NW 21 Ave Fort Lauderdale, FL 33309	OFFICE: 954-828-4976 CELL: 478-714-2161	954-938-4974	charrison@fortlauderdale.gov
3 Spencer Thornton, Asst. Airport Manager		City of Fort Lauderdale Executive Airport	6000 NW 21 Ave Fort Lauderdale, FL 33309	OFFICE: 954-828-4969	954-938-4974	sthornton@fortlauderdale.gov
4 Nick Slagle, Airport Operations Supervisor		City of Fort Lauderdale Executive Airport	6000 NW 21 Ave Fort Lauderdale, FL 33309	OFFICE: 954-828-4963 CELL: 954-649-6318	954-938-4974	nslagle@fortlauderdale.gov
5 Frank Chesser, Airfield Electrician		City of Fort Lauderdale Executive Airport	6000 NW 21 Ave Fort Lauderdale, FL 33309	OFFICE: 954-828-4975 CELL: 954-383-7998	954-938-4974	fchesser@fortlauderdale.gov
6 Ginah Joseph, Procurement Specialist II		City of Fort Lauderdale Public Works Engineering Division	100 North Andrews Ave Fort Lauderdale, FL 33301	OFFICE: 954-828-4797		gjoseph@fortlauderdale.gov
7 Joe Sawmiller, PE		HDR Engineering, Inc.	5426 Bay Center Drive, Suite 400 Tampa, FL 33609	OFFICE: 813-282-2495 CELL: 813-245-6660		joe.sawmiller@hdrinc.com
8 John Neff, P.E. Senior Project Manager		HDR Engineering, Inc.	3150 West Commercial Blvd. Suite 100 Fort Lauderdale, FL 33309	OFFICE: 954-233-4915 CELL: 954-295-3031		john.neff@hdrinc.com
9 Amy Champagne-Baker, PE		Hilliers Electrical Engineering, Inc.	23257 SR 7, Suite 100 Boca Raton, FL 33428	OFFICE: 561-451-9165 (x224)	561-451-4886	achampagne@hilliersee.com
10 James Kappes, PE		Hilliers Electrical Engineering, Inc.	23257 SR 7, Suite 100 Boca Raton, FL 33428	OFFICE: 561-451-9165 (x230)	561-451-4886	jkappes@hilliersee.com
 Oluwafemi Oke Airport Operations	OO	FXE				Ooke@fortlauderdale.gov

FXE Taxiway Foxtrot Lighting Improvements

Project Number: 12357 (bid #:12161-283)

Pre-bid Meeting 07/24/18 @ 11:00 AM

SIGN IN SHEET

NAME & TITLE	INITIALS	REPRESENTING	ADDRESS	TELEPHONE	FAX NO.	E-MAIL
Patrick Narcisse Project Engineer	P.N	HyPower	5913 31st AVE Fort Lauderdale FL 33309	(954) 299-9814		pnarcisse@hypoenerg.com
Taneil Mack Airport Intern	(Signature)	City of Fort Lauderdale FXE				Tmack@fortlauderdale.gov
Posh Supramoni Project Engineer	PS	HDR	3250 W. Commercial Bldg. Fort Lauderdale, FL 33309	954-233-4929		posh.supramoni@hdrinc.com
Margaret Anglin	MA	Mr. Wrenn Electric	3701 SW 47th Ave Davie FL 33314	954 792 4880		Margaret.a@MrWrenn.com
16						
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City of Fort Lauderdale

Bid 12161-283

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357****ITEM L-126
AIRFIELD SIGNAGE SYSTEMS****DESCRIPTION****126-1.1 GENERAL.**

This item shall consist of airfield guidance and distance remaining sign lighting systems and re-paneling of existing signage furnished and installed in accordance with this specification, any referenced specifications, and the applicable Federal Aviation Administration Advisory Circulars.

The systems shall be installed at the location and in accordance with the dimensions, layout, design, and details shown in the plans. This item shall include furnishing and installing all signs, transformers, base cans, mounting assemblies, base plates, adapter rings, concrete work, cable connections, all lamps, testing of the installation and all incidentals and appurtenances necessary to place the systems in operation as completed units to the satisfaction of the Engineer. All work shall be constructed and installed in accordance with the drawings and specifications. The work shall include all cable, conduit, raceway, terminations, accessories and all incidentals required to provide a complete and operational system to the satisfaction of the Engineer.

126-1.2 REFERENCED MATERIALS.

Additional details pertaining to specific systems covered in this section are contained in the Federal Aviation Administration (FAA) Advisory Circulars (AC's), latest edition, listed below:

150/5340-1	Standards for Airport Markings
150/5340-18	Standards for Airport Sign Systems
150/5340-26	Maintenance of Airport Visual Aid Facilities
150/5340-30	Design and Installation Details for Airport Visual Aids
150/5345-7	Specification for L-824 underground Electrical Cable for Airport Lighting Circuits
150/5345-26	FAA Specification for L-823 Plug and Receptacle, Cable Connectors
150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
150/5345-47	Specification for Series to Series Isolation Transformers for Airport Lighting Systems
150/5345-53	Airport Lighting Equipment Certification Program
150/5370-2	Operational Safety on Airports During Construction
150/5370-10	Standards for Specifying Construction of Airports

The Contractor is responsible for using the latest edition of the referenced FAA Advisory Circulars.

AIRFIELD SIGNAGE SYSTEMS**L-126 - 1 - REV**

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FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357****126-1.3 SUBMITTALS.**

Shop drawings of each airfield sign lighting component, indicating FAA approval, shall be submitted to the Engineer for Engineer's approval and be approved prior to ordering any materials for this item. This submittal shall include the proposed method of installation for all airfield sign lighting components.

a. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable). Contractor is solely responsible for delays in project accruing directly or indirectly from late submissions or resubmissions of submittals.

b. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the plans and specifications. The Contractor's submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section. The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer's opinion, does not meet the system design and the standards and codes, specified herein.

c. The submittal shall include data on all component parts of the item or system, and shall include the manufacturers list of recommended spare parts for one year's use.

126-1.4 QUALIFICATIONS.

The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in his opinion, does not meet the system design and the standards and codes, specified herein. All lighted signage panels shall be provided by the existing sign manufacturer.

126-1.5 SPARE PARTS.

The Manufacturer/Contractor by submitting a bid assures the Owner that it will sell to the Owner or any of the Owner's designated representatives any and all parts for materials furnished under this contract at the lowest price the Contractor or its subcontractors, or suppliers furnish them to any second party. This pricing requirement shall apply for five (5) years from the date of final acceptance of the contract. In furnishing parts at this price, the Contractor shall provide the parts within one week of an approved purchase agreement. The Owner shall have the right to verify that the prices the Owner pays for the parts are the lowest and if they are determined not to be, then the Owner shall receive a payment from the Manufacturer/Contractor in the amount of one and one-half (1.5) times the difference. The Contractor is responsible to coordinate and obtain this agreement, in writing, from the manufacturer.

126.-2 EQUIPMENT AND MATERIALS**126-2.1 GENERAL.**

a. Airfield sign lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified and listed under Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, latest edition.

b. All other equipment and materials covered by other referenced specification shall be subject to acceptance through manufacturer's certification of compliance with the applicable

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357**

specification. The Contractor shall submit the manufacturer's certificate of compliance with the applicable equipment submittals.

c. Manufacturers certifications shall not relieve the Contractor of his responsibility to provide materials in accordance with these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials which do comply with these specifications, at the sole cost of the Contractor.

d. All items required per this section are for use on a 6.6 amp primary series circuit unless specifically noted otherwise.

126-2.2 WARRANTY.

a. Except as modified below, all equipment and materials furnished and installed under this section shall be warranted against defects in materials and workmanship for a period of twelve (12) months or the manufacturer's standard warranty period whichever is greater, from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

b. Per FAA Engineering Brief 67D, All LED light fixtures with the exception of obstruction lighting (AC 150/5345-43) must be warranted by the manufacturer for a minimum of 4 years after date of installation inclusive of all electronics. The replacement criterion for light fixtures is per AC 150/5340-26.

126-2.3 BASIS OF DESIGN.

The airfield sign lighting systems are designed using the below listed maximum sign loads. Approved airfield sign lighting fixtures with higher loads are permissible provided the Contractor assumes all costs for the redesign of the airfield sign lighting and necessary power distribution systems and all costs incurred furnishing and installing any additional equipment. In no case shall the Contractor be allowed to reduce the size of the constant current regulators or the power distribution systems. Sign loads shall not exceed the following values:

L-858 B, Y, R, L, & C
Boundary, Destination,
Mandatory, Taxiway End, &
Distance to Go Signs

Size 2	Style 2, Information	Style 3, Information
1 module/1-2 characters	90 VA	90 VA
2 module/3-4 characters	95 VA	95 VA
3 module/5-6 characters	100 VA	100 VA
4 module/7-8 characters	100 VA	100 VA
RDR	95VA	95VA

126-2.4 L-858 SIGNS.

The signs shall be L-858Y, R, C, L and B and shall be internally lighted as indicated on the plans. The size of the units shall be size 2 for the L-858Y, C, L and R and size 4 for the L-858B.

The signs shall be furnished with LED light bars installed. The L-858B, Y, R, L units shall be style required by the circuit the respective sign is connected to. All units shall be Class 1, Mode 2. All signs shall be furnished with tethers on a minimum of two legs per sign. The tethers shall be fabricated from 3/16 inch stainless steel aircraft cable with a formed eye on both ends and shall be of ample length to attach the sign (min. of 6 inches of slack) to the flange plate and allow the frangible coupling and disconnect plug to function properly. The bolting pattern, method of anchoring, etc., shall be per the sign manufacturer's recommendation. The sign manufacturer shall submit to the Engineer calculations showing the sign and anchoring methods will withstand a 200 MPH jet blast in accordance with Paragraph 4.1.2 of AC 150/5345-44, latest edition. The signs shall be supplied with the messages as shown on the sign schedule.

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357**

Each sign shall be furnished with an on-off toggle switch with weatherproof cover. The switch shall be used by maintenance personnel to de-energize the sign so maintenance work can be performed. The switch shall be located immediately adjacent to the load side of the L-823 disconnect plug. The weatherproof cover shall provide protection from driving rain and shall have a spring operated closing device. The weatherproof cover shall also provide physical protection for the switch handle.

The nameplate required by 150/5345-44 shall be made of metal with the data stamped into the metal nameplate.

Provide 3-M Scotch-Lite or approved equivalent 3 inch high, die cut labels for each sign, labels shall be reflective film, with pressure-sensitive adhesive backing, suitable for exterior applications. Labels shall be UV resistant. Labels shall be white for installation on black surface, black for installation on other surfaces. Text shall be: number and letter style; Helvetica medium, upper case, 3 inches in height.

Each unit shall be furnished complete with the specified panels, mounting assemblies, breakable couplings, cable tether connecting the sign to the base, transformers and a base. The basis of design for the signage on the project is based on characters. A character shall be defined as a letter, number or special character such as punctuation. Line item quantities are determined by the greatest number of characters on a single side of a sign and does not include required message dividers or required background/text color changes. Each signage line items cost shall include sign panels for legends on both sides of the sign. Payment shall be made for signs based on the actual number of characters installed, not to exceed the number of characters reflected on the schedule, regardless of the panel color requirements, message dividers, manufacturing methods or techniques.

Sign lengths shall be the shortest possible however must conforming to FAA AC 150/5345-44, latest edition. If a "blank" panel is installed on sign legend, the blank shall be on the furthest position from the Runway/Taxiway pavement so that the sign legend text is closest to the pavement.

126-2.5 LIGHT BASES.

All light bases (base cans) shall meet the requirements of FAA AC 150/5345-42, latest edition. The light bases shall be L-867 type for the non-load bearing units and L-868 for the load bearing units. The sizes of the units shall be as shown in the Plans and in this specification. Two piece base cans, may be used, where paving interferences require their use. All light bases, transformer houses and junction boxes shall be Class 1A, hot dipped galvanized steel.

Light bases and base extensions shall be 12" nominal outside diameter and depth as noted on the drawings. Base shall be provided with an internal and external ground lug to accept a no. 6 AWG ground cable and threaded hubs for conduit entrance. Light bases shall be FAA type L-867 to comply with FAA Advisory Circular 150/5345-42, latest edition.

Blank cover plates shall be sized to match the corresponding light base, junction box, etc. Cover plates shall be 1/2" thick and provided with stainless steel bolts, gaskets, and associated hardware.

126-2.6 CABLES.

Cables shall comply with specification L-108, Installation of Underground Cable for Airports.

AIRFIELD SIGNAGE SYSTEMS**L-126 - 4 - REV**

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357****126-2.7 CONNECTORS.**

Connectors shall comply with specification L-108, Installation of Underground Cable for Airports.

126-2.8 ISOLATION TRANSFORMERS.

Isolation transformers shall be for 6.6Amp, series lamp(s) (as required) conforming to requirement of Advisory Circular 150/5345-47, latest addition. Isolation transformers shall be compatible with the L-823 connector kits for watertight connections and per FAA requirements.

126-2.9 FRANGIBLE COUPLINGS.

All elevated items shall be installed on frangible couplings in accordance with the respective Federal Aviation Administration Advisory Circular. Frangible couplings shall be metallic and provide an electrical grounding path between the fixture/sign and the base can.

126-2.10 LAMPS.

Airfield sign lamps shall be LED light bars of size and type to provide distribution and minimum output requirements as detailed in FAA AC 150/5345-44, latest edition. All airfield signs shall be installed with light bars and include drivers.

126-2.11 TAPE.

Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88, respectively, as manufactured by the Minnesota Mining and Manufacturing Company, or an approved equal. Electrical coating shall be Scotchkote as manufactured by Minnesota Mining and Manufacturing Company, or an approved equal.

126-2.12 CONCRETE.

Concrete for backfill, sign pads and base cans in the runway/taxiway safety areas, in existing pavement where aircraft traffic will resume immediately upon re-opening, or in areas otherwise indicated in the details and drawings shall conform to the requirements of P-610 Class III concrete with a minimum 5 hour strength of 2,500 psi and a minimum 28 day strength of 5,000 psi. A concrete mix design shall be submitted and approved before commencement of work.

Concrete for backfill, sign pads and base cans not in the runway/taxiway safety areas or in existing pavement where aircraft traffic will resume immediately upon re-opening, shall conform to the requirements of P-610 Class II concrete with a minimum 28 day strength of 4,000 psi. A concrete mix design shall be submitted and approved before commencement of work.

126-2.13 REINFORCING STEEL.

All reinforcing steel shall be ASTM A 615, Grade 60.

126-2.14 CONDUIT.

Conduit shall comply with specification L-110, Installation of Airport Underground Electrical Duct.

126-2.15 BOLTING HARDWARE.

All airfield lighting bolting hardware shall be stainless steel and shall meet FAA requirements. All bolts 1/4 inch and larger shall be hex head type. All bolts smaller than 1/4 inch trade size shall be recessed Allen type. All bolted connections shall utilize an anti-rotational locking type device. The base can cover and fixture mounting bolts shall extend thru the base can mounting flange into the base can a minimum of 0.75 inch beyond machined thread system. The bolts shall have enough thread length so they do not shoulder out before the fixture is securely tightened.

AIRFIELD SIGNAGE SYSTEMS**L-126 - 5 - REV**

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357****126-2.16 ANTI-SEIZE COMPOUND.**

The anti-seize compound shall be marine grade Ideal "Noalox" or approved equivalent. Use Dow Coming Compound III valve lubricant non-curing sealant to seal between sections of base cans, spacer rings, adaptor rings or fixtures.

126-2.17 FILLERS AND ADHESIVES.

Joint sealing filler shall comply with Specification P-605 and adhesive compounds shall comply with Specification P-606. The P-605 and P-606 shall be formulated so they are compatible with the pavement type with which they are to be used.

126-2.18 STRAIN RELIEF CONNECTORS.

Strain relief connectors shall be Liquid Tight Thomas & Betts 2500 series with WMG-PG wire mesh cable grip or approved equal.

126-2.19 IDENTIFICATION MARKERS.

Fixture, manhole and sign identification markers shall be brass bench markers with flat top or approved equal. 1/16 inch deep by 1/2 inch high text shall be engraved in the ID marker. Once the ID markers are accepted the Engineer will use them as a basis for acceptance of the field installed markers. Payment for markers is incidental to the respective pay item of which it is a component part.

126-2.20 SIGN LEGENDS.

Furnish sign legends and blank panels to be installed on new and existing airfield signs. Size of signs are noted in the signage schedule shown in the plans.

The new legends shall not affect the lumen output of the existing sign. New legends shall secure to existing signs in the same manner as the original legends. Legend text size and style shall be in accordance with FAA Advisory Circular 150/5345-44, latest edition.

New legends provided for existing signs that are to remain shall be by original manufacturer of those signs. Provide letter of certification from the manufacturer that the legend replacement does not change any of the performance parameters under which the sign was FAA certified.

Sign legend panels shall include all incidentals required for a complete and operational unit to the satisfaction of the Engineer. Each replacement sign panel shall be one or two characters in length.

126-2.21 DELIVERY, STORAGE AND HANDLING.

Ship materials and equipment disassembled only to the extent necessary for reasons of shipping limitations, handling facilities, and to avoid damage during shipment. Maintain materials and equipment in new condition. This shall include the use of suitable coverings, indoor storage, etc. to properly protect the equipment and materials. Any equipment or materials, in the opinion of the Engineer, damaged during construction or storage periods shall be replaced by and at the sole cost of the Contractor.

126-2.22 SPARE PARTS.

The following electrical spare parts shall be furnished by the Contractor. All spare parts shall be identical to the same parts approved and installed in the project. Cost shall be incidental to the signage line items.

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357**

- a. LEDs - Provide 1 spare LED & driver replacement kit for each sign size and type installed as a part of this contract.
- b. Circuit Boards - Provide 1 spare circuit board for each sign size and type installed as a part of this contract.

126-3 CONSTRUCTION METHODS AND INSTALLATION**126-3.1 SIGNS, BASE CANS.**

All signs, base cans, etc. shall be installed as shown in the plans or approved shop drawings and in accordance with the applicable FAA Advisory Circulars and manufacturers' recommendations. Survey instruments shall be used to position all items to insure precise orientation. Tolerances given in the FAA Advisory Circulars, these specifications, and the plans shall not be exceeded. Where no tolerance is given, no deviation is permitted. Items not installed in accordance with the FAA Advisory Circulars, these specifications and plans shall be removed and replaced by and at the expense of the Contractor.

Signs shall be oriented at 90 degrees to the direction of the taxing path from which it is viewed unless noted otherwise. Canted signs shall be oriented so that it is perpendicular to the aircraft fuselage of the airplane with the longest wheelbase.

For all signs, the concrete foundation shall extend to not less than twenty-four (24) inches out from the edge of the sign all around. The concrete foundation shall be a minimum of fourteen (14) inches thick. The concrete foundation shall be poured in place and rest on undisturbed soil.

The foundation shall be reinforcements, sized and placed as indicated in the plans. Exposed concrete surface shall be finished smooth with a steel trowel or rubbed to a smooth finish. All horizontal edges to be chamfered one (1) inch at 45 degrees and shall be flush with finished grade.

During construction of the foundation, the transformer base shall be adjusted and firmly held in place so that machined upper surface of base flange will be level within -2 degrees and not more than 1/4 inch above the surface of pad. All other bearing areas for additional flange supports shall be in the same horizontal plane as the transformer base flange.

The Contractor shall completely survey and stake out each area's signage layout prior to starting any installation. Should any irregularities occur in the layout, the Engineer shall be notified immediately. The bid item price shall include the necessary surveyed layout for each item and the cost for any additional adjustment or resurvey of the location of the items due to the existing geometric conditions. The new signage installation shall be coordinated with and blend into the signage installation.

All loose material shall be removed from all excavations for electrical equipment, raceways, manholes, pads, etc. The bottom of the excavation shall be compacted to 95% compaction in accordance with ASTM D 1557 prior to the installation of the electrical item and backfill.

Install new legends on existing signs at locations and with designations as indicated in the Plans. Installation of new sign legends on existing signs shall be done in accordance with construction sequencing as indicated in the Plans.

The Contractor shall be responsible for final calibration and adjustments of the signs.

AIRFIELD SIGNAGE SYSTEMS**L-126 - 7 - REV**

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Assemble units and connect to the system in accordance with the manufacturer's recommendations and instructions.

An identification tag shall be installed with each fixture, sign and etc. as shown in the plans. Brass circuit identification tags identifying each circuit shall be attached to each circuit as shown in the plans.

Provide five feet (5') of slack in each end of each cable in each base can. All connections shall be able to be made above ground.

Painted and galvanized surfaces that are damaged shall be repaired according to the manufacturer's recommendations, to the satisfaction of the Engineer. Use LPS-1G cold galvanizing compound or approved equal to repair galvanized surfaces. Obtain paint and primer, of same batch number, from the equipment manufacturer to repair painted surfaces.

All threaded portions of frangible couplings, etc., shall be coated with marine grade Ideal "Noalox" compound or approved equal before being assembled.

If a light can is installed incorrectly or the duct/conduit is plugged/broken or the concrete joints are installed incorrectly or the light base can is sawed by the concrete saw, the concrete slabs on both sides of the light base can and the light shall be removed and replaced at the sole cost of the Contractor.

Dewatering necessary to construct L-126 Items and related erosion and turbidity control shall be in accordance with federal, state, and local requirements and is incidental to its respective pay item as a part of L-126. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the L-126 Item.

126-3.2 TESTING.

This section describes the testing and demonstrations furnished by the Contractor. All items furnished and/or installed by the Contractor shall be tested and demonstrated in accordance with these specifications. All equipment and labor required for testing and demonstrations shall be furnished by the Contractor.

a. Fully test the installation by continuous operation for a period of not less than seventy-two (72) hours as a completed unit, prior to acceptance by the Engineer.

b. Up to two (2) walk-throughs may be initiated by the Engineer during which the airfield lighting units would be required to be in operation. Additional walk-throughs may be necessary depending upon the number of discrepancies found on the previous walk-throughs.

c. The Contractor is responsible for lamp replacements and necessary maintenance of airfield items during the testing, construction and walk-through periods.

d. Test cabling per specification L-108, Installation of Underground Cable for Airports.

e. Demonstrate all features and functions of all systems and instruct the Owner's personnel in the proper and safe operation of the systems.

AIRFIELD SIGNAGE SYSTEMS**L-126 - 8 - REV**

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357**

f. The Contractor shall perform the necessary inspection and tests for some items concurrently with the installation because of subsequent inaccessibility of some components. The Engineer shall be notified by the Contractor forty-eight (48) hours in advance of any testing.

There are no approved "repair" procedures for items that have failed testing other than complete replacement. Any other corrective measures shall be approved in writing by the Engineer.

126-3.3 OPERATION AND MAINTENANCE MANUALS.

The Contractor shall provide a total of five copies of all applicable technical drawings, recommended spare parts, required testing results, operating limitations and recommended maintenance procedures for all equipment installed under these specifications. Manuals shall be provided in a three ring binder format and shall be properly tabbed for each specific item. Final payment for any contract amounts shall not be processed without proper submittal of these manuals and approval of the Engineer.

126-3.4 CONTRACT DRAWINGS.

Where the electrical drawings indicate (diagrammatically or otherwise) the work intended and the functions to be performed, even though some minor details are not shown, the Contractor shall furnish all equipment, material, and labor to complete the installation work, and accomplish all the indicated functions of the electrical installation. Further, the Contractor shall be responsible for taking the necessary actions to ensure that all electrical work is coordinated and compatible with the civil plans.

126-3.5 MINOR DEPARTURES.

Minor departures from exact dimensions shown in the electrical plans may be permitted where required to avoid conflict or unnecessary difficulty in placement of a dimensional item, provided contract requirements are met. The Contractor shall promptly obtain approval from the Engineer prior to undertaking any such proposed departure.

126-4 METHODS OF MEASUREMENT**126-4.1 GENERAL.**

The quantity of airfield guidance sign legends, guidance signs and distance remaining signs to be paid for under this item shall be the number of each type installed, adjusted, relocated, removed or replaced, complete in place, ready for operation, and accepted by the Engineer.

126-5 BASIS OF PAYMENT**126-5.1 PAYMENT.**

Payment will be made at the contract unit price for each Lighted and Unlighted Airport Guidance Sign that is installed, removed or relocated or adjusted by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials including, junction boxes, base cans, blank covers, concrete pad, steel cages, grounding, excavation, backfill, spare parts, isolation transformers, connectors, splice kits, wiring, heat shrink, grommets, identification, demolition, testing and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tolls, and incidentals necessary to complete this item.

Payment will be made under:

Item L-126-5.1 Removal of existing guidance sign and concrete base in

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357**

earth/existing pavement, complete. Includes backfill, saw cutting, sod, labor, disposal, connector kits, disconnection of existing circuit, removal of circuit conductors to edge light, reconnection of existing circuit, capping of conduits, temporary conduit and conductors, labor and etc., complete in place. – Price per each

~~Item L-126-5.2 — New L-858, size 1, 3-4 characters LED guidance sign and concrete base installed in earth. Includes excavation, saw cutting, concrete, WWF/rebar, junction can, steel cover, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, transformers, hardware, carbon steel bolts, anchor bolts, conduits, conductors, counterpoise, ground lugs, grounding, 20' ground rods, testing, wiring, connectors, backfill, sod restoration, spare parts, identification, labor and etc. for a complete working system in place. — Price per each~~

~~Item L-126-5.3 — New L-858, size 1, 5-6 characters LED guidance sign and concrete base installed in earth. Includes excavation, saw cutting, concrete, WWF/rebar, junction can, steel cover, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, transformers, hardware, carbon steel bolts, anchor bolts, conduits, conductors, counterpoise, ground lugs, grounding, 20' ground rods, testing, wiring, connectors, backfill, sod restoration, spare parts, identification, labor and etc. for a complete working system in place. — Price per each~~

Item L-126-5.2 New L-858, size 1, 7-8 characters LED guidance sign and concrete base installed in earth. Includes excavation, saw cutting, concrete, WWF/rebar, junction can, steel cover, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, transformers, hardware, carbon steel bolts, anchor bolts, conduits, conductors, counterpoise, ground lugs, grounding, 20' ground rods, testing, wiring, connectors, backfill, sod restoration, spare parts, identification, labor and etc. for a complete working system in place. – Price per each

Item L-126-5.3 New L-858, size 1, 1-2 characters LED guidance sign installed on existing concrete pad, complete. Includes drilling and tapping bolts, carbon steel coated bolts, anchor bolts, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, frangible couplings, transformers, hardware, conduits, conductors, testing, grounding, wiring, spare parts, connectors, identification, labor and etc. for a complete working system in place. – Price per each

Item L-126-5.4 New L-858, size 1, 3-4 characters LED guidance sign installed on existing concrete pad, complete. Includes drilling and tapping bolts, carbon steel coated bolts, anchor bolts, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, frangible couplings, transformers, hardware, conduits, conductors, testing, grounding, wiring, spare parts, connectors, identification, labor and etc. for a complete working system in place. – Price per each

AIRFIELD SIGNAGE SYSTEMS**L-126 - 10 - REV**

CAM 18-0915

Exhibit 2

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FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS**PROJECT 12357**

- Item L-126-5.5* New L-858, size 1, 5-6 characters LED guidance sign installed on existing concrete pad, complete. Includes drilling and tapping bolts, carbon steel coated bolts, anchor bolts, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, frangible couplings, transformers, hardware, conduits, conductors, testing, grounding, wiring, spare parts, connectors, identification, labor and etc. for a complete working system in place. – Price per each and etc. for a complete working system in place. – Price per each
- Item L-126-5.6* New L-858, size 1, 7-8 characters LED guidance sign installed on existing concrete pad. Includes drilling and tapping bolts, carbon steel coated bolts, anchor bolts, tethers, sign panels, sign, LED light bars, LED Drivers, on/off switch, frangible couplings, transformers, hardware, conduits, conductors, testing, grounding, wiring, spare parts, connectors, identification, labor and etc. for a complete working system in place. – Price per each
- ~~*Item L-126-5.7* Provide and install LED retro fit kit in existing guidance sign. Includes hardware, LED retro-fit kit, LED light bars, LED Drivers, new transformer, identification, installation, connector kits, labor and etc. complete in place. – Price per each~~

END OF ITEM L-126

FXE TAXIWAY F WEST LIGHTING IMPROVEMENTS

PROJECT 12357

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ADDENDUM NO. 1

RFP/ ITB No. 12161-283

TITLE: Fort Lauderdale Executive Airport Taxiway Foxtrot Lighting Improvements
(P12357)

ISSUED: 8/3/2018

This addendum is being issued to make the following change(s):

1. Update quantities for the following items:

- New L -858, size 1, 3 -4 Character LED guidance sign and concrete base installed in earth. **Original quantity of 1 changed to 0**
- New L -858, size 1, 5 -6 Character LED guidance sign and concrete base installed in earth. **Original quantity of 1 changed to 0**
- New L -858, size 1, 7 -8 Character LED guidance sign and concrete base installed in earth. **Original quantity of 1 changed to 2**
- New L -858, size 1, 1 -2 Character LED guidance sign on existing concrete pad, complete. **Original quantity of 3 changed to 2**
- New L -858, size 1, 3 -4 Character LED guidance sign on existing concrete pad, complete. **Original quantity of 7 changed to 10**
- New L -858, size 1, 5 -6 Character LED guidance sign on existing concrete pad, complete. **Original quantity of 13 changed to 5**
- New L -858, size 1, 7 -8 Character LED guidance sign on existing concrete pad, complete. **Original quantity of 2 changed to 5**

2. Replace Section L-126 with the attached Section L-126-REV. This section has been revised to reflect the above changes.

All other terms, conditions, and specifications remain unchanged.

Ginah Joseph
Procurement Specialist II



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Company Name: _____
(please print)

Bidder's Signature: _____

Date: _____



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ADDENDUM NO. 2

RFP/ ITB No. 12161-283

TITLE: Fort Lauderdale Executive Airport Taxiway Foxtrot Lighting Improvements
(P12357)

ISSUED: 8/8/2018

This addendum is being issued to make the following change(s):

1. Remove/delete items that were inadvertently duplicated.

All other terms, conditions, and specifications remain unchanged.

Ginah Joseph
Procurement Specialist II

Company Name: _____
(please print)

Bidder's Signature: _____

Date: _____

Question and Answers for Bid #12161-283 - Fort Lauderdale Executive Airport Taxiway Foxtrot Lighting Improvements (P12357)

Overall Bid Questions

Question 1

How much is the budget for this bid? (Submitted: Jul 16, 2018 7:54:08 AM EDT)

Answer

- Estimated budget is approximately \$544,413 (Answered: Jul 17, 2018 8:24:40 AM EDT)

Question 2

What is the Engineer of Record's estimate / budget for the Taxiway Foxtrot Lighting Improvement project?

(Submitted: Jul 17, 2018 7:45:08 AM EDT)

Answer

- Please refer to question 1. (Answered: Jul 17, 2018 8:24:40 AM EDT)

Question 3

Is there a minority participation requirement? I don't see an amount listed. (Submitted: Jul 24, 2018 1:52:57

PM EDT)

Answer

- No minority participation is required. (Answered: Jul 27, 2018 10:08:35 AM EDT)

Question 4

When it lists the licensing requirement it says a GITS license and/or one that is appropriately issued by the state of FL. is a FL Electrical Contractor's license acceptable? (Submitted: Jul 24, 2018 1:54:15 PM EDT)

Answer

- Yes, a FL Electrical Contractor's license is acceptable. (Answered: Jul 25, 2018 7:58:35 AM EDT)

Question 5

Are the drawings within the specs the full set needed to bid this job? (Submitted: Jul 30, 2018 2:18:14 PM EDT)

Answer

- Yes, they are the full set for the job. (Answered: Jul 30, 2018 2:18:25 PM EDT)

Question 6

I see that plans and bid schedule don't match. Ask Engineers to clarify quantities and sizes.

1. The Bid Schedule lists 28 total signs; The Sign Schedule has 24 total signs
2. The Bid Schedule lists 25 signs on existing concrete; The Sign Schedule has 23 signs on existing concrete
3. The Bid Schedule lists 3 signs on new concrete; The Sign Schedule has 1 sign on new concrete

The following is the Bid Schedule vs. Sign Schedule quantities

On Existing Concrete:

- 1-2 Char: Bid Sched - 3; Sign Sched - 2
- 3-4 Char: Bid Sched - 7; Sign Sched - 10
- 5-6 Char: Bid Sched - 13; Sign Sched - 5
- 7-8 Char: Bid Sched - 2; Sign Sched - 6

On New Concrete:

- 3-4 Char: Bid Sched - 1; Sign Sched - 0
- 5-6 Char: Bid Sched - 1; Sign Sched - 0
- 7-8 Char: Bid Sched - 1; Sign Sched - 1

Plus 2 signs on existing concrete were listed as 8 characters; one is 9 and the other is 10 (Submitted: Jul 30, 2018 3:14:20 PM EDT)

Answer

- 1. The Bid Schedule lists 28 total signs; The Sign Schedule has 24 total signs
The Sign schedule is accurate, bid quantities will be adjusted.

2. The Bid Schedule lists 25 signs on existing concrete; The Sign Schedule has 23 signs on existing concrete
There shall be a total of 22 signs installed on existing concrete sign pads, bid quantities will be adjusted

3. The Bid Schedule lists 3 signs on new concrete; The Sign Schedule has 1 sign on new concrete
There shall be a total of 2 signs on new concrete pads, bid quantities will be adjusted.

Please see addendum for updated quantities. (Answered: Aug 3, 2018 9:48:34 AM EDT)

Question 7

Reference Spec# 125-2.4.1 Runway and Taxiway Edge Lights.

A. Taxiway Fixtures.

The specification states "Fixtures utilizing a clamp band assembly or gasket are not acceptable."

We would like to request that this statement be removed and a clamp band fixture be allowed.

The "Clamp Band" designed fixtures are FAA Approved and allow for tool less entry.

The limiting of a particular manufactures design does not allow for competitive bidding from all FAA Approved Manufactures. (Submitted: Jul 31, 2018 11:30:55 AM EDT)

Answer

- No clamp bands for taxiway edge lights will not be allowed, there are multiple manufacturers that have fixtures without clamp bands that can competitively bid the project. (Answered: Aug 3, 2018 9:44:43 AM EDT)

Question 8

Please clarify the difference between item number 01-01 Mobilization and item number 01-04 Mobilization. Both items are active on the line item page and both show a quantity of 1 Lump Sum. (Submitted: Aug 4, 2018 4:50:37 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:33 PM EDT)

Question 9

Please clarify the difference between item number 01-02 Maintenance of air operations traffic and item number 01-05 Maintenance of operations traffic. Both items are active on the line item page and both show a quantity of 1 Lump Sum. (Submitted: Aug 4, 2018 4:52:08 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:32 PM EDT)

Question 10

Please clarify the difference between item number 01-03 Towable light towers (for night construction) and item number 01-07 Towable light towers - Contractor to provide two (2) towable light towers (for night construction). Both items are active on the line item page and both show a quantity of 1 Lump Sum. (Submitted: Aug 4, 2018 4:54:58 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:32 PM EDT)

Question 11

Please clarify the difference between item number 01-06 Portable Runway Lighted Closure Markers and item number 01-10 Portable Runway Lighted Closure Markers. Both items are active on the line item page and both show a quantity of 2 Each. (Submitted: Aug 4, 2018 4:56:59 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:32 PM EDT)

Question 12

Please clarify the working hours for this project. Drawing G001, General note 30 states that night closures

will be required under this contract between 10:00 PM and 6:00 AM. However, Instruction to Bidders, Special Conditions 15, Work Schedule states that regular works hours will be 7:30 AM to 4:30 PM, Monday through Friday. (Submitted: Aug 4, 2018 5:04:31 PM EDT)

Answer

- Work hours are as specified in General Note 30, Drawing G001. (Answered: Aug 10, 2018 1:42:14 PM EDT)

Question 13

If night work is required, please clarify if there will be an additional cost for inspectors working during the night shift. (Submitted: Aug 4, 2018 5:05:12 PM EDT)

Answer

- There will be no additional cost for the inspectors. (Answered: Aug 10, 2018 1:42:14 PM EDT)

Question 14

Please clarify the difference between item number 01-08 Hand excavate minimum 8-inch Wide x 28-inch Deep in earth and item number 01-11 Hand excavate minimum 8-inch Wide x 28-inch Deep in earth. Both items 50 Lineal Feet. (Submitted: Aug 4, 2018 5:07:10 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:32 PM EDT)

Question 15

Please clarify the difference between item number 01-09 Hand excavate minimum 18-inch Wide x 36-inch Deep in earth and item number 01-13 Hand excavate minimum 18-inch Wide x 36-inch Deep in earth. Both items are active on the line item page and both show a quantity of 50 Lineal Feet. (Submitted: Aug 4, 2018 5:09:20 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:32 PM EDT)

Question 16

Please clarify the difference between item number 01-12 Saw cut and hand excavate minimum 8-inch Wide x 28-inch Deep in existing full strength pavement and item number 01-15 Saw cut and hand excavate minimum 8-inch Wide x 28-inch Deep in existing full strength pavement. Both items are active on the line item page and both show a quantity of 50 Lineal Feet. (Submitted: Aug 4, 2018 5:11:54 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:32 PM EDT)

Question 17

Please clarify the difference between item number 01-14 3/4-inch diameter x 20-foot long ground rods connected to counterpoise and item number 01-17 3/4-inch diameter x 20-foot long ground rods connected to counterpoise. Both items are active on the line item page and both show a quantity of 10 Each. (Submitted: Aug 4, 2018 5:13:31 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:32 PM EDT)

Question 18

Please clarify the difference between item number 01-16 10-foot long additional ground rod sections and item number 01-19 10-foot long additional ground rod sections. Both items are active on the line item page and both show a quantity of 10 Each. (Submitted: Aug 4, 2018 5:14:39 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:32 PM EDT)

Question 19

Please clarify the difference between item number 01-18 No. 6 bare solid AWG counterpoise conductor

installed over conduit system and item number 01-21 No. 6 bare solid AWG counterpoise conductor installed over conduit system. Both items are active on the line item page and both show a quantity of 1650 Lineal Feet.

(Submitted: Aug 4, 2018 5:17:24 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:32 PM EDT)

Question 20

Please clarify the difference between item number 01-20 No. 8, 5KV, L-824 conductor installed in new and existing conduit/ductbank/manhole system and item number 01-23 No. 8, 5KV, L-824 conductor installed in new and existing conduit/ductbank/manhole system. Both items are active on the line item page and both show a quantity of 19000 Lineal Feet. (Submitted: Aug 4, 2018 5:18:54 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:33 PM EDT)

Question 21

Please clarify the difference between item number 01-22 One 2-inch schedule 40 PVC conduit direct buried in earth/new paved shoulder complete in place and item number 01-25 One 2-inch schedule 40 PVC conduit direct buried in earth/new paved shoulder complete in place. Both items are active on the line item page and both show a quantity of 1200 Lineal Feet. (Submitted: Aug 4, 2018 5:21:02 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:33 PM EDT)

Question 22

Please clarify the difference between item number 01-38 New L-861TL, LED taxiway elevated edge light installed on existing base can and item number 01-42 New L-861TL, LED taxiway elevated edge light installed on existing base can. Both items are active on the line item page and both show a quantity of 195 Each.

(Submitted: Aug 4, 2018 5:24:32 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:33 PM EDT)

Question 23

Please clarify what is the difference between all the bid items that repeat in the line item page that show the same description, the same quantity and are shown active in the line item page. The only apparent difference between these items is the item number. (Submitted: Aug 4, 2018 5:27:17 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:33 PM EDT)

Question 24

1 more question in regards to the signs:

) What bid items do I follow? The addendum, or the posted answer to question regarding signs previously submitted (#6)? Because they are not the same. (Submitted: Aug 6, 2018 1:58:40 PM EDT)

Answer

- Please refer to Addendum #2 issued 8/8/18 - Items inadvertently duplicated were removed. (Answered: Aug 10, 2018 12:59:33 PM EDT)