THE PORT AUTHORITY OF NY & NJ

4 World Trade Center, 150 Greenwich Street,21st Floor,New York, NY 10007

Date 06/01/2016

REQUEST FOR QUOTATION

Vendor Name and No.:

Collective/Bid # 46139

Bid Due Date 06/22/2016

Bids must be received no later than 11:00 AM on the above Bid Due Date.

Buyer:
John Santiago/212-435-4613/john.santiago@panynj.gov

Deliver Goods/Services To:
John F Kennedy International Airport
Building No. 14 - Stockroom
Jamaica NY 11430

Quantity	Description	Unit Price	Total
	SUPPLY AND DELIVER ISOLATION TRANSFORMERS AND SHRINK KITS, AS SPECIFIED, TO JOHN F. KENNEDY INTERNATIONAL AIRPORT. The attached Division 16 Sections 16000, 16129 and 16542 serve as an intrical part of this procurement as it relates to the manufacturing and compliance of the materials. NOTE: This procurement may be funded in whole or in part by the United States Department of Homeland Security, Federal Emergency Management Agency (FEMA). As a result, the Contractor (and its subcontractors) agrees to comply with the applicable FEMA requirements, special grant conditions and all other federal, state and local laws that are or may become applicable to this Contract. The current "Federal Emergency Management Agency Requirements" are attached and shall be made part of this Contract. BIDDERS SHALL SUBMIT WITH BIDS A COPY OF THE CATALOG CUTS/SPECIFICATIONS/DRAWINGS FOR PORT AUTHORITY REVIEW AND APPROVAL. INDICATE STOCK ITEM NUMBER ACCORDINGLY. QUOTE FULLY-DELIVERED PRICES.		
	PLEASE QUOTE FULLY DELIVERED PRICES — **PAYMENT TERMS**	**Total Delivered Price**	

This Quotation is subject to the terms and conditions set forth on the back page hereof. Bidder is advised to read these before signing.

We have read the instructions and, if favored with an order, we agree to furnish the items enumerated herein at the prices and under the conditions indicated.

Signed _____

Firm Name _____

Telephone number_____Date_____

Fax Number_____

Federal Taxpayer ID _____

Bidder Must Sign In Two Places

NOTICE TO BIDDERS: Unless the following term of assurance that the above offer is irrevocable is signed, the offer submitted herein shall not be deemed to be complete.

The foregoing offer shall be irrevocable for 90 days after the date on which the Port Authority of New York and New Jersey opens this proposal.

Signed_____Date_____

Firm Name_____

THE PORT AUTHORITY OF NY & NJ
4 World Trade Center, 150 Greenwich Street,21st Floor,New York, NY 10007

REQUEST FOR QUOTATION

Vendor Name and No.:	Collective/Bid #	Bid Due Date
	46139	06/22/2016

Quantity	Description	Unit Price	Total
	This is a Formal Bid Invitation Bid Submission Instructions: Sealed Bids must be submitted to and received at the following address by the due date and time listed on this Request for Quotation, where they will be publicly opened and read: The Port Authority of NY & NJ Attn: Bid Custodian Procurement Department 4 World Trade Center 150 Greenwich Street, 21st Floor New York, NY 10007 Clearly mark the outside of your envelope/package with "BID ENCLOSED", the Collective/Bid Number and Due Date, and your complete company name and address. Bids are only accepted Monday through Friday, excluding Port Authority holidays, between the hours of 8 A.M. & 5 P.M., via regular mail, express delivery service or hand delivery. Express carrier deliveries by commercial vehicles can be made via vendors approved by Silverstein Properties, the 4 World Trade Center (4WTC) Property Manager, through the Vehicle Security Center (VSC). Presently, UPS is the only delivery vendor with approved recurring delivery times.		
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REQUEST FOR QUOTATION

Vendor Name and No.:	Collective/Bid #	Bid Due Date
	46139	06/22/2016

Quantity	Description	Unit Price	Total
	There is extensive security at the World Trade Center Site. Individuals must present a valid government-issued photo ID to enter 4 WTC. Individuals without packages or carrying small packages or boxes that can be conveyed by hand or on a hand truck may enter through the lobby. All envelopes, packages and boxes may be subject to additional security screening. There is no parking available at 4 WTC/150 Greenwich Street, and parking in the surrounding area is extremely limited. The Port Authority assumes no responsibility for delays, including, but not limited to delays caused by any delivery service, building access procedure or security requirement. A valid government-issued photo ID is required to gain access into the building to attend the bid opening or hand deliver a bid. Bids that are not received by the bid custodian by the scheduled bid opening date will be considered late. If any Addenda are posted or sent as part of this Bid, the Bidder shall complete, sign and include with its Bid the addenda form(s). In the event any Bidder fails to conform to these instructions, its Bid will nevertheless be construed as though the Addenda had been acknowledged. If the Bidder downloaded this solicitation document, it is the responsibility of the Bidder to periodically check the Port Authority website at http://www.panynj.gov/business-opportunities/bid-proposaladvertisements.html and download any addenda that might have been issued in connection with this solicitation.		
	PLEASE QUOTE FULLY DELIVERED PRICES — **PAYMENT TERMS**	**Total Delivered Price**	

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REQUEST FOR QUOTATION

Vendor Name and No.:	Collective/Bid #	Bid Due Date
	46139	06/22/2016

Quantity	Description	Unit Price	Total
	The prices quoted on this Request for Quotation form shall be in United States Dollars. All figures inserted will be interpreted as being quoted in United States Dollars. Delivery term is FOB Destination.		
1,307 EA	CU0100052 TRANSFORMER, ISOLATING, FAA TYPE L-830, 10/15W, 6.6A PRIMARY / 6.6A SECONDARY, #ESNA TA010666-01 L-830-16 10W TRANS. PER PA SPECIFICATION 16000, 16542, 16129.		
54 EA	CU0100055 TRANSFORMER, ISOLATING, FAA TYPE L-830, 65 WATT, 6.6A PRIMARY / 6.6A SECONDARY, #ESNA TA065666-01 L830-3 TRANSFORMER. PER PA SPECIFICATION 16000, 16542, 16129.		
171 EA	CU0100049 TRANSFORMER, SERIES ISOLATING FOR RUNWAYEDGE LIGHT, FAA TYPE L-830, 150 WATT, 6.6A PRIMARY / 6.6A SECONDARY, #ESNA TA150666-01 L-830-6 TRANSFORMER. PER PA SPECIFICATION 16000, 16542, 16129		
	PLEASE QUOTE FULLY DELIVERED PRICES	**PAYMENT TERMS**	**Total Delivered Price**

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REQUEST FOR QUOTATION

Vendor Name and No.:	Collective/Bid #	Bid Due Date
	46139	06/22/2016

Quantity	Description	Unit Price	Total
65 EA	CU0100048 TRANSFORMER, SERIES ISOLATING FOR RUNWAY EDGE LIGHT, FAA TYPE L-830, 200 WATT, 6.6A PRIMARY / 6.6A SECONDARY, #ESNA TA200666-01 L-830-6 TRANSFORMER. PER PA SPECIFICATION 16000, 16542, 16129.		
2,856 EA	BE4000801 KIT, PRIMARY CONNECTOR,54 SUPER D4 D4 ETL/FAA L823,MFGS AMERACE, INTEGRO, OR EQUAL. PER PA SPECIFICATION 16000, 16542, 16129.		
4,301 KIT	BE4000810 COLD SHRINK KIT, L-823, ONE COLD SHRINK PER ONE CONNECTION, TYPE 8428-6. PER PA SPECIFICATION 16000, 16542, 16129.		
2,492 KIT	BE4000815 HEAT SHRINK KIT, L-823, TWO HEAT SHRINKS PER ONE CONNECTION, TYPE 8428-6. PER PA SPECIFICATION 16000, 16542, 16129.		
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Signed_____Date_____
Firm Name_____

PORT AUTHORITY OF NY & NJ

PURCHASE ORDER TERMS AND CONDITIONS

1. The Port Authority (Authority) reserves the right to request information relating to seller's responsibility, experience and capability to perform the work.

2. WARRANTY – The Seller warrants that the supplies or equipment delivered hereunder shall be free from all defects in material and workmanship and shall comply with all the requirements of this Order for a period of one (1) year from date such supplies or equipment are placed in use.

3. PAYMENT – The Total Delivered price shall include the separate unit and total FOB delivered prices. Payment terms are net 30 days. Cash discounts for prompt payment of invoices may be taken but will not be considered in determining award, except in the case of tie bids.

Unless otherwise provided, complete shipment of all items must be in one delivery FOB delivery point. Payment will not be made on partial deliveries unless authorized in advance by the party to be charged and the discount, if any, will be taken on the total order.

4. CHANGES – Acceptance of seller's offer will be only by Purchase Order Form signed by the Authority. The Authority may at any time, by a written order, make changes within the general scope of this Purchase Order, in any one or more of the following: (a) drawings, designs, or specifications; (b) method of shipment or packing; and (c) place of delivery. If any such change causes an increase or decrease in the cost of, or the time required for, performance of this Purchase Order, an equitable adjustment shall be made in the Purchase Order price or delivery schedule, or both, and the Purchase Order shall be modified in writing accordingly. Any claim by the Seller for adjustment under this section must be asserted within 30 days from the date of receipt by the Seller of a notification of change: provided, however, that nothing in this section, "CHANGES," shall excuse the Seller from proceeding with the Purchase Order as changed. Except as otherwise provided herein no payment for CHANGES shall be made, unless the Changes and adjustments in price, if any, have been authorized in writing by the Authority.

5. INSPECTION AND ACCEPTANCE – Inspection and acceptance will be conducted at the destination, unless otherwise provided. Any risk of loss will be the Seller's responsibility until such delivery and acceptance made, unless loss results from negligence of the Authority.

6. VARIATION IN QUANTITY – No variation in the quantity of any item called for by this Purchase Order will be accepted unless such variation has been caused by conditions of loading, shipping, or packing, or allowances in manufacturing processes, and then only to the extent, if any, specified elsewhere in this Purchase Order.

7. DEFAULT-DELAYS – The Authority may cancel this Purchase Order in whole or in part in the event that Seller fails or refuses to deliver any of the items purchased, within the time provided or otherwise violates any of the conditions of this Purchase Order, or if it becomes evident that the Seller is not conducting the work in accordance with the specifications or with such diligence as to permit delivery on or before the delivery date.
In the event the Authority cancels this Purchase Order in whole or in part as herein provided, the Authority may procure, upon such terms and in such manner as the Authority may deem appropriate, materials or services similar to those so cancelled and the Seller shall be liable to the Authority for any excess costs for such similar materials or services; provided, that the Seller shall continue the performance of this Purchase Order to the extent not terminated under the provisions of this article. The rights and remedies of the Authority provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this Purchase Order.

8. TERMINATION – The Authority may terminate this Purchase Order, in whole or in part, at any time by written notice to the Seller when it is in the Authority's best interest. The Seller shall be paid for items received and accepted, including shipping costs, if applicable, up to the time of termination. The Seller shall promptly submit its termination claim to the Authority to be paid to the seller.

9. FEDERAL, STATE & LOCAL TAXES – Sales to the Authority and to PATH are currently exempt from New York and New Jersey State and local taxes and generally from federal taxation. The Seller certifies that there is no federal, state, municipal or any other taxes included in the prices shown hereon.

10. The Authority shall have the absolute right to reject any or all proposals or to accept any proposal in whole or part and to waive defects in proposals.

11. Bidder may offer alternate manufacturer / brands, which shall be subject to Port Authority approval. Please indicate details of product being offered with bid.

12. If the Seller fails to perform in accordance with the terms of this Purchase Order, the Authority may obtain the goods or services from another contractor and charge the Seller the difference in price, if any, a reletting cost of $100, plus any other damages to the Authority.

13. Upon request, Sellers are encouraged to extend the terms and conditions of any terms agreement with the Authority to other government and quasi-government entities by separate agreement.

14. By signing this quotation or bid, the Seller certifies to all statements on Form PA 3764A regarding non-collusive bidding; compliance with the Authority Code of Ethics; and the existence of investigations, indictments, convictions, suspensions, terminations, debarments and other stated occurrences to assist the Authority in determining whether there are integrity issues which would prevent award of the contract to the Seller.

The Authority has adopted a policy set forth in full on PA 3764, that it will honor a determination by an agency of the State of New York or New Jersey that a bidder is not eligible to bid on or be awarded public contracts because the bidder has been determined to have engaged in illegal or dishonest conduct or to have violated prevailing wage legislation. The Terms and Conditions of PA 3764A apply to this order. A copy can be obtained by calling (212) 435-4600 or at http://www.panynj.gov/business-opportunities/pdf/PA3764A.pdf

15. The vendor may subcontract the services or use a supplier for the furnishing of materials required hereunder to such persons or entities as the Manager, Purchasing Services may from time to time expressly approve in writing. All further subcontracting shall also be subject to such approval.

16. The successful bidder (vendor) shall not issue nor permit to be issued any press release, advertisement, or literature of any kind, which refers to the Port Authority or that goods will be, are being or have been provided to it and/or that services will be, are being or have been performed for it in connection with this Agreement, unless the vendor first obtains the written approval of the Port Authority. Such approval may be withheld if for any reason the Port Authority believes that the publication of such information would be harmful to the public interest or is in any way undesirable.

17. PERSONAL NON LIABILITY – Neither the Commissioners of the Port Authority nor any of them, nor any officer, agent or employee thereof, shall be charged personally by Contractor with any liability, or held personally liable to Contractor under any term or provision of this Contract, or because of its execution or attempted execution, or because of any breach, or attempted or alleged breach, thereof.

18. M/WBE GOOD FAITH PARTICIPATION– The Contractor shall use every good-faith effort to provide for participation by Port Authority certified Minority Business Enterprises (MBEs) and Port Authority certified Woman-owned Business Enterprises (WBEs) in all purchasing and subcontracting opportunities associated with this Contract, including the purchase of equipment, supplies and labor. If this Contract is valued at or above one million dollars ($1,000,000), Contractor shall comply with the terms and conditions PA Form 4235. A copy can be obtained by calling (212) 435-4600 or at http://www.panynj.gov/business-opportunities/become-vendor.html

19. CERTIFICATION OF RECYCLED MATERIALS- Bidders are requested to submit, with their bid, a written certification entitled "Certified Environmentally Preferable Products / Practices" attached hereto as "Attachment I-A", attesting that the products or items offered by the Bidder contain the minimum percentage of post-consumer recovered material in accordance with the most recent guidelines issued by the United States Environmental Protection Agency (EPA), or, for commodities not so covered, the minimum percentage of post-consumer recovered materials established by other applicable regulatory agencies. The data submitted by the Bidder in Attachment I-A is being solicited for informational purposes only.

Recycling Definitions:

For purposes of this solicitation, the following definitions shall apply:

a. Recovered Material" shall be defined as any waste material or by-product that has been recovered or diverted from solid waste, excluding those materials and by-products generated from, and commonly reused within, an original manufacturing process.

b. "Post-consumer Material" shall be defined as any material or finished product that has served its intended use and has been discarded for disposal or recovery having completed its life as a consumer item. "Post-consumer material" is included in the broader category of "Recovered Material".

c. "Pre-consumer Material" shall be defined as any material or by-product generated after the manufacture of a product but before the product reaches the consumer, such as damaged or obsolete products. Pre-consumer Material does not include mill and manufacturing trim, scrap, or broken material that is generated at a manufacturing site and commonly reused on-site in the same or another manufacturing process.

d. "Recycled Product" shall be defined as a product that contains the highest amount of post-consumer material practicable, or when post-consumer material is impracticable for a specific type of product, contains substantial amounts of Pre-consumer Material.

e. "Recyclable Product" shall be defined as the ability of a product and its packaging to be reused, reconditioned for use, or recycled through existing recycling collection programs.

f. "Waste Reducing Product" shall be defined as any product that will result in less waste generated due to its use rather than another product designed to serve the same function with an greater waste generation rate. This shall include, but not be limited to, those products that can be reused, refilled or have a longer life expectancy and contain a lesser amount of toxic constituents.

20. FEDERAL REQUIREMENTS (for Purchase Orders in excess of $2,500) – The attached cited Agency clauses shall be incorporated herein. In the event of conflict, the Agency clauses shall take precedence.

PORT AUTHORITY OF NY & NJ

ATTACHMENT A - Certified Environmentally Preferable Products/Practices

Bidder Name:_____Date: _____

In line with the Port Authority's efforts to promote products and practices which reduce our impact on the environment and human health, Bidders are encouraged to provide information regarding their environmentally preferable/sustainable business practices as they relate to this contract wherever possible. Bidders are requested to complete this form and submit it with their response, if appropriate. Bidders are requested to submit appropriate documentation to support the items for which the Bidder indicates a "Yes" and present this documentation, in the proper sequence of this Attachment.

1. Packaging
Has the Bidder implemented any of the following environmental initiatives? (A checkmark indicates "Yes")
____ Use of corrugated materials that exceed the required minimum EPA recommended post-consumer recycled content
____ Use of other packaging materials that contain recycled content and are recyclable in most local programs
____ Promotes waste prevention and source reduction by reducing the extent of the packaging and/or offering packaging take-back services, or shipping carton return
____ Reduces or eliminates materials which have been bleached with chlorine or chlorine derivatives
____ Eliminates any packaging that may contain polyvinyl chloride (PVC), or polystyrene or heavy metals.

If yes, a description of the practices being followed should be include with the submission.

2. Business Practices / Operations / Manufacturing
Does the Bidder engage in practices that serve to reduce or minimize an impact to the environment, including, but not necessarily limited to, the following items? (A checkmark indicates "Yes")
____ Recycles materials in the warehouse or other operations
____ Use of alternative fuel vehicles or vehicles equipped with diesel emission control devices for delivery or transportation purposes
____ Use of energy efficient office equipment or signage or the incorporation of green building design elements
____ Use of recycled paper (that meets federal specifications) in their marketing and/or resource materials
____ Other sustainable initiative

If yes, a description of the practices being followed should be included with the submission.

3. Training and Education
Does the Bidder conduct/offer a program to train or inform customers and employees of the environmental benefits of the products to be offered under this contract, and/or does the Bidder conduct environmental training of its own staff?

☐ Yes ☐ No If yes, Bidder shall attach a description of the training offered and the specific criteria targeted by the training.

4. Certifications
Has the Bidder or any of its manufacturers and/or subcontractors obtained any of the following product / industry certifications? (A checkmark indicates "Yes")
____ ISO 14000 or adopted some other equivalent environmental management system
____ Other industry environmental standards (where applicable), such as the CERES principles, LEED Certification, C2C Protocol, Responsible Care Codes of Practice or other similar standards
____ Third Party product certifications such as Green Seal, Scientific Certification Systems, Smartwood, etc.

If yes, Bidders should attach copies of the certificates obtained.

I hereby certify under penalty of law, the above statements are true and correct.

_____Name _____Date

FEDERAL EMERGENCY MANAGEMENT AGENCY REQUIREMENTS

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1. DEFINITIONS

To avoid undue repetition, the following terms, as used within these "FEDERAL EMERGENCY MANAGEMENT REQUIREMENTS," shall be construed as follows:

"Agreement" means "Contract."

"Simplified Acquisition Threshold" means the dollar amount below which a non-Federal entity may purchase property or services using small purchase methods. The Simplified Acquisition Threshold is set by the Federal Acquisition Regulation at 48 C.F.R Subpart 2.1 (Definitions) and in accordance with 41 U.S.C. 1908.

2. INCORPORATION OF FEDERAL EMERGENCY MANAGEMENT AGENCY TERMS

This Agreement is anticipated to be partially funded by the Federal Emergency Management Agency ("FEMA").

Anything to the contrary herein notwithstanding, all FEMA-mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Contract. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any Authority requests that would cause the Authority to be in violation of the FEMA terms and conditions.

All federal laws and regulations applicable to the receipt of FEMA grants, including, but not limited to those remedies set forth in Title 44 of the Code of Federal Regulations, Part 13 ("44 CFR 13"), and Title 2 of the Code of Federal Regulations, Part 200 ("2 CFR 200"), as may be applicable shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein. If any provision of this Contract shall be such as to effect non-compliance with any FEMA requirement, such provision shall not be deemed to form part hereof, but the balance of this Contract shall remain in full force and effect.

3. FEDERAL CHANGES

The Contractor shall at all times comply with all applicable FEMA regulations, policies, procedures and directives, as they may be amended or promulgated from time to time during the term of this Contract. Contractor's failure to so comply shall constitute a material breach of this Contract. The most recent Federal laws, regulations, policies, and administrative practices apply to this Contract at any particular time, unless FEMA issues a written determination otherwise. All standards or limits are minimum requirements, unless modified by the FEMA.

4. NO FEDERAL GOVERNMENT OBLIGATIONS TO THIRD PARTIES

The Authority and the Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this Contract and shall not be subject to any obligations or liabilities to the Authority,

Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

The Contractor agrees to include the above clause in each subcontract. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

5. ORGANIZATIONAL CONFLICT OF INTEREST

A. This Contract may give rise to a potential for an organizational conflict of interest. An organizational conflict of interest exists when the nature of the work to be performed under the contract may, without some form of restriction on future activities; result in an unfair competitive advantage to the Contractor.

1.) The Contractor shall have access to confidential and/or sensitive Authority information in the course of contract performance. Additionally, the Contractor may be provided access to proprietary information obtained from other contracted entities during contract performance. The Contractor agrees to protect all such information from disclosure unless so authorized, in writing, by the Authority and to refrain from using such information for any purpose other than that for which it was furnished.

2.) To the extent that the Contractor either (a) uses confidential and/or sensitive Authority information or proprietary information obtained from other Authority contractors to develop any form of document, report, or plan that is determined by the Authority to be the basis, in whole or in part, of any subsequent solicitation issued by the Authority or (b) develops written specifications that are used in any subsequent solicitation issued by the Authority, the Contractor agrees that it shall not be eligible to compete for such subsequent solicitation(s) as a prime or principal contractor or as part of any teaming arrangement unless the Authority provides, in writing, a specific waiver of this restriction. The duration of any restriction imposed under this subparagraph shall not exceed the length of the initial performance period of any subsequently awarded contract for which the Contractor was ineligible to compete.

B. The Contractor, by submitting its bid or proposal, agrees to the above stated conditions and terms and further agrees to perform all duties under the contract and, in doing so, not to enter into contractual agreements with Authority prime contractors and first-tier subcontractors in such a way as to create an organizational conflict of interest.

C. If the Authority determines that the Contractor has violated any term of this numbered clause, the Authority may take any appropriate action available under the law or regulations to obtain redress to include, but not be limited to, requiring the Contractor to terminate any affiliation or contractual arrangement with an

Authority prime contractor or first-tier subcontractor at no cost to the Authority; determining the Contractor ineligible to compete for or be awarded any subsequent or "follow-on" contracts that may be based upon the Contractor's actions under this Contract or violations of this numbered clause, or terminating this Contract, in whole or in part.

6. CERTIFICATION - DEBARMENT AND SUSPENSION

This Contract is a covered transaction for purposes of 2 CFR Parts 180 and 3000. As such, the Contractor is required to verify that none of the Contractor, its principals, as defined at 2 CFR 180.995, or affiliates, as defined at 2 CFR 180.905, are excluded or disqualified as defined at 2 CFR 180.935 and 180.940.

The Contractor is required to comply with 2 CFR 180, Subpart C and must include the requirement to comply with 2 CFR 180, Subpart C in any lower tier covered transaction it enters into.

By signing and submitting its bid or proposal, the proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by the Port Authority of New York and New Jersey. If it is later determined that the proposer knowingly rendered an erroneous certification, in addition to remedies available to the Port Authority of New York and New Jersey, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The proposer agrees to comply with the requirements of 2 CFR 180, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

A. Each potential Contractor, for major third party contracts, is required to complete a certification entitled "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion" for itself and its principals and requires each Subcontractor or Supplier (for Subcontracts and Supplier agreements expected to equal or exceed $25,000) to complete a certification entitled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tiered Covered Transactions" for itself and its principals. Copies of the required Certification forms and accompanying instructions are set forth following the last paragraph of these requirements.

B. In the event that the Contractor has certified prior to award that it is not proposed for debarment, debarred, suspended, or voluntarily excluded from covered transactions by any Federal Department or agency and such certification is found to be false, this Contract may be canceled, terminated or suspended by the Authority and the Contractor will be liable for any and all damages incurred by the Authority because of such cancellation, termination or suspension because of such false certification.

C. The Contractor shall obtain certifications from all known potential Subcontractors and Suppliers (for which payments are expected to equal or exceed $25,000) and submit such certifications to the address set forth in E below.

D. Prior to the award of any Subcontracts or Supplier agreements expected to equal or exceed $25,000, regardless of tier, any prospective Subcontractor or Supplier who has not previously submitted a certification for this Contract must execute and submit to the Contractor a certification in the form set forth following the last paragraph of these requirements which will be deemed a part of the resulting Subcontract and Supplier agreement.

E. The originals of any Certifications or correspondence relating hereto shall be sent by the Contractor to the Chief Procurement Officer, 4 World Trade Center, 150 Greenwich Street, 21st Floor, New York, NY 10007.

F. The Contractor shall not knowingly enter into any Subcontracts or Supplier agreements with a person that is proposed for debarment, debarred, suspended, declared ineligible or voluntarily excluded from covered transactions.

G. The Contractor and its Subcontractors or Suppliers required to file the certification have a continuing duty to disclose, and shall provide immediate written notice to the Authority if, at any time, it learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

7. CERTIFICATION - LOBBYING RESTRICTIONS –CONTRACTS EXCEEDING $100,000

A. Definitions as used in this Clause:

1.) "Agency," as defined in 5 U.S.C. 552(f), includes Federal executive departments and agencies as well as independent regulatory commissions and Government corporations, as defined in 31 U.S.C. 9101(1). As used in the Certification set forth following the last paragraph of these requirements, it also includes any other public agency.

2.) "Covered Federal action" means any of the following Federal actions:

a. The awarding of any Federal contract;
b. The making of any Federal grant;
c. The making of any Federal loan;
d. The entering into of any cooperative agreement; and
e. The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement. As used in the

above referenced Certification, it includes the award of the contract with which it is associated.

3.) "Indian tribe" and "tribal organization" have the meaning provided in Section 4 of the Indian Self Determination and Education Assistance Act (25 U.S.C. 450B). Alaskan natives are included under the definitions of Indian tribes in that Act.

4.) "Influencing or attempting to influence" means making, with the intent to influence, any communication to or appearance before an officer or employees of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

5.) "Local government" means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government. It also includes a bi-state agency.

6.) "Officer or employee of an agency" includes the following individuals who are employed by an agency:

a. An individual who is appointed to a position in the Government under title 5, United States Code, including a position under a temporary appointment;
b. A member of the uniformed services as defined in section 101(3), title 37, United States Code;

7.) A special government employee as defined in Section 202, title 18, United States Code;

a. An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, Title 5, United States Code Appendix 2; and
b. An employee of a bi-state agency.

8.) "Person" means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian Organization with respect to expenditures specifically permitted by other Federal law.

9.) "Reasonable Compensation" means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the

normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

10.) "Reasonable Payment" means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

11.) "Recipient" includes all contractors and subcontractors at any tier in connection with a Federal Contract. The term excludes an Indian Tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

12.) "Regularly Employed" means, with respect to an officer or employee of a person requesting or receiving a Federal Contract, an officer or employee who is employed by such person for at least one hundred and thirty (130) working days within one (1) year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than one hundred and thirty (130) working days within one (1) year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for one hundred and thirty (130) working days.

13.) "State" means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and a multi-state, regional, or interstate entity having governmental duties and powers.

B. Prohibition

1.) Section 1352 of Title 31, United States Code, the “Byrd Anti-Lobbying Ammendment”) provides in part that no appropriated funds may be expended by the recipient of a Federal contract, grant, loan, or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement. For the purposes of the Certification included herein following the last paragraph of these requirements, it includes the award of the associated contract.

2.) The prohibition does not apply as follows:

a. Agency and legislative liaison by own employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B.1.) of this Section, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract or the contract associated with the certification if the payment is for agency and legislative liaison activities not directly related to a covered Federal Action.

(ii) For purposes of subparagraph B. 2.) a.(i) of this Section, providing any information specifically requested by an agency or Congress is allowable at any time.

(iii) For purposes of subparagraph B. 2.) a.(i) of this Section, the following agency and legislative liaison activities are allowable at any time only where they are not related to specific solicitation for any covered Federal action.

(a.) Discussing with an agency (including individual demonstrations) the qualities and characteristics of the person's products or services, conditions or terms of sales and service capabilities; and,

(b.) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(iv) For purposes of paragraph B. 2)a.(i) of this Section, the following agency and legislative liaison activities are allowable only where they are prior to formal solicitation of any covered Federal action:

(a.) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(b.) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(c.) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Public Law 95-507 and other subsequent amendments.

(v) Only those activities expressly authorized by subparagraph B. 2)a. of this Section are allowable under subparagraph B. 2)a.

b. Professional and Technical Services by Own Employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B. of this Section, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a Federal contract or an extension, continuation, renewal, amendment, or modification of a Federal contract or the contract associated with the certification if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that contract or for meeting requirements imposed by or pursuant to law as a condition for receiving that contract.

(ii) For purposes of subparagraph B. 2.) b. (i) of this Section, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this Section unless they provided advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this Section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this Section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(iii) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, or reasonably expected to be required by law or regulation, and any other requirements in the actual award documents.

(iv) Only those services expressly authorized by subparagraph B. 2.) b. this Section are allowable under subparagraph B. 2.) b.

c. Reporting for Own Employees.

No reporting is required with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

d. Professional and Technical Services by Other than Own Employees.

(i) The prohibition on the use of appropriated funds, in subparagraph B. l.) of this Section, does not apply in the case of any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action, if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal contract or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal contract.

(ii) For purposes of subparagraph B. 2.) d. (i) of this Section, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this Section unless they provided advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this Section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this Section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(iii) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation, or reasonably expected to be required by law or regulation, and any other requirements in the actual award documents.

(iv) Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(v) Only those services expressly authorized by subparagraph B. 2.) d. of this Section are allowable under subparagraph B. 2.) d.

C. Disclosure

1.) Each person who requests or receives from the Authority a Contract with Federal assistance shall file with the Authority a certification entitled "Certification Regarding Lobbying Pursuant to 31 U.S.C. 1352," as set forth in the form that follows these requirements, that the person has not made, and will not make, any payment prohibited by subparagraph B. of this Clause.Each person who requests or receives from the Authority a Contract with Federal assistance shall file with the Authority a disclosure form entitled "Disclosure of Lobbying Activities Pursuant to 31 U.S.C. 1352" (Standard Form-LLL), as set forth in the form that follows these requirements, if such person has made or has agreed to make any payment using non-appropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph B. of this Clause if paid for with appropriated funds.

2.) Each person shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph C.2) of this Section. An event that materially affects the accuracy of the information reported includes:

a. A cumulative increase of $25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or
b. A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or
c. A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

3.) Any person who requests or receives from a person referred to in subparagraph C.1) of this Section a subcontract exceeding $100,000 at any

tier under a Federal contract shall file a certification, and a disclosure form, if required, to the next tier above.

4.) All disclosure forms, but not certifications, shall be forwarded from tier to tier until received by the person referred to in subparagraph C.1) of this Section. That person shall forward all disclosure forms to the Authority.

D. Agreement

1.) In accepting any contract resulting from this solicitation, the person submitting the offer agrees not to make any payment prohibited by this Clause.

E. Penalties

1.) Any person who makes an expenditure prohibited under subparagraph A of this Clause shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such expenditure.
2.) Any person who fails to file or amend the disclosure form to be filed or amended if required by the Clause, shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.
3.) Contractors may rely without liability on the representations made by their Subcontractors in the certification and disclosure form.

F. Cost Allowability

Nothing in this Clause is to be interpreted to make allowable or reasonable any costs which would be unallowable or unreasonable in accordance with Part 31 of the Federal Acquisition Regulation. Conversely, costs made specifically unallowable by the requirements in this Clause will not be made allowable under any of the provisions of Part 31 of the Federal Acquisition Regulation.

8. ACCESS TO RECORDS AND REPORTS

Pursuant to 44 CFR 13.42 and 2 CFR 215.53, the Contractor agrees to provide the Authority, the FEMA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions. The Contractor also agrees to provide the FEMA Administrator or his authorized representatives access to the Contractor's records and construction sites pertaining to the project.

The Contractor agrees to provide the Authority, FEMA Administrator, the Comptroller General of the United States or any of their duly authorized representatives with access to any books,

documents, papers and record of the Contractor, which are directly pertinent to this Contract for the purposes of making audits, examinations, excerpts and transcriptions.

The Contractor shall make available records related to the contract to the Authority, the FEMA Administrator and the Comptroller General or any authorized officer or employee of any of them for the purposes of conducting an audit and inspection.

The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

The Contractor agrees to maintain all books, records, accounts and reports required under this Contract for a period of not less than three (3) years after final payment is made by the Authority and all other pending matters are closed, except in the event of litigation or settlement of claims arising from the performance of this Contract, in which case the Contractor agrees to maintain same until the Authority, the FEMA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto.

This requirement is independent of the Authority's requirements for record retention contained elsewhere in the contract documents.

9. CIVIL RIGHTS

A. Nondiscrimination - In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, and section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FEMA may issue.

B. Equal Employment Opportunity - The following equal employment opportunity requirements may apply to the underlying contract and subsequent subcontracts:

1.) Race, Color, Creed, National Origin, Sex - (Construction contracts awarded in excess of $10,000) - In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Department of Homeland Security regulations 6 CFR § 21 and 44 C.F.R § 7, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 CFR Parts 60 *et seq*., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the

Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FEMA may issue.

2.) Age - In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § 623, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FEMA may issue.

3.) Disabilities - In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 CFR Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FEMA may issue.

C. The Contractor also agrees to include these requirements in each subcontract related to this project, modified only if necessary to identify the affected parties.

10. DAVIS-BACON AND COPELAND ANTI-KICKBACK ACTS – CONTRACTS EXCEEDING $2000

The Davis-Bacon and Copeland Acts are codified at 40 U.S.C 3141, *et seq.* (as supplemented by Department of Labor Regulations (29 C.F.R Part 5)) and 18 U.S.C 874. The Acts apply to grantee construction contracts and subcontracts that "at least partly are financed by a loan or grant from the Federal Government." 40 U.S.C 3145(a), 29 CFR 5.2(h), 44 CFR 13.36(i)(5), 2 CFR 200, Appendix II (D) . The Acts apply to any construction contract over $2,000. 40 U.S.C 3142(a), 29 CFR 5.5(a). 'Construction,' for purposes of the Acts, includes "actual construction, alteration and/or repair, including painting and decorating." 29 CFR 5.5(a). The requirements of both Acts are incorporated into a single clause (*see* 29 CFR 3.11) enumerated at 29 CFR 5.5(a) and reproduced below and are applicable if this Contract is a construction contract (as delineated above) over $2000, or over $2500 if this Contract involves the employment of mechanics or laborers.

A. Minimum Wages

1.) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid

unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which, if applicable, is attached hereto and made a part hereof (the attachment is the most current determination), regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Determinations may change during the term of the Contract, and the wages and fringe benefits required by the most recent determination of the Secretary of Labor are those to be used.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (A)(4) of this Section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (A)(2) of this Section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

2.)

a. The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination;

(ii) The classification is utilized in the area by the construction industry;

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(iv) With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

b. If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

c. In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs A (2) (b) or (c) of this Section, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

3.) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

4.) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

5.)

a. The contracting officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination;

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

b. If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

c. In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination with 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

d. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs A(2) (b) or (c) of this Section, shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

B. Withholding

The Authority shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the

Contractor under this Contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the Authority may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

C. Payrolls and Basic Records

1.) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

2.)

a. The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Authority for transmission to the Federal Emergency Management Agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under section 5.5(a)(3)(i) of Regulations, 29 CFR part 5. This information may be submitted in any form desired. Optional Form

WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

b. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be maintained under section 5.5(a)(3)(i) of Regulations, 29 CFR part 5 and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

c. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph C(2)(b) of this Section.

d. The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

3.) The Contractor or subcontractor shall make the records required under paragraph C(1) of this Section available for inspection, copying, or transcription by authorized representatives of the Federal Emergency Management Authority or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

D. Apprentices and Trainees

1.) Apprentices - Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

2.) Trainees - Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified

in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

3.) Equal employment opportunity - The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

E. Compliance with Copeland Act Requirements

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this Contract.

F. Subcontracts

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Emergency Management Agency may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

G. Contract Termination: Debarment

A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

H. Compliance with Davis-Bacon and Related Act Requirements

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this Contract.

I. Disputes Concerning Labor Standards

Disputes arising out of the labor standards provisions of this Contract shall not be subject to the general disputes clause of this Contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

J. Certification of Eligibility –

1.) By entering into this Contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

2.) No part of this Contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

3.) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

11. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The Contractor shall comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor regulations (29 C.F.R Part 5). The Contract Work Hours and Safety Standards Act applies to certain grantee contracts and subcontracts under 40 U.S.C 3701(b)(1)(B)(iii) and (b)(2), 44 CFR 13.36(i)(6), 2 CFR 200, Appendix II (E) for prime contracts for construction, and non-construction projects that employ “laborers or mechanics on a public work.”.

A. Overtime Requirements
No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

B. Violation; liability for unpaid wages; liquidated damages

In the event of any violation of the clause set forth in paragraph A of this Section the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph A of this Section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph A of this Section.

C. Withholding for unpaid wages and liquidated damages

The Authority shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph B of this Section.

D. Subcontracts

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs A through D of this Section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs A through D of this Section.

12. ENERGY CONSERVATION

The Contractor agrees to comply with the mandatory energy efficiency standards and policies within the applicable State energy conservation plans issued in compliance with the Energy Policy and Conservation Act, 42 U.S.C. §6321 et seq. The Contractor also agrees to ensure that all work performed under this Contract including work performed by a Subcontractor is in compliance with the requirements of this Section.

13. CLEAN WATER REQUIREMENTS – CONTRACTS EXCEEDING THE SIMPLIFIED ACQUISITION THRESHOLD

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C §1251 et seq.

B. The Contractor agrees to report each violation to the Authority and understands and agrees that the Authority will, in turn, report each violation as required to assure notification to FEMA and the appropriate EPA Regional Office.

C. The Contractor also agrees to include the requirements of this Article in all subcontracts exceeding the Simplified Acquisition Threshold issued pursuant to this Contract.

14. CLEAN AIR REQUIREMENTS – CONTRACTS EXCEEDING THE SIMPLIFIED ACQUISITION THRESHOLD

A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C §7401 et seq. The Contractor agrees to report each violation to the Authority and understands and agrees that the Authority will, in turn, report each violation as required to assure notification to FEMA and the appropriate EPA Regional Office.

B. The Contractor also agrees to include the requirements of this Clause in all subcontracts exceeding the Simplified Acquisition Threshold, issued pursuant to this Contract.

15. FLY AMERICA

The Federal Government will not participate in the costs of international air transportation of any persons involved in or property acquired for this Contract unless that air transportation is provided by U.S.-flag air carriers to the extent service by U.S.-flag air carriers is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974, as amended, 49 U.S.C. § 40118, and with U.S. GSA regulations, “Use of United States Flag Air Carriers," 41 CFR §§ 301-10.131 through 301-10.143.

16. PREFERENCE FOR RECYCLED PRODUCTS

The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

17. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS OR RELATED ACTS

A. The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 *et seq*. and U.S. DHS regulations, "Program Fraud Civil Remedies," 6 CFR Part 13, apply to its

actions pertaining to this Project. The Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the contract or project. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

B. The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under this Contract, financed in whole or in part with Federal assistance, the Federal Government reserves the right to impose the penalties of 18 U.S.C. § 1001 in addition to any other remedies available under law on the Contractor, to the extent the Federal Government deems appropriate.

C. The Contractor agrees to include the above two clauses in each subcontract related to this Contract. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

18. ADA ACCESS REQUIREMENTS

Facilities must comply with 42 U.S.C. Sections 12101 *et seq*..

19. TERMINATION FOR CAUSE OR CONVENIENCE – CONTRACTS EXCEEDING $10,000

A) Notwithstanding anything to the contrary elsewhere within this Contract, the Authority may terminate this contract, in whole or in part, at any time by written notice to the Contractor for cause or when it is in the Authority's best interest, pursuant to 44 CFR 13.36 (i)(2), and 2 CFR 200, Appendix II (B). In the event of termination for convenience, the Contractor shall be paid its costs, including contract close-out costs, as so provided for in the Contract, on work performed up to the time of termination for convenience.

20. CHANGES TO THE CONTRACT

The Authority reserves the right to make changes to this Contract that are within the general scope of this Contract. Any such changes shall be subject to any applicable provisions of this Contract.

21. FEDERAL COST PRINCIPLES

All costs under this Contract are subject to audit pursuant to Federal cost principles set forth in 2 C.F.R 225 (or as may be revised).

22. REPORTING

Contractor shall comply with the FEMA requirements and regulations pertaining to reporting, particularly those contained in 44 C.F.R parts 13.40 and 13.41, and 2 CFR parts 200.37, 200.38, and 200.39.

23. PATENTS

The Contractor agrees, pursuant to 44 CFR 13.36 (i)(8), and 2 CFR Part 200, Appendix II (F), that all rights to inventions and/or discoveries that arise or are developed, in the course of or under this Agreement, shall belong to the Port Authority and be disposed of in accordance with the Port Authority policy, subject to applicable regulations governing patents and inventions, including governmentwide regulations issued by the Department of Commerce at 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Awards, Contracts and Cooperative Agreements." The Port Authority, at its own discretion, may file for patents in connection with all rights to any such inventions and/or discoveries.

24. COPYRIGHTS

The Contractor agrees, pursuant to 44 CFR 13.36 (i)(9), and 2 CFR Part 200, Appendix II (F), that if this Agreement results in any copyrightable material or inventions, in accordance with 44 CFR 13.34, 2 CFR 200.315 , and any applicable regulations governing patents and inventions, including governmentwide regulations issued by the Department of Commerce at 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Awards, Contracts and Cooperative Agreements," FEMA reserves a royalty-free, nonexclusive, and irrevocable license to reproduce, publish, or otherwise use, for Federal Government purposes: (1) the copyright in any work developed under a grant or contract; and (2) any rights of copyright to which a grantee or a contractor purchases ownership with grant support.

25. BUY AMERICAN REQUIREMENTS (IF APPLICABLE)

Contractor is required to comply with the Buy American Act (41 U.S.C. 10a et seq.).

CERTIFICATION REGARDING LOBBYING PURSUANT TO 31 U.S.C. 1352

The undersigned

_____

(name of authorized officer)

certifies, to the best of my knowledge and belief, that:

- No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

- If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form LLL, "Disclosure of Lobbying, Activities" in accordance with its instructions.

- The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by, 31, U.S. C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Note: Pursuant to 31 U.S.C § 1352(c)(I)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such expenditure or failure.

The Contractor certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801, et seq., apply to this certification and disclosure, if any.

Executed this day _____of _____,_20_____

By:_____

Signature of Authorized Official

_____

Official Name and Title of Authorized Official

STANDARD FORM LLL - DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

1. Type of Federal Action: ____ a. contract ____ b. grant ____ c. cooperative agreement ____ d. loan ____ e. loan guarantee ____ f. loan insurance	**2. Status of Federal Action:** ____ a. bid/offer/application ____ b. initial award ____ c. post award	**3. Report Type:** ____ a. initial filing ____ b. material change **For material change only:** Year _____ quarter _____ Date of last report_____

4. Name and Address of Reporting Entity: ____ Prime _____ Subawardee Tier_____, if Known: **Congressional District,** *if known*:	**5. If Reporting Entity in No. 4 is Subawardee,** Enter Name and Address of Prime: **Congressional District,** *if known*:
6. Federal Department/Agency:	**7. Federal Program Name/Description:** CFDA Number, *if applicable*: _____
8. Federal Action Number, *if known:*	**9. Award Amount**, *if known:* **$**
10. a. Name and Address of Lobbying Registrant *(if individual, last name, first name, MI):*	**b. Individuals Performing Services** *(including address if different from No. 10a)* *(last name, first name, MI):*
11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.	**Signature:** _____ **Print Name:** _____ **Title:** _____ **Telephone No.:** _____ **Date:** _____
Federal Use Only	**Authorized for Local Reproduction** **Standard Form - LLL (Rev. 7-97)**

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. Section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitations for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Included prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.

    (b) Enter the full names of the individual(s) performing services, and include full address if different from 10(a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

FEMA REQUIREMENTS

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION - LOWER TIER COVERED TRANSACTIONS

1. The prospective lower tier participant, _____, certifies by submission of this bid or proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

3. The prospective lower tier participant shall provide immediate written notice to the Authority (and the Contractor, if applicable) if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

Executed this day _____ of _____, 20_____.

_____

BY SIGNATURE OF AUTHORIZED OFFICIAL

_____

NAME AND TITLE OF AUTHORIZED OFFICIAL

INSTRUCTIONS FOR COMPLETION OF CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION -LOWER TIER COVERED TRANSACTIONS

1. By signing and submitting this Proposal, the prospective lower tier participant is providing the signed certification set out on the previous page.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Authority may pursue available remedies, including suspension and/or debarment.

3. The prospective lower tier participant shall provide immediate written notice to the Authority if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms “covered transaction,” “debarred,” “suspended,” “ineligible,” “lower tier covered transaction,” “participant,” “persons,” “lower tier covered transaction,” “principal,” “proposal,” and “voluntarily excluded,” as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [2 CFR Part 3000]. The Proposer may contact the Procurement Representative for assistance in obtaining a copy of those regulations.

5. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by the Authority.

6. The prospective lower tier participant further agrees by submitting this proposal that it will include the “Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction,” without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List issued by U.S. General Service Administration.

8. Nothing contained in the foregoing shall be construed to require establishment of system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under sub-paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, the Authority may pursue available remedies including suspension and/or debarment.

END OF FEMA CONTRACT PROVISIONS

DIVISION 16

SECTION 16000

ELECTRICAL GENERAL REQUIREMENTS

PART 1. GENERAL

1.01 SUMMARY

Unless otherwise shown on the Contract Drawings, or unless otherwise specified in other Sections of these Specifications, the general requirements specified in this Section are applicable to all electrical work of this Contract. Additional requirements applicable to individual Sections of these Specifications are specified in those Sections, or are shown on the Contract Drawings.

1.02 REFERENCES

The following is a listing of publications referenced in this Section:

	American National Standards Institute (ANSI)
ANSI C 2	National Electrical Safety Code.
	American Society of Testing and Materials (ASTM)
ASTM D 178	Standard Specification for Rubber Insulation Matting.
	National Fire Protection Association (NFPA)
NFPA 70	National Electrical Code.
	Occupational Safety and Health Administration (OSHA)

1.03 QUALITY ASSURANCE

A. Any entity performing Work shall have had experience on at least two projects involving quantities and complexities at least equal to those required under this Division or the applicable Section thereof.

B. All workmen performing under this Division shall be skilled workers of the trade involved. Where specialty work, such as splicing or welding are required, submit proof of training, experience and work history for each workman, for review by the Engineer. Only approved workmen shall perform specialty work.

C. All electrical work shall be performed under the supervision of an electrical contractor, licensed in the state (and the city as required) in which the work is to be performed. Submit a copy of the qualifying license for review by the Engineer.

D. All calculations required by this and other various Sections of these Specifications, or as shown on the Contract Drawings, shall be certified and sealed by a Professional Engineer licensed in the state in which the Work is to be performed, and shall be submitted to the Engineer for review.

E. Various Sections of these Specifications contain the requirement for the specific material or equipment to be furnished with an experience statement "satisfactorily used for purposes similar to those intended herein" or words of similar intent and a statement that specifies the required experience time. These statements shall mean that the manufacturer of the material or equipment being furnished for the Work specified in this Contract shall have manufactured similar material or equipment to that specified, for at least the time specified.

F. In various Sections of this Division there is a statement that refers to the length of required experience that must be satisfied.

G. Polyvinyl Chloride (PVC): PVC conduits, PVC-insulated power wiring, or items containing PVC, except PVC-insulated wiring for communications systems, remote control, signaling, and power limited circuits, shall not be installed in any indoor area. PVC-insulated wiring for communications systems, remote control, signaling, and power-limited circuits shall be furnished and installed in accordance with NFPA 70.

H. Asbestos

Asbestos or items containing asbestos shall not be furnished or installed.

I. Conformance Labels

All electrical materials and equipment for which there is a nationally recognized standard shall bear the conformance labeling of the third party inspection authority, such as Underwriters Laboratories Inc., Factory Mutual, ETL, or approved equal. Where the phrase "where there are established UL standards, shall bear the UL label", or words of similar intent appear in other Sections, the instructions for the conformance label above shall apply.

1.04 CODES AND STANDARDS

A. The electrical installation shall conform to all requirements of ANSI C2, NFPA 70, and the codes and standards specified in other Sections, all local codes and the requirements of OSHA, which would be applicable if the Authority were a private corporation.

B. Standards publications of technical organizations and regulatory agencies are referenced in other Sections, and unless stricter requirements are indicated, materials and equipment so specified shall be manufactured, tested and installed to conform, as a minimum, to the requirements of such reference standards and publications.

C. Installations for aeronautical markers, lighting, guidance signs, and other work as shown on the Contract Drawings, shall comply with the standards of the Federal Aviation Administration (FAA), where applicable.

D. In case of conflict between provisions of codes, laws and ordinances, the more stringent requirement shall apply.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver material in manufacturers' original unopened protective packaging.

B. Store materials in original packaging in a manner to prevent soiling, physical damage, wetting or corrosion prior to installation.

C. Handle in a manner to prevent damage to finished surfaces.

D. Where possible maintain protective coverings until installation is complete and remove such covers as part of final cleanup.

E. Touch up any damage to finishes to match adjacent surfaces to the satisfaction of the Engineer.

1.06 SUBMITTALS

See Appendix "A" for submittal requirements.

1.07 SPECIAL TERMS

Throughout this and other Sections of this Division the term "Authority" is used. In PATH contracts, substitute the term "PATH" is deemed substituted for the term "Authority".

PART 2. PRODUCTS

2.01 MATERIAL AND EQUIPMENT TO BE FURNISHED

Equipment and materials furnished shall be new and unused, prior to this installation, first grade commercial quality and shall be essentially the standard cataloged products of a manufacturer regularly engaged in the manufacture of the products. Only those items specifically shown on the Contract Drawings as existing, relocated or Authority furnished shall be reused in this installation. Rebuilt or remanufactured equipment will not be permitted.

2.02 IDENTIFICATION

A. All parts of equipment, such as switchboards, panel boards, safety switches, motor starters, circuit breakers, time clocks, contactors and similar items shall be identified by name, function or control with laminated plastic nameplates consisting of two black sheets with one white sheet bonded to and between the two outer sheets and having letters machine engraved in the face sheet to the depth of the white plastic. Nameplates shall not be smaller than 1 inch by 3 inches with characters not less than one-quarter inch. Where letter sizes are not specified, use one-inch high letters for panel boards, switchboards and motor control centers and one quarter inch high elsewhere. Nomenclature shall be according to a schedule approved by the Engineer.

B. All device plates other than lighting switch plates, telephone and 120 volt, single phase, 15 or 20 ampere receptacles, shall have black or white (as directed) silk-screened lettering Helvetica Medium type face (or other type face as directed by the Engineer) designating:

1. System.
2. Voltage (where applicable).
3. Number of phases (where applicable).
4. Current rating (where applicable).
5. Frequency (where applicable).

C. Before placing orders for nameplates or silk-screened device plates, submit a typewritten list to the Engineer for review.

D. The outside of the covers of all junction or pull boxes located above hung ceilings and the inside of the covers of all junction or pull boxes exposed shall be labeled with an indelible marker indicating the operating voltage and the system contained therein.

E. All device plates of receptacles connected to a standby or emergency power distribution system shall be labeled with an orange plastic nameplate, engraved with the panel board and circuit number to which the receptacle is connected. Nameplate character engraved shall be not less than one-quarter inch in height.

F. Unless otherwise shown on the Contract Drawings, all panel boards, switchboards, switchgear, circuit breakers, switches and transformers connected to a standby or emergency power distribution system shall be finished Federal Safety Orange in color.

2.03 RUBBER MATTING

A. Provide continuous insulated rubber matting not less than 36 inches wide and not less than one quarter inch thick in one piece in front of:

1. Substation transformers.
2. Switchgear.
3. Switchboards.
4. Motor control centers.
5. Panel boards.
6. On each side and end of a standby or emergency generator set.
7. Other locations as shown on the Contract Drawings.

B. Matting shall conform to ASTM D 178, Type 2.

PART 3. EXECUTION

3.01 GENERAL

A. Work of this Division shall include all labor, material and apparatus necessary for the completion of all electrical work as shown on the Contract Drawings and as hereinafter specified, left ready for satisfactory operation.

B. Coordinate with Authority operations and construction by other trades.

1. Coordinate with the Work of all trades as necessary to facilitate timely completion, avoid unnecessary cutting and patching and to ensure proper installation and operation of all equipment.
2. Coordinate all components and aspects of the Work, in order to minimize power shutdowns to the power distribution systems. Should any part of the Work require an "off-hours" shutdown in excess of 8 hours, supply temporary services or feeders as required to maintain operation of the existing systems and equipment.

3. Furnish to appropriate trades, shop drawings, catalog cuts and instructions necessary for construction of concrete bases, concrete encasement, anchor bolts, and other construction required to accommodate installations under other Sections.

4. Obtain all wiring diagrams and other instructions required for proper electrical connection of equipment installed or furnished under other Divisions of these Specifications and coordinate the installation, wiring and connections for equipment furnished under this Division, or other various Divisions.

C. The arrangement of electrical equipment and conduit runs as shown on the Contract Drawings and described in the Specifications is schematic. Locate and install electrical work in coordination with other trades so that all electrical equipment and material is installed with working clearances in accordance with NFPA 70. Route conduit to avoid interference with existing installation and with work to be performed by other trades.

D. The location of equipment and motors shown on the Contract Drawings shall be subject to minor revisions due to field conditions or coordination with other trades without any increase in Contractor's compensation. Prior to roughing-in, verify the exact location of all electrical connections to equipment and motors from reviewed shop drawings and field verification.

E. Maintain records of all inspections, testing, overload and overcurrent settings throughout the construction and any corrective actions taken, and submit records to the Engineer for review.

F. All electrical work shall be subject to inspection by the Engineer. Correct any deficient work, as required for the approval of the Engineer.

G. Any equipment, materials, wiring or labor that are a necessary part of the electrical work and to its proper performance, although not specifically mentioned herein or shown on the Contract Drawings, shall be furnished and installed as if called for in detail, without additional cost to the Authority.

3.02 REMOVALS, RELOCATIONS, RECONNECTIONS, RESTORATIONS

A. Relocate existing equipment and materials as shown on the Contract Drawings.

B. Unless otherwise shown on the Contract Drawings, existing equipment and materials that are to be removed and not required to be relocated under this Contract, will become the property of the Contractor and shall be removed from the property of the Authority, and shall be properly disposed of. Disposal of equipment and materials shall comply with all local, state and Federal laws and regulations as if the Authority was a private corporation.

C. Unless specifically shown on the Contract Drawings, salvaged equipment and materials shall not be reused in the installation.

D. If existing electrical feeders, wiring, conduit, lighting fixtures or equipment interfere with the installation of new construction of any trade, the existing electrical feeder, wiring and conduit shall be rerouted or the equipment relocated in a manner approved by the Engineer to permit installation of the new construction. Where existing circuits or devices, or portions of the existing wiring system are to remain in service, but are interrupted by the construction, continue the existing wiring to maintain the remainder of the wiring system in operation.

E. Notify the Engineer immediately of any damage caused by the Contractor to existing wiring, services or feeders that are to remain in service. Repair the damage in a workmanlike manner to restore to service, at no cost to the Authority.

F. Before shutdown or discontinuation of service on any circuit, system or feeder, coordinate such activities with the Engineer in order to minimize shutdown periods. Provide a minimum of two weeks notice in writing to the Engineer before performing any shutdowns. The minimum period may be reduced with the express written permission of the Engineer.

3.03 LOCATION OF EQUIPMENT

A. Unless otherwise shown on the Contract Drawings, the location of outlets or devices, from finished floor to center of plate or device, shall be as follows:

1. Lighting switches: 48 inches.
2. Thermal switches: 48 inches.
3. Receptacles: 16 inches.
4. Telephone outlets: 16 inches.
5. Fire alarm stations: 48 inches.
6. Fire alarm horn/light signals: 7 feet 6 inches.
7. Clocks: 7 feet 8 inches.

B. Unless otherwise shown on the Contract Drawings, the location of equipment, from finished floor to top of enclosures shall not exceed 6 feet, 6 inches, and shall not protrude more than 4 inches if higher than 27 inches.

1. In exposed or public locations, panel boards and cabinets shall generally be flush mounted and all covers shall be identical in layout and size, and shall be installed to maintain a level and straight top and bottom alignment.
2. In concealed locations, or in closets or electrical or mechanical rooms, or non-public locations, panel boards and cabinets shall generally be surface mounted and shall be installed to maintain a level and straight top alignment.

3.04 DISSIMILAR METALS

A. Dissimilar metals shall mean those metals that are incompatible with one another in the presence of moisture, as determined from their relative positions in the Electrochemical Series, or from test data. Where dissimilar metals come in contact, paint the joint both inside and out with approved coating so as to exclude moisture from the joint, or provide a suitable insulating barrier separating the metals.

B. Transitions in raceways, from one metal to a dissimilar metal shall only be made at boxes or other enclosures, except where shown on the Contract Drawings.

3.05 NAMEPLATES

Secure nameplates on equipment or walls with stainless steel or brass screws.

3.06 RUBBER MATS

A. Install rubber mats in front of each panelboard, switchboard, motor control center, switchgear and substation transformers, and along each side and the end or each generator set, or as shown on the Contract Drawings.

B. Rubber mats, when installed, shall lay flat without curling.

3.07 CUTTING AND PATCHING

A. Perform all cutting and patching of existing construction required for installation of all materials and equipment as specified in this Division.

B. Perform all patching to match existing adjacent construction to the satisfaction of the Engineer and using the best possible workmanship of the various trades involved.

3.08 FINAL FIELD TESTS

A. The entire electrical installation shall be inspected prior to final acceptance testing, thoroughly cleaned, and damaged finishes touched up after final completion and prior to final acceptance testing being performed. Not less than 30 days prior to the testing, furnish a test plan, to the Engineer for review, outlining all aspects of the testing, including tests to be performed and the expected results.

B. Perform the following field test in the presence of the Engineer to demonstrate the reliability of the electrical installation. Give the Engineer a minimum of one-week advance notice of such tests.

1. Operate all electrical systems and equipment for a period of 24 hours, unless in the opinion of the Engineer, a different test period is required, to prove the operation and performance of a system and its equipment.

2. Should the foregoing test reveal any defects, promptly correct such defects and re-run the tests until the entire installation conforms to the requirements of these Specifications and the Contract Drawings.

C. Tests requiring certified reports and those requiring factory or field inspection shall be conducted and reported to the Engineer in conformance with standards herein specified.

D. In addition to the tests outlined above, after completion of the electrical system and prior to occupancy:

1. The following equipment and devices, as a minimum, shall be thermographically inspected utilizing a Hughes Aircraft Probeye infrared detector, or approved equal, with videotaping attachment.

a. High voltage cable splices and connections.

b. Switchboard.

c. Transformer.

d. Switchgear.

e. Panelboards.

f. Motor control centers.

g. Automatic transfer switch and emergency power system connections.

h. Chiller motor and starter connections.

i. All 600 volt (nominal) cable connections rated 100 amperes (#3 AWG) or greater.

j. Other equipment as shown on the Contract Drawings.

2. The inspection shall be made by an independent inspection company such as Infrared Services, Inc, Montville, N.J., General Electric Apparatus Service Division, or approved equal. The inspection shall be made with all equipment, motors, lighting fixtures, and miscellaneous loads operating and with all equipment covers removed. Inspection reports complete with color photographs of the infrared scan and control photographs indicating the ambient temperature and any hot spots of each item inspected shall be submitted to the Engineer for approval. Any equipment, connections or devices indicated to be operating improperly performing equipment shall be replaced or repaired by the Contractor at no cost to the Authority. The cost of the inspections and necessary repairs shall be included in the Contract.

E. Demonstrate to the Engineer equipment or systems installed or modified in this Contract.

1. After completion of all testing, and prior to placing equipment or systems in operation, demonstrate the features and operation of the equipment or systems to the Engineer, and all other staff or interested parties, as designed by the Engineer, so that operational and maintenance personnel are familiarized with the equipment and systems, as follows:

a. Switchboards and panelboards.

b. Transformer.

c. Switchgear.

d. Motor control centers.

e. Fire alarm and smoke detection systems.

f. Automatic transfer switches.

g. Standby/Emergency generator sets.

h. Other equipment as shown on the Contract Drawings.

2. Provide the necessary accessories, test equipment, and personnel, for each demonstration.

3. Complete all arrangements for the demonstrations through the Engineer.

4. Upon the completion of each demonstration or instructional session, obtain "sign-off" from the Engineer. The "sign-off" shall state that the demonstration or instructions for use were provided, that they were complete and were given to the designated personnel.

END OF SECTION

SECTION 16000

ELECTRICAL GENERAL REQUIREMENTS

APPENDIX "A"

SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

A. Shop Drawings

1. Substation and high-voltage transformers.
2. Switchgear.
3. Switchboards.
4. Motor control centers.
5. Emergency lighting battery systems.
6. Working drawings for the installation sequence of medium voltage cables, and other systems where shown on the Contract Drawings, including the reel designations for each leg of the installation. Drawings shall include the calculations for pulling tensions and sidewall pressure of all cable pulls, including identification of manhole locations with splices and manholes that will be "pulled-through" without splicing. Calculations shall be certified and sealed by a Professional Engineer licensed in the State in which the Work is to be performed.

B. Catalog Cuts

1. Conduit, and fittings.
2. Wire and cable.
3. Wiring devices.
4. Multi-outlet assemblies.
5. "Standard" outlet and junction boxes.
6. Medium voltage cable, splicing and termination kits.
7. Lightning arresters.
8. Capacitors.
9. Panel boards and cabinets.
10. General purpose transformers.
11. Circuit breakers.
12. Lighting fixtures.
13. Pulling devices and end seals.
14. Special pull and junction boxes.

15. Supporting devices.

C. Certifications

Training, experience and work history for certified splicers and welders.

D. Design Calculations

Calculations where required by the Specifications or the Contract Drawings.

E. Maintenance Manuals

Operation and maintenance manuals, where required by the Specifications or the Contract Drawings.

F. Schedules

Nameplate designations.

G. Record Documents

One set of Shop Drawings revised, completed and brought up to date showing the permanent construction as actually made, in accordance with "Shop Drawings, Catalog Cuts and Samples" of Division 1, and showing the exact location of all equipment and conduit runs, as actually installed.

H. Site Inspection Reports

A final copy of the records and certified test reports for all tests, to the Engineer for review, for not less than the following:

1. Primary cable and terminators insulation testing.
2. Insulation testing of 600V (nominal) cables rated 100 amperes (#3 AWG) and above.
3. Ground resistance test of each service ground.
4. Ground fault circuit breaker and receptacle testing.
5. Setting of all adjustable overcurrent devices.
6. Setting or size of all overload elements installed, indicating the following:
   a. Motor designation.
   b. Nameplate horsepower, full load current, voltage and phases.
   c. Operating current and voltage.
   d. Overload element size or setting.
7. Emergency power distribution equipment and system test results.

END OF APPENDIX "A"

SECTION 16129

TAXIWAY / RUNWAY WIRES AND CABLES

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies requirements for wires, cables, splices, terminations, and appurtenances for airfield construction.

1.02 DESIGN AND PERFORMANCE REQUIREMENTS

A. Wires, cables, splices and terminations for airfield construction furnished and installed in accordance with this Section, and as indicated on the Contract Drawings.

B. Components of the taxiway / runway wires and cables shall be manufactured and installed to meet all of the applicable requirements of FAA Advisory Circulars and all local codes.

1.03 RELATED SECTIONS

A. None

1.04 REFERENCES

A. ASTM International (ASTM)

1. B1 - Standard Specification for Hard-Drawn Copper Wire
2. B2 - Standard Specification for Medium-Hard-Drawn Copper Wire
3. B3 - Standard Specification for Soft or Annealed Copper Wire
4. B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
5. B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes
6. B189 – Standard Specification for Lead-Coated and Lead-Alloy-Coated Soft Copper Wire for Electrical Purposes
7. D2303 – Standard Test Methods for Liquid-Contaminant, Inclined Plane Tracking and Erosion of Insulating Materials
8. D2802 - Standard Specification for Ozone-Resistant Ethylene-Alkene Polymer Insulation for Wire and Cable

B. Federal Aviation Administration, Advisory Circular (FAA-AC)

1. 150/5340-30 – Design and Installation Details for Airport Visual Aids

2. 150/5345-7 – Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits

3. 150/5345-26 – FAA Specification for L-823 Plug and Receptacle, Cable Connectors

C. Federal Specifications (FS)

1. SS-S-1401 – Sealant, Joint, Non-Jet-Fuel-Resistant, Hot Applied, for Portland Cement and Asphalt Concrete Pavements

D. Insulated Cable Engineers Association (ICEA)

1. S-96-659 –Nonshielded 2001-5kV Cables

E. Institute of Electrical and Electronics Engineers (IEEE)

1. 383 – IEEE Standard for Qualifying Electric Cables and Splices for Nuclear Facilities

F. National Electrical Manufacturers Association (NEMA)

1. WC-71 –Nonshielded Cables Rated 2001-5000 V for use in the Distribution of Electric Energy

G. Underwriters Laboratories Inc. (UL)

1. 44 – Thermoset-Insulated Wires and Cables

2. 83 – Thermoplastic-Insulated Wires and Cables

1.05 SUSTAINABLE DESIGN REQUIREMENTS

A. Not Applicable

1.06 QUALITY ASSURANCE

A. Tests requiring certified reports and those requiring factory witness or field inspection shall be conducted and reported to the Engineer in conformance with those standards specified in this Section.

B. Installations shall comply with the standards of the Federal Aviation Administration (FAA) where applicable.

C. Wires and cables that have been manufactured more than two years prior to installation shall not be used in the work of this Section.

D. All wires, cables, splices and terminations, for which there are established UL standards, shall bear the UL label.

1.07 SUBMITTALS

See Appendix “A” for Submittal requirements.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Where multi-conductors are to be installed as one cable, single conductor cables shall be combined together by the cable manufacture prior to shipment. Cable assembly overall diameter shall be kept to a minimum.

B. Store material in a clean, dry space and protect it from the weather.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General

1. Locations, types, sizes and numbers of wires and cables are shown on the Contract Drawings.
2. Unless otherwise shown on the Contract Drawings, solid conductors shall be soft or annealed copper, conforming to ASTM B 33 (tinned), ASTM B 189 (lead-coated or lead-alloy coated), or ASTM B 3 (uncoated).
3. All electrical materials and equipment, for which there are stabled UL standards, shall bear the UL Label.

B. 600-volt Insulated Wires and Cables

1. Power Wires and Cables
   a. Secondary Series Lighting wire and cable shall be watertight thermoplastic rubber insulated.
2. Grounding Wires and Cables

   Unless otherwise shown on the Contract Drawings, grounding conductors shall be as follows:

   a. Insulated
      1) Solid for sizes # 8 AWG and smaller, Class B Stranded for sizes # 6 AWG and larger, 600 volt rated.
      2) Insulation shall be a continuous green color, double rated THHN-THWN thermoplastic insulated and nylon jacketed, gasoline and oil resistant and conform to UL 83.
   b. Un-insulated
      1) Solid for sizes # 8 AWG and smaller, Class B Stranded for sizes # 6 AWG and larger.
      2) In raceways
         a) Soft-drawn and conforming to ASTM B3
      3) Direct Buried or Encased in Concrete
         a) Soft-drawn, medium-hard-drawn or hard-drawn and conforming to ASTM B3, B2, or B1, respectively.

C. 5000 volt Insulated Wires and Cables:

1. Primary Series Lighting Cable shall be Non-Shielded 5000 Volt Rated, Type 'B', Single Conductor, Coated Copper, Class C, 19 Strands, Ethylene-Propylene-Rubber-Insulated (ASTM D-2802 and ICEA S-96-659) and Chlorinated Polyethylene Jacket (CPE-EPR). The cable shall comply with FAA-AC 150/5345-7 and shall be approved under FAA Specification No. L-824B. Where two cables of a single circuit are indicated on the Contract Drawings, the two cables shall be combined together in one reel, with one of the cables identified with a yellow stripe running the entire length of the cable jacket.6129.

2.02 SPLICING AND TERMINATING MATERIALS

A. General

All materials for making splices and termination shall be specifically designed for use with the type of wire or cable, insulation and installation and operating conditions of the specific application.

B. Power Wire and Cable Splices

1. Connector shall be insulated compression (indenter) type as specified on the contract drawings.
2. Silicone Sealant shall be as specified on the contract drawings.
3. Heat Shrinkable Tubing shall be either irradiated modified polyvinyl-chloride or irradiated polyolefin as specified on the Contract Drawings.

C. Secondary Series Lighting Cable Connectors

1. Double Pole plug and receptacle connectors for the secondary series lighting system shall comply with Section 1.04.B.3 and shall be approved under FAA Specification No. L-823 in accordance with Figure No 1. Plug and Receptacles shall be as specified on the Contract Drawings.

D. Series Lighting Cable Connectors

1. Single Pole plug and receptacle connectors for the primary series lighting cable system shall comply with FAA-AC 150/5345-26 and shall be approved under FAA Specification No. L-823 in accordance with Figure No. 2. Plug and receptacles shall be as specified on the contract drawings. Coordinate the connector size for use with the cable.

E. Cable Tags

1. Stainless steel metal tags, No. 25 gauge, and 3/4 inch wide and length as required by circuit designation, embossed with letters and numerals 1/4 inch high fastened to the cable at both ends of tags with stainless steel cable ties. Circuit designation shall be as specified on Contract Drawings or otherwise directed by the Engineer.

2.03 FACTORY / SHOP TESTS

A. General

1. Factory or in-plant and independent laboratory tests shall be in conformance with the applicable standards and as specified in this Section. All testing, and the results thereof shall be certified, in writing, to the Engineer for approval.

B. Factory or In-Plant Tests

1. Factory inspection and witnessing of tests by the Engineer shall be required for all wires and cables furnished under this contract. The Engineer reserves the right to require additional factory tests as required, or to waive factory inspection or witnessing of tests.

2. The Contractor shall notify the Engineer 14 days in advance of such factory tests.

3. 600 Volt Insulated Wires and Cables

   a. For quantities as shown on the Contract Drawings, regular dielectric-withstand and insulation-resistance in water tests for wires and cables shall be performed in accordance with UL 44.

   b. Flame tests for wires and cables shall be performed in accordance with IEEE 383.

4. 5000 Volt Insulated Wire and Cables

   a. Tests for wires and cables shall be in accordance with 1.04.B.2 and 1.04.D.1.
   b. Independent Laboratory Tests

      The following tests shall be performed by an independent test laboratory:

      1) Specific Surface Resistivity

      The specific surface resistivity of the cable jacket shall have a value greater than 200,000 Mega-ohms under all of the following conditions:

         a) As Manufactured
         b) After immersion in tap water at 30 Degrees Celsius for 28 days with measurements performed after the first day and then every week.
         c) After immersion in a 50/50 solution of potassium acetate (KAc) deicer and tap water at 30 Degrees Celsius for 28 days with measurements performed after the first day and then every week.

      2) The values of specific surface resistivity obtained in 2.03 B.4.b.1 shall be plotted to demonstrate stability over time.

      3) Drip Track Resistance

      Using apparatus described in ASTM Standard D2303, the cable jacket shall pass the following test:

         a) No. of Samples: 6 – after immersion for 28 days in KAc / Water Solution.
         b) Wetting Solution: 50 / 50 KAc / Water
         c) Wetting Rate: 0.2 cm^3 / minute
         d) Applied Voltage Steps: 100 Volts / 30 Minutes
         e) Initial Tracking Voltage: greater than 1000 Volts(Median Value)

Airport lighting cables that satisfy the above requirements should bear the following jacket printing:

"Cable Manufacturer" FAA-L-824 Type B MOD A

4) Certification and test required under Section 2.03 shall be performed by an independent test laboratory. Submit qualifications and the test procedure of the test lab for approval prior to testing.

5) Testing shall not be required for a previously certified cable if the same manufacturer for the identical cable using identical materials has performed successful testing. The certified test data shall be submitted for approval.

PART 3 - EXECUTION

3.01 PREPARATION

A. Inspect the raceways and conduits prior to installation of wires and cables and notify the Engineer in writing in the event of the finding conditions that would prevent the proper installation of materials using the methods specified in this Section.

B. Prior to puling wires and cables, clean the raceway systems of all foreign matter and perform all operations necessary so not as to cause damage to wires and cables while pulling.

C. Prior to pulling wires and cables into underground conduit systems, place a feeding tube approved by the Engineer at the entrance end of such systems.

3.02 INSTALLATION

A. Wire and Cable

1. General

a. Keep wires and cables dry at all times.

b. Seal wire and cable ends with watertight end seals if splicing or terminating does not follow at once.

c. Before splicing or terminating wires and cables, make a thorough inspection to determine that water has not entered the wires and cables or that the wires and cables have not been damaged.

d. Use adequate lubrication when installing cables in conduits or raceways. Any pulling compounds shall be compatible with the finish of the wires and cables furnished.

2. General Purpose Wires and Cables

   a. For the connection of taxiway and runway lights to the secondary side of the isolating transformers as per the latest FAA Advisory Circulars.

   b. Leave sufficient slack in each cable, but in no case less than:

      1) Three feet in base cans
      2) Three feet in light boxes

3. 5000 Volt Series Lighting Cables

   a. For connection of the airport Constant Current Regulator output to the primaries of the isolating transformers.

   b. Leave sufficient slack in each cable, but in no case less than:

      1) Fifteen feet in manholes
      2) Ten feet in handholes
      3) Three feet in light boxes
      4) Three feet in base cans

B. Connections and Terminations

1. General Purpose Wires and Cables

   a. After the cable has been installed, the connections and terminations shall be installed in accordance with the manufacturer's instructions.

2. 5000 Volt Series Lighting Cables

   a. Connections to Transformers

      1) At each isolating transformer for runway and taxiway lights and taxiway signs and as shown on the Contract Drawings, the primary connectors shall consist of an assembly of L-823 Single Pole Plug and Receptacle cable connectors, and heat shrinkable insulation tubing.

         a) Heat shrinkable insulation tubing shall be 12 inches minimum length and its interior shall be coated with elastic mastic to assure a watertight seal after shrinking.
         b) Heat shrinkable insulation tubing may be installed in three sections to accommodate a connector that is not uniform in shape. The lengths of the sections shall be two (2) at six (6) inches long and one (1) at nine (9) inches long.

      2) After the cable has been installed, the connectors shall be installed on the ends of the Series Lighting Cable in accordance with the manufacturer's instructions.

a) The receptacle shall be installed at one end of the cable and the plug at the other end to establish a continuous plug and receptacle sequence through the wiring system and its associated isolating transformers.

b) Precautions shall be taken to release trapped air when inserting the plug in the receptacle. After the joint has been made and wiped clean of excess jelly, a heat shrinkable insulation tube shall be applied over the plug and receptacle in accordance with the manufacturer's recommendations and as approved by the Engineer.

b. Connections

1) Where the Primary Series Lighting Cables are run through or into taxiway light boxes, hand holes, or manholes, without connection to an isolating transformer, a plug and connector type installation as described immediately above, shall be used.

2) The maximum lengths of uncut wires and cables shall depend on the lengths of wire and cable that can be installed without damage.

C. Identification of Wires and Cables

1. Each wire and cable shall be identified by its circuit in all cabinet boxes, manholes, hand holes, wireways and other enclosures or access locations, and at all terminal points.

2. The circuit designations shall be as shown on the Contract Drawings or as directed by the Engineer. Tags shall be attached to wires and cables in such a manner as to be readily visible.

3. Wire and Cable tags shall be fastened to both ends of the series lighting wires and cables.

3.03 FIELD TESTS

In addition to other tests that may be required in other Sections, the Contractor shall perform the following field tests in the presence of the Engineer, to demonstrate the reliability of the electrical installation.

A. Tests on the cables shall be made in accordance with the FAA-AC 150/5340-30.

B. All series lighting cables and circuits shall be tested with a 5000-volt megohmmeter. Insulation resistance test equipment shall be battery operated. All testing shall be performed for one minute durations. Readings shall be taken after circuits have been de-energized for several hours as reading may appear higher immediately after operating the circuit. The following test procedure shall be performed on all series lighting circuits:

1. Remove all electrical power from the cable that shall be tested. Cover one end of the cable with an insulator to prevent the cable from accidentally shorting to ground and thereby giving a false reading.

2. Attach the positive (+) end of the megohmmeter to the exposed end of the bare copper cable. Connect the ground wire from the meter to the ground of the electrical system, a ground wire or ground electrode.

3. Switch the meter to the "on" position. Press the charge button or meter button designated to perform the charge function to commence the testing as described in the operating manual for the megohmmeter. Observe the meter for one minute. Once the readings stabilize, record the final value.

4. The testing shall use the step voltage method, using a minimum of 3 voltage levels; 1000 volts, 2500 volts, and 5000 volts. Sufficient time shall be allowed for charging currents to subside. Minimum insulation values shall be met at any and all voltage levels. (See Appendix "A" for calculation of insulation values.) A written record of all tests shall be furnished to the Engineer before acceptance of the insulation. Records shall include date and time of testing, test voltage levels and megohmmeter reading results.

5. Qualified personnel shall perform tests following strict adherence to the requirements of the Port Authority and the manufacturer of the equipment. All safety and operating rules shall be strictly observed and enforced.

C. After the installation has been completed, the Contractor shall successfully operate all electrical equipment for a continuous 24-hour period.

D. Unless otherwise shown on the Contract Drawings, all labor, materials and power required for the above tests shall be furnished by the Contractor. The Authority will furnish only power for the operating test.

E. Should the foregoing test results reveal any defects, promptly correct such defects and rerun the test until the entire installation is satisfactory to the Engineer in all aspects.

F. If any defects in existing equipment or materials are disclosed by the foregoing tests, the Contractor shall so notify the Engineer. After verification by the Engineer, and upon the Engineer's written order, the Contractor shall correct the installation to the extent directed by the Engineer. Any work so ordered by the Engineer and performed by the Contractor in connection with replacing of existing defective equipment or materials shall be compensated for in accordance with the clause of the Form of Contract entitled "Compensation for Extra Work." Damage to existing equipment or materials caused by the Contractor's acts or omissions shall be repaired at the Contractor's cost.

END OF SECTION

SECTION 16129

TAXIWAY / RUNWAY WIRES AND CABLES

APPENDIX A

SUBMITTAL REQUIREMENTS

Submit Catalog Cuts for the following in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 - GENERAL PROVISIONS:

A. Shop Drawings

1. Primary Series Lighting Cable
2. Primary Series Lighting Cable Connections and Terminations
3. Secondary Series Lighting Cable
4. Secondary Series Lighting Cable Splices
5. Grounding Cable
6. Single Pole Plug Connector
7. Double Pole Plug Connector
8. Flanged Receptacle Connector
9. Cable Tags
10. Sealer

B. Submit certified factory or in-plant test reports for wires and cables.

C. Submit certified independent laboratory test report for wires and cable.

D. Submit Field Test reports for wires and cables, including all test data and methodology.

E. Submit calculated insulation resistance values for airfield circuits. Utilizing the following formula:

1. The first portion of the circuit analyzed is the single conductor 5000 volt insulated cable from the constant current regulator to the first L-823 connector splice. RC1 calculates the insulation resistance of the cable, which connects the Constant Current Regulator (CCR) to the first L-823 connector in the circuit.

   Measured insulation values shall not be below RC1, computed by the following formula:

$$\mathrm{RC1} = \mathrm{K} * \mathrm{Log}\left(\frac{\mathrm{D}}{\mathrm{d}}\right) * \left(\frac{1000}{\mathrm{Lc1}}\right)$$

   Where:

   RC1, Ris, RC2, RC3 = Insulation resistance in mega ohms

K = Specific insulation resistance in mega ohms per 1000 feet at 60˚F, K for Ethylene Propylene Rubber Insulation (EPR) = 20,000 mega ohms, or as per manufacturer specifications.
D = Outer diameter of insulation
d = Outer diameter of bare copper wire
Lc1, Lc4 = Total length of airfield cable in feet for the given portion

2. The second portion of the calculation involves the insulation resistance contribution from the first L-823 connector splice, cables, isolation transformers, L-823 connector splices to the last L-823 connector splice within the circuit.

The measured insulation resistance value shall not be below Ris, computed by the following formula:

$$R1 = \frac{Rit}{Nit}$$

$$R2 = \frac{Rs}{Ns1}$$

$$R3 = \left[K * \text{Log}\left(\frac{D}{d}\right) * \frac{\left(\frac{1000}{Lc2}\right)}{Nc1} \right]$$

$$Ris = \frac{1}{\frac{1}{R1}+\frac{1}{R2}+\frac{1}{R3}}$$

Where:

R1, R2, R3 = Equivalent insulation resistance of isolation transformer, connection splices and cables.

Nit = Quantity of isolation transformers
Rit = Insulation resistance of each isolation transformer
Ns1, Ns2 = Quantity of L-823 connector splices
Rs = Insulation resistance of each splice
Rit = 7,500 MΩ (FAA AC 150/5345-47) or per manufacturer
Rs = 25,000 MΩ (FAA AC 150/5345-26) or per manufacturer
Lc2, Lc3 = Length of each airfield cable segment for the given portion
Nc1, Nc2 = Number of cable segments

3. The third portion includes the single conductor 5000 volt insulated cable and the L-823 connectors associated with the return cable from the last L-823 connector splice in the last light base back to the first L-823 connector associated with the return cable in the first light base.

The measured insulation resistance value shall not be below Ris1, computed by the following formula:

$$R4 = \frac{Rs}{Ns2}$$

$$R5 = \left[K * \mathrm{Log}\left(\frac{D}{d}\right) * \frac{\left(\frac{1000}{Lc3}\right)}{Nc2}\right]$$

$$Ris1 = \frac{1}{\frac{1}{R4} + \frac{1}{R5}}$$

Where:

R4, R5 = Equivalent insulation resistance of connector splices and cables.

4. The fourth portion includes the length of single conductor 5000 volt return cable from the first L-823 connector in the first light base associated with the return cable in the circuit back to the CCR.

   The measured insulation resistance value shall not be below RC2, computed by the following formula:

$$RC2 = K * \mathrm{Log}\left(\frac{D}{d}\right) * \left(\frac{1000}{LC4}\right)$$

5. The final circuit after all splices are completed must have an insulation resistance value of not less than Rt. Rt is the final equivalent insulation resistance of the four parts of the calculation.

   Rt is computed by the following formula:

$$Rt = \frac{1}{\frac{1}{RC1} + \frac{1}{Ris} + \frac{1}{Ris1} + \frac{1}{RC2}}$$

END OF APPENDIX "A"

SECTION 16542

TAXIWAY / RUNWAY LIGHT FIXTURES

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies requirements for light fixtures, light bases and accessories for Taxiway and Runway Lighting Systems.

1.02 DESIGN AND PERFORMANCE REQUIREMENTS

A. Taxiway and Runway Lighting Systems shall be furnished and installed in accordance with this Section, and as indicated on the Contract Drawings.

B. Components of the taxiway / runway lighting systems shall also be manufactured and installed to meet all of the applicable requirements of FAA Advisory Circulars and all local codes.

1.03 RELATED SECTIONS

A. Section 16450 – Grounding

1.04 REFERENCES

A. ASTM International (ASTM)

1. A123 / A123 M – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
2. A572 / A572 M – Standard Specifications for High-Strength Low-Alloy Columbium-Vanadium Steel
3. D3005 – Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape
4. D6690- Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

B. Federal Aviation Administration, Advisory Circular (FAA-AC)

1. 150/5340-30 – Design and Installation Details for Airport Visual Aids
2. 150/5345-26 – FAA Specification for L-823 Plug and Receptacle, Cable Connectors (FAA Specification L-823)
3. 150/5345-42 – Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
4. 150/5345-46 – Specification for Runway and Taxiway Light Fixtures

5. 150/5345-47 – Specification for Series to Series Isolation Transformers for Airport Lighting Systems

6. 150/5370-10 – Standards for Specifying Construction of Airports

C. Federal Specifications (FS)

1. SS-S-1401 – Sealant, Joint, Non-Jet-Fuel-Resistant, Hot Applied, for Portland Cement and Asphalt Concrete Pavements

D. Insulated Cable Engineers Association (ICEA)

1. ANSI/ICEA S-96-659/NEMA WC71 – Nonshielded 2001-5kV Cables

E. Institute of Electrical and Electronics Engineers (IEEE)

1. 383 – IEEE Standard for Qualifying Electric Cables and Splices for Nuclear Facilities

F. National Fire Protection Association (NFPA)

1. 70 – National Electrical Code

G. Underwriters Laboratories Inc. (UL)

1. 44 - Thermoset-Insulated Wires and Cables

2. 83 – Thermoplastic-Insulated Wires and Cables

1.05 QUALITY ASSURANCE

A. Entities performing the Work of this Section shall have experience on at least two projects involving complexities similar to those required under this Contract.

B. Before any light fixture type is installed in a permanent installation, it shall meet the requirement of a successful one-year test installation at an Authority airport.

1.06 SUBMITTALS

See Appendix “A” for submittal requirements

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturers’ original, unopened, protective packaging.

B. Store material in a clean, dry space and protect it from the weather.

C. Handle in a manner to prevent damage to finished surfaces.

D. Where possible, maintain protective coverings until installation is complete and remove such coverings as part of final cleanup.

PART 2 - PRODUCTS

2.01 LIGHT FIXTURES

A. General

1. Quantity, type location, beam direction (unidirectional, bidirectional or omni-directional), and other requirements of light fixtures shall be as shown on the Contract Drawings.

2. Lamp type, wattage, and filter color shall be as shown on Contract Drawings.

3. Light fixtures and components for which there are established UL standards, shall be UL listed and shall bear the Underwriters Laboratories Inc. (UL) label.

4. Light fixtures shall be furnished completely, assembled and, unless otherwise shown on the Contract Drawings, shall be furnished with two 40-inch leads terminated in an FAA Specification L-823 two pole plug, and one color-coded green ground wire.

5. Light fixtures shall comply with environmental, photometric, dimensional and other requirements specified in the latest edition of FAA-AC 150/5345-46.

B. Runway In-pavement Light Fixtures

1. General

a. Runway in-pavement fixtures shall have a light assembly that produces a beam with color and photometric distribution as specified in FAA-AC 150/5345-46. Unless otherwise noted on the Contract Drawings, the casting that houses the light assembly shall be high strength Nickel-Molybdenum alloy. The casting shall be a single piece construction or an inset type with an adapter ring.

b. Runway in-pavement fixtures shall be connected to the light bases by means of six threaded bolts (3/8” – 16 Stainless Steel Grade 304 (18-8)) length as required unless otherwise noted on Contract Drawings. Studs or other spacers are not permitted for the runway fixtures.

2. Runway Centerline Light Fixtures; L-850A

a. Each such fixture shall have a light assembly that produces a narrow bidirectional beam and utilizes a quartz halogen lamp rated at 6.6 amperes or otherwise indicated on Contract Drawings. The lamp life shall be rated at minimum of 5000 hours if operated at brightness Step III.

3. Runway Touchdown Zone Light Fixtures; L-850B

a. Each such fixture shall have a light assembly that produces a narrow bidirectional beam and utilizes a quartz halogen lamp rated at 6.6 amperes or otherwise indicated on Contract Drawings. The lamp life shall be rated at a minimum of 5000 hours if operated at brightness Step III. Each casting shall have a directional 4˚ toe-in arrow stamped in window area that denotes a location of the runway centerline.

4. Runway Edge Light Fixtures; L-850C

   a. Each such fixture shall have a light assembly that produces a bidirectional narrow beam and utilizes a quartz halogen lamp rated at 6.6 amperes or otherwise indicated on Contract Drawings.

5. Runway Threshold / End Light Fixtures; L-850D

   a. Each such light fixture shall have light assembly that produces a narrow unidirectional or bidirectional beam and utilizes a quartz halogen lamp rated at 6.6 amperes or otherwise indicated on Contract Drawings. The beam shall be toed-in 32˚ towards the runway centerline.

6. Approach Threshold Light Fixture; L-850E

   a. Each such fixture shall have a light assembly that produces a wide unidirectional beam and utilizes a quartz halogen lamp rated at 6.6 amperes or otherwise indicated on Contract Drawings.

C. Taxiway In-pavement Light Fixtures

1. General

   a. Taxiway in-pavement fixture shall have a light assembly that produces a beam with color and photometric distribution as specified in FAA-AC 150/5345-46. Unless otherwise noted on the Contract Drawings, the casting that houses the light assembly shall be high strength Nickel-Molybdenum alloy. The casting shall be a single piece construction or an inset type with an adapter ring.

2. Taxiway Centerline Light Fixtures, narrow beam fixtures; straight sections; L-852A

   a. Each such fixture shall be Style III and shall have a light assembly that produces a narrow beam, is uni/bi-directional and utilizes a quartz halogen lamp rated at 6.6 amperes or otherwise indicated on Contract Drawings.

3. Taxiway Centerline Light Fixtures, wide beam fixtures; curved sections; L-852B

   a. Each such fixture shall be Style III and shall have a light assembly that produces a wide beam, is uni/bi-directional and utilizes a quartz halogen lamp rated at 6.6 amperes or otherwise indicated on Contract Drawings.

4. Taxiway Centerline Light Fixtures, narrow beam fixtures; straight sections; L-852C

   a. Each such fixture shall be Style III and shall have a light assembly that produces a narrow beam, is uni/bi-directional and utilizes a quartz halogen lamp rated at 6.6 amperes or otherwise indicated on Contract Drawings.

5. Taxiway Centerline Light Fixtures, wide beam fixtures; curved sections, L-852D

a. Each such fixture shall be Style III and shall have a light assembly that produces a wide beam, is uni/bi-directional and utilizes a quartz halogen lamp rated at 6.6 amperes or otherwise indicated on Contract Drawings

6. Omni-Directional Fixtures; L-852E

a. Each such fixture shall have a light assembly that produces an omni-directional light and utilizes a quartz halogen lamp rated at 6.6 amperes or otherwise indicated on Contract Drawings. The casting that houses the assembly shall be totally flush.

7. Omni-Directional Fixtures; L-852F

a. Each such fixture shall have a light assembly that produces an omni-directional light and utilizes a quartz halogen lamp rated at 6.6 amperes or otherwise indicated on Contract Drawings. The casting that houses the assembly shall be totally flush.

8. Omni-Directional Taxiway Edge Light Fixtures; L-852T

a. Each such fixture shall have a light assembly that produces an omni-directional light and utilizes a quartz halogen lamp rated at 6.6 amperes or otherwise indicated on Contract Drawings. The casting that houses the assembly shall be totally flush.

D. Elevated Light Fixtures

1. Elevated Runway / Taxiway Light Fixtures; L-861

a. Each such fixture shall be furnished with breakable couplings and stems to provide for an overall height of 24 inches, or otherwise indicated on Contract Drawings. The light source shall be a 45-watt quartz halogen lamp or otherwise indicated on Contract Drawings; housed in a glass globe with 360 degree, internal blue filter or otherwise indicated on Contract Drawings.

2. High Intensity Runway Edge Light Fixtures; L-862

a. Each such fixture shall be furnished with breakable couplings and stems to provide an overall height of 12 inches above the surface or otherwise indicated on Contract Drawings. The light source shall be a 120-watt quartz halogen lamp or otherwise indicated on Contract Drawings; housed in a glass globe with internal lens assembly 180/360 degree internal color filters.

3. Runway End / Threshold Light Fixtures; L-862E

a. Each such fixture shall be furnished with breakable couplings and stems to provide for an overall height of 12 inches above the surface. The light source shall be a 200-watt quartz halogen lamp or otherwise indicated on Contract Drawings; housed in a glass glove with internal lens assembly and 180/360 degree internal color filters.

E. Accessories

1. Isolation Transformers; L-830

a. Isolation transformers shall be rubber encapsulated, 5000-volt rated, series to series, with primary ampere rating as shown on the Contract Drawings, and a 6.6-ampere secondary. The wattage rating shall be as shown on the Contract Drawings. The flanged receptacle on the secondary cable shall conform to FAA Specification L-823, Type II, Class A, and Style 8. Transformers shall comply with FAA-AC 150/5345-47 and shall conform to FAA Specification L-830.

2. Ground Rods

a. Ground rods shall be copper bonded with diameters and lengths as specified in Specification Section 16450 or otherwise shown on Contract Drawings.

3. Single Pole Plug and Receptacle Connectors; L-823

a. Single pole plug and receptacle connectors for 5000-volt series lighting cable shall comply with FAA-AC 150/5345-26 and shall conform to FAA Specification L-823, Type I, Class B, Style 3 or Style 10.

4. Double Pole Plug and Receptacle Connectors; L-823

a. Double pole plug and receptacle connectors for 600-volt secondary system shall comply with FAA-AC 150/5345-26 and shall conform to FAA Specification L-823, Type II, Class B, Style 4 or Style 11.

2.02 Light Bases

A. General

1. Quantity, type, location and other requirements of light bases shall be as shown on the Contract Drawings.

2. All electrical materials and equipment for which there are established UL Standards, shall bear the UL label.

B. Base Cans and Extensions for In-pavement Light Fixtures; L-868

1. Base Cans

a. Base cans shall be 12-1/2 inches in outside diameter, of ASTM A 123 / A 123M hot-dipped galvanized steel, with 1/4-thick bottom plate protruding a minimum of 3/16 of an inch outward from the outside face of the cylindrical wall with six, 5/8-inch long, 3/8-inch deep steel ribs welded radially on its underside, as otherwise shown on Contract Drawings.

b. A ground lug shall be provided to accept a # 6 AWG grounding cable as shown on the Contract Drawings.

c. The base can overall depth shall be as shown on Contract Drawings and shall be provided with grommet openings for conduit entrance as shown on the Contract Drawings.

d. The top flange shall have twelve, 3/8-inch diameter tapped holes, equally spaced on an 11-1/4-inch bolt circle to accept the mounting of top section base can. The base can shall comply with FAA0AC 150/5345-42 and shall conform to FAA Specification L-868.

2. Base Can Extensions

a. Base can extensions shall be 12-1/2-inches in outside diameter, of ASTM A 123 / A 123M hot-dipped galvanized steel, with provision on the top flange for twelve, 3/8-inch diameter tapped holes, equally spaced on a 11-1/4-inch bolt circle, to accept a taxiway centerline fixture mounting. Or as otherwise shown on Contract Drawings.

b. The bottom of the can shall be provided with six, 7/16-inch diameter holes equally spaced on a 11-1/4-inch bolt circle and six 3/8-inch with 16 threads per inch (TPI), grade 304 stainless steel bolts (18-8), and two piece 304 stainless steel (18-8) anti-rotational Nord-Lock washers. Bolt shall be of proper length for mounting to the top of the bottom section base can. The exact depth of the top section base can shall be determined from field measurements. Minimum depth shall be 2 inches. The base can shall comply with FAA-AC 150/5345-42 and shall conform to FAA Specification L-868.

C. Base Cans for Elevated Edge Light Fixtures; L-867

1. Base cans shall be 12-1/2-inches in outside diameter, of ASTM A123 / A 123M hot-dipped galvanized steel, with a minimum 1/8-inchthick bottom plate protruding a minimum of 3/16 inches outward from the outside face of the cylindrical wall with six, 5/8-inch long, 3/8-inch deep steel ribs welded radially on its underside.

2. A 3/8-inch by 2-inch bar shall be welded around the circumference at the top of the can. The top flange shall be provided with six, 3/8-inch diameter tapped holes, equally spaced on a 10-1/4-inch bolt circle for mounting of the base plate.

3. The bas can overall depth shall be shown on the Contract Drawings and shall be complete with grommet openings for conduit entrance as shown on the Contract Drawings.

4. A ground lug shall be provided to accept a # 6 AWG ground cable. Additional requirements shall be as shown Contract Drawings.

5. The base can shall comply with FAA-AC 150/5345-42 and shall conform to FAA Specification L-867.

D. Type I Marker Light Boxes; L-867

1. Type I boxes shall be of reinforced concrete construction and shall be 15 inches wide by 36 inches long (inside dimensions) with a depth as shown on Contract Drawings.

2. The steel cover shall be capable of accepting a bas plate for an elevated taxiway, edge light fixture.

3. All ancillary equipment and additional requirements shall be as shown on the Contract Drawings. Precast boxes may be substituted for those shown on the Contract Drawings subject to approval of the Engineer. All precast boxes shall meet the same requirements as specified herein and as shown on the Contract Drawings.

E. Type III Marker Light Boxes; L-867

1. Type III boxes shall be concrete encased ASTM A 123 / A 123M hot-dipped galvanized steel base cans 17-1/4-inches in diameter by 20 inches deep. A 3/8-inch by 2-inch bar shall be welded around the circumference at the top of the can.

2. Boxes shall be provided with 2-inch couplings at 180 degrees at the bottom of the box.

3. A ground lug shall be welded on the inside wall of the box and a1-3/8-inch diameter hole shall be provided at the bottom of the base for the installation of a ground rod. The hole shall be plugged with a solid neoprene plug.

4. Requirements shall be as shown on the Contract Drawings. Boxes shall comply with FAA-AC 150/5345-42 and shall conform to FAA Specification L-867.

F. Base Plates for Elevated Edge Light Fixtures

1. Base plates shall be ASTM A 572 / A 572M, Grade 50 Steel, 12 inches in diameter and 1/2-inch thick, complete with 1-1/2 or 2-inches threaded conduit hub, gasket, 304 Grade Stainless steel bolts (18-8), and a connector clamp capable of supporting an FAA Specification L-823 flanged secondary receptacle.

2. Base plates shall have six, 7/16-inch holes on a 10-1/4-inch bolt circle, except for Type III marker box, which shall have 14-1/4-inch bolt circle.

G. Flanged Secondary Receptacles; L-823

1. Flanged secondary receptacles shall be clamped to the underside of the taxiway edge light base plate, where required, and have two #14 AWG, 15-inch long pigtails molded, under one jacket, to the receptacle body.

2. Receptacles shall comply with FAA-AC 150/5345-26 and shall conform to FAA Specification L-823, Type II, Class A, and Style 8.

H. Flange Rings for L-868 Cans

1. Flange rings shall be composed of a 12-1/8-inch by ¾-inch thick ASTM A 123 / A 123M zinc plated steel ring containing six, 7/16-inch diameter holes equally spaced at 60-degree intervals on an a11-1/4-inch bolt circle.

2. Flange rings shall have an indented ‘O’ ring gasket shall be furnished with the flange ring to render the unit weatherproof.

3. An 1/8-inch thick ASTM A 123 / A 123M zinc plated steel ring shall be continuously welded to the outside edge of the flange ring providing an overall height of 1-1/8-inches and an overall outside diameter of 12-3/8-inches.

I. Temporary Mud Covers for L-867 and L-868 Cans

1. Temporary mud covers shall be 12-3/8 inches in outside diameter containing six, 7/16-inch diameter holes on an 11-1/4-inch bolt circle for L-868 cans and 10-1/4-inch bolt circle for L-867 cans.

2. Mud covers shall be made of a 1/8-inch thick, hot-dipped galvanized steel plate with three raised concentric rings, two one-inch thick knockouts about the center, and an indented center point mounted on a 5/8-inch thick exterior grade plywood cover.

J. Spacer Rings for L-868 Cans

1. Spacer rings shall be 12 inches in outside diameter, 1/8-inch thick zinc coated steel or 1/4-thick hot-dipped galvanized steel, or other sizes as required or otherwise indicated on Contract Drawings.

2. Spacer rings shall have a 10-inch diameter hole and six, 7/16-inch diameter holes equally spaced on an 11-1/4-inch bolt circle.

K. Blank Cover Plates for L-867 and L-868 Cans

1. Blank cover plates for FAA L-867 and L-868 cans shall be 12 inches in outside diameter and of ½-inch thick ASTM A 572 / A 572M, Grade 50 hot-dipped galvanized steel with six, 7/16-inch diameter holes on a 10-1/4-inch bolt circle for L-867 cans and 11-1/4-inch bolt circle for L-868 cans.

2.03 MISCELLANEOUS MATERIALS

A. Flexible Non-Metallic Conduit

1. Flexible non-metallic conduit shall be made up of polyvinyl chloride smooth inner core, a reinforcing nylon mesh and polyurethane outer jacket.

2. Fittings shall be of a type designated to provide a liquid tight continuation of the conduit system as per manufacturer’s recommendations.

B. Hot Rubberized Asphalt Sealer

1. Hot rubberized asphalt sealer shall conform to Federal Specification SS-S-1401C (1) and ASTM D 6690.

C. Adhesive Sealant

1. Adhesive sealant shall be as shown on the Contract Drawings.

D. Cement Compound

1. Cement compound shall be a two-component adhesive compound and shall comply with the requirements of FAA-AC 150/5370-10, P-606

E. Concrete and Grouting

1. Concrete and grouting shall be in accordance with applicable Section(s) of the Specifications or as shown on the Contract Drawings.

F. Mildew and Rot-Proof Rope

1. Rope shall be 1/2-inch in outside diameter, of mildew and rot-proof hemp rope.

G. Special Materials

1. Special materials, required for proper installations of the Work, shall be as shown on the Contract Drawings.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General

1. Employ the services of a Land Surveyor licensed in the state where the Work is performed to establish the locations of lighting fixtures whose general locations are shown on the Contract Drawings.

2. Mark the locations and alignment for each base can or box. The Engineer shall approve these locations and alignments prior to installation.

B. Fixtures that have been furnish and installed shall be made operational prior to the end of Work period.

C. Furnished and Install a sufficient quantity of waterproof tarpaulins or employ other approved means of preventing blown sand, water and other foreign materials from entering the kerfs and cored holes.

D. Rubberized Asphalt Sealer Preparation and Application

1. Heat rubberized asphalt sealer compound in a double boiler, indirect-fired kettle. The space between the inner and outer shells shall be filled with suitable heat transfer oil having a flash point of not less than 550 degrees F.

2. The kettle shall be equipped with satisfactory means of agitating the sealer at all times without excessive incorporation of air.

3. High temperature shall not be necessary to melt the sealer.

4. The kettle shall be equipped with thermostatic control for automatic regulation of the temperature of the oil bath and sealer and shall have a recording thermometer of the sealer temperature.

5. A hose shall be directly connected to the melting kettle in such a manner as to permit pumping the melted sealer through the hose to a shoe-type applicator that shall direct and control the filling of the joints.

E. All lighting system work shall be in conformance with NFPA 70 requirements.

F. Heat Shrink and Tape Wrap

1. All electrical connections shall be covered with heat shrink tubing. The heat shrink shall cover a minimum of 3” of cable on both sides of the connection. Or otherwise as shown on Contract Drawings.

2. All connections, after application of heat shrink wrapping shall apply tape Scotch (3M) No. 88, conforming to ASTM D3005 (Type II), or approved equal; over the heat shrink wrap starting 1" prior to the edge of the heat shrink wrapping, overlapping the tape wrappings to the opposite side of the heat shrink wrap, going beyond the opposite by 1". The tape wrap shall have three layers or as otherwise shown on Contract Drawings.

G. Flush Runway and Taxiway Light Fixtures

1. Installation of flush taxiway centerline light fixtures shall comply with FAA-AC 150/5340-30 and be done in accordance with fixture manufacturer's installation procedures and as specified herein.

2. Longitudinal and Transverse Spacing

a. Space light fixtures longitudinally as shown on the Contract Drawings with a tolerance of plus or minus 10 percent.

b. Locate light fixtures laterally not less than one foot from the designated centerline of taxiing paths.

c. Displace lights a maximum of two feet from the designated centerline where necessary to avoid undesirable changes in guidance, i.e. no "zigzagging" from one side to the other side of the centerline.

3. Orientation of Light Beam

a. On runways and on all straight portions of taxiway centerlines, orient the axis of the centerline light beam parallel to the centerline of the runway or taxiway path, respectively.

b. On curved portions of taxiways, excluding long radius exit taxiways, orient the axis of the two beams of bidirectional taxiway centerline lights parallel to the tangent of the nearest point of the curve designated as the true centerline of the taxiway path.

c. Orient the axis of a unidirectional light beam so that it is "toed-in" to intersect the centerline at a point approximately equal to four times the spacing of the lights of the lights on the curved portion and such spacing shall be measured along the chord of the curve.

d. On runways, orient the edge light beam as specified in FAA-AC 150/5340-30.

H. Installation of Elevated Runway and Taxiway Edge Light Fixtures

1. Installation shall comply with FAA-AC 150/5340-30 and shall be done in accordance with fixture manufacturer's installations procedures.

I. Installation of Semi-Flush Runway Touchdown Zone Light Fixtures (TDZ)

1. Installation shall comply with FAA-AC 150/5340-30 and shall be done in accordance with fixture manufacturer's installation procedures.

J. Light base manufacturer representative shall be present on site on the first day of installing light bases.

3.02 FIELD TESTS

A. General

1. Provide all labor and materials for functional and operational test required and furnish the power for the functional tests. The Authority will furnish power for the operational tests.

2. Should the tests reveal any defects in Taxiway and Runway Lighting System Equipment installed under this Contract promptly correct such defects at no additional cost to the Authority and rerun the tests until the entire installation is satisfactory to the Engineer in all aspects.

3. Report immediately to the Engineer any defect found in portions of the Taxiway and Runway Lighting System not installed under this Contract. Do not attempt to rectify any defect found in a component of the system not installed under this Contract unless specifically instructed to do so by the Engineer.

B. Functional Tests

1. Perform functional test, in the presence of the Engineer, to demonstrate the reliability of the electrical installation for the following:

   a. Runway and taxiway edge lighting system in accordance with the requirements of FAA-AC 150/5340-30
   b. Taxiway centerline lighting system in accordance with the requirements of FAA-AC 150/5340-30
   c. Runway centerline and touchdown zone lighting systems in accordance with the requirements of FAA-AC 150/5340-30.

2. Operational Tests

   a. After the functional tests have been completed, operate, in the presence of the Engineer, all electrical equipment for a period of twenty-four hours.

END OF SECTION

SECTION 16542
TAXIWAY / RUNWAY LIGHT FIXTURES
APPENDIX A
SUBMITTAL REQUIREMENTS

A. Submit Catalog Cuts for the following in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 - GENERAL PROVISIONS:

1. Station layout for taxiway and runway light fixtures
2. All light fixtures
3. Light fixture accessories, including isolation transformers, ground rods, fastener bolts, anti-rotational lock washers, lock-nuts when indicated on Contract Drawings, ground rods and plug connectors
4. Light bases, including base cans, light boxes, base plates, flange rings, mud covers, spacer ring and cover plates
5. Setting fixture (jig) and installation method description
6. Miscellaneous materials, including sealants and the special materials shown on the Contract Drawings.

B. Submit an itemized list of spare parts, as recommended by the manufacturer, for the electrical equipment supplied under this Contract. The list should include quantities required, current unit prices and sources of supply. The Authority is not obligated to purchase any item on such a list.

C. Prior to any installation operations at the construction site, submit a listing of the proposed equipment and methods to be used to install base cans and/or boxes in the pavement subject to the approval of the Engineer.

D. Submit field test reports, including “Megger” readings, with an outline of the method used.

END OF APPENDIX “A”