

ADDENDUM No. 1

for

**Airfield Lighting Vault Expansion
AIP # 3-33-0011-TBD-2025
Bid # FY25-804-38**

at the Manchester – Boston Regional Airport

Due to be opened 2:00 p.m., on April 2, 2025

Date: March 10, 2025

The attention of firms submitting proposals for the work named above is called to the following modifications to the documents as were issued.

The items set forth herein, whether of clarification, omission, addition and/or substitution, shall be included and form a part of the Proposer's submitted materials and the corresponding contract when issued. No claim for additional compensation, due to lack of knowledge of the contents of this Addendum will be considered.

All Proposer's are advised that receipt of this notice and all attached material must be duly acknowledged in the space provided on the signature page of the proposal documents, and **by the insertion of this sheet, signed, and submitted with your Proposal package.**

This form must be signed and attached to the original copy of your submission.

The attached sheets contain information or clarifications requested or discussed.

Receipt of **Addendum No. 1** to the REQUEST FOR PROPOSALS for **Airfield Lighting Vault Expansion**
at the MANCHESTER-BOSTON REGIONAL AIRPORT is hereby acknowledged.

COMPANY NAME: _____

SIGNED BY: _____

NAME AND TITLE PRINTED: _____

TELEPHONE: _____ FAX: _____

GENERAL

In general, this addendum is accomplishing the following:

1. Answers to questions to date.
2. Distribution of specification section L-109 Airfield Lighting Vault.
3. Updates to the L-100 and 263213 specifications sections.
4. Update to Drawing C-200.

QUESTIONS/CLARIFICATIONS

Addendum Item No.1 -

Q1: We are looking at the project manual for the above bid and on page L-100-25 there is a reference to a specific manufacturer CCR. I believe it is an error as this is an open bid and AIP funded and as such the manufacturer is not predetermined.

A1: Refer to Addendum Item No.3 below.

PROJECT MANUAL

Note that where a change was made to the specifications, a vertical line (|) is provided in the left margin denoting that a change was made. Sample vertical line shown next to this paragraph.

Addendum Item No.2 -

INSERT the attached specification section L-109 Airfield Lighting Vault after section L-108 Underground Power Cable for Airports in the project manual.

Addendum Item No.3 -

REMOVE paragraph 100-2.9 from Specification Section L-100 Airfield Lighting Control and Monitoring System and REPLACE with the following:

100-2.9 DCME Mounting

| The DCME equipment shall be mounted integral to each CCR.

Addendum Item No.4 -

REMOVE paragraphs 'c' and 'cii' from Specification Section 263213 Engine Generators and REPLACE with the following:

- | c. Section includes salvage of the existing generator, ATS, fuel tank, and other equipment as noted in the drawings.
 - i. Contractor shall coordinate with generator manufacturer for packaging of the existing generator and ATS prior to demolition.
 - | ii. Existing generator and ATS shall be packaged and relocated to another location on the airport. The existing diesel fuel tank shall be disconnected, made safe and relocated to another location on the airport. Coordinate location or locations with RPR.

DRAWINGS

Addendum Item No.5 -

REMOVE Drawing C-200 and REPLACE with Drawing C-200 attached.

END OF ADDENDUM #1

Item L-109 Airfield Lighting Vault

DESCRIPTION

109-1.1 This item shall consist of removing an existing airport transformer vault and equipment and; constructing an airport transformer vault or a prefabricated metal housing per these specifications and per the design and dimensions shown in the plans. This work shall also include the installation of conduits in the floor and foundation, painting and lighting of the vault or metal housing, and the furnishing of all incidentals that are necessary to produce a completed unit. Included as a separate part under this item or as a separate item where an existing vault is to be used shall be the furnishing of all vault equipment, wiring, electrical buses, cable, conduit, potheads, and grounding systems. This work shall also include the painting of equipment and conduit; the marking and labeling of equipment and the labeling or tagging of wires; the testing of the installation; and the furnishing of all incidentals necessary to place it in operating condition as a completed unit to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

109-2.1 General.

- a.** Airport lighting equipment and materials covered by advisory circulars (AC) shall be certified in AC 150/5345-53, Airport Lighting Equipment Certification Program (ALECP) and listed in the ALECP Addendum.
- b.** All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR.
- c.** Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.
- d.** All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.
- e.** The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be provided in electronic pdf format, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.
- f.** All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least [twelve (12) months] from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

CONSTRUCTION OF VAULT AND PREFABRICATED METAL HOUSING

109-3.1 Electrical vault building. The electrical vault building must comply with NEC Article 110.31, Enclosure for Electrical Installations, Item (A) Electrical Vaults. Construct the building of materials having adequate structural strength for the conditions and installed location, has a minimum fire rating of two or three hours as determined by the authority having jurisdiction (AHJ), and is bullet resistant to minimum UL 752 Level 4.

109-3.2 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

109-3.3 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program. Precast concrete structures shall conform to ASTM C478.

109-3.4 Reinforcing steel. Reinforcing steel bars shall be intermediate or structural grade deformed-type bars and shall be per ASTM A615.

109-3.5 Brick. Brick shall be per ASTM C62, Grade SW.

109-3.6 Rigid steel conduit. Rigid steel conduit and fittings shall be per Underwriters Laboratories Standards 6 and 514B.

109-3.7 Plastic Conduit and fittings. Plastic Conduit and fittings shall conform to the requirements of UL-651 and UL-654 schedule 40 polyvinyl chloride (PVC) suitable for use above or below ground.

109-3.8 Lighting. Vault or metal-housing light fixtures shall be of a vapor-proof type.

109-3.9 Outlets. Convenience outlets shall be heavy-duty duplex units designed for industrial service.

109-3.10 Switches. Vault or metal-housing light switches shall be single-pole switches.

109-3.11 Paint.

a. Priming paint for non-galvanized metal surfaces shall be a high solids alkyd primer compatible with the manufacturer's recommendations for the intermediate or topcoat.

b. White paint for body and finish coats on metal and wood surfaces shall be ready-mixed paint conforming to the Master Painter's Institute (MPI), Reference #9, Exterior Alkyd, Gloss.

c. Priming paint for wood surfaces shall be mixed on the job by thinning the specified white paint by adding 1/2 pint (0.24 liter) of raw linseed oil to each gallon (liter).

d. Paint for the floor, ceiling, and inside walls shall be per Porter Paint Company 69, 71, and 79 or equivalent. Walls and ceiling shall be light gray and the floor shall be medium gray.

e. The roof coating shall be hot asphalt material per ASTM D2823. Asbestos-free roof coating per ASTM D4479 may be substituted if required by local codes.

109-3.12 Ground bus. Ground bus shall be 1/8 × 3/4 inch (3 × 19 mm) minimum copper bus bar.

109-3.13 Square duct. Duct shall be square similar to that manufactured by the Square D Company (or equivalent), or the Trumbull Electric Manufacturing Company (or equivalent). The entire front of the duct on each section shall consist of hinged or removable cover for ready access to the interior. The cross-section of the duct shall be not less than 4 × 4 inch (100 × 100 mm) except where otherwise shown in the plans.

109-3.14 Ground rods. Ground rods shall be in accordance with Item L-108.

109-3.15 Vault prefabricated metal housing. The prefabricated metal housing shall be a commercially available unit.

109-3.16 FAA-approved equipment. Certain items of airport lighting equipment installed in vaults are covered by individual ACs listed below:

AC 150/5345-3 Specification for L-821, Panels for Remote Control of Airport Lighting

AC 150/5345-5 Circuit Selector Switch

AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-10	Specification for Constant Current Regulators and Regulator Monitors
AC 150/5345-13	Specification for L-841 Auxiliary Relay Cabinet Assembly for Pilot Control of Airport Lighting Circuits.
AC 150/5345-49	Specification for L-854, Radio Control Equipment
AC 150/5345-56	Specification for L-890 Airport Lighting Control and Monitoring System (ALCMS)

109-3.17 Other electrical equipment. Distribution transformers, oil switches, cutouts, relays, terminal blocks, transfer relays, circuit breakers, and all other regularly used commercial items of electrical equipment not covered by FAA equipment specifications and ACs shall conform to the applicable rulings and standards of the Institute of Electrical and Electronic Engineers (IEEE) or the National Electrical Manufacturers Association (NEMA). When specified, test reports from a testing laboratory indicating that the equipment meets the specifications shall be supplied. In all cases, equipment shall be new and a first-grade product. This equipment shall be supplied in the quantities required for the specific project and shall incorporate the electrical and mechanical characteristics specified in the proposal and plans. Equipment selected and installed by the Contractor shall maintain the interrupting current rating of the existing systems or specified rating whichever is greater.

109-3.18 Wire. Wire (in conduit) rated up to 5,000 volts shall be per AC 150/5345-7, Specification for L-824 Underground Electrical Cables for Airport Lighting Circuits. For ratings up to 600 volts, moisture and heat resistant thermoplastic wire conforming to Commercial Item Description A-A-59544A Type THWN-2 shall be used. The wires shall be of the type, size, number of conductors, and voltage shown in the plans or in the proposal.

a. Control circuits. Unless otherwise indicated on the plans, wire shall be not less than No. 12 American wire gauge (AWG) and shall be insulated for 600 volts. If telephone control cable is specified, No. 19 AWG telephone cable per ANSI/Insulated Cable Engineers Association (ICEA) S-85-625 specifications shall be used.

b. Power circuits.

- (1) 600 volts maximum – Wire shall be No. 6 AWG or larger and insulated for at least 600 volts.
- (2) 3,000 volts maximum – Wire shall be No. 6 AWG or larger and insulated for at least 3,000 volts.
- (3) Over 3,000 volts-Wire shall be No. 6 AWG or larger and insulated for at least the circuit voltage.

109-3.19 Short circuit / coordination / device evaluation / arc flash analysis. The Contractor shall, based upon the equipment provided, include as a part of the submittal process the electrical system “Short Circuit / Coordination / Device evaluation / Arc Flash Analysis”. The analysis shall be performed by the equipment manufacturer and submitted in a written report. The analysis shall be signed and sealed by a registered professional Engineer from the state in which the project is located. The analysis shall comply with NFPA-70E and IEEE 1584.

The analysis will include: one line diagrams, short circuit analysis, coordination analysis, equipment evaluation, arc flash analysis and arc flash labels containing at a minimum, equipment name, voltage/current rating, available incident energy and flash protection boundary.

a. The selected firms field service Engineer shall perform data gathering for analysis completion and device settings, perform device setting as recommended by the analysis and will furnish and install the arc flash labels. The components worst case incident energy will be considered the available arc flash energy at that specific point in the system. Submit three written copies and one electronic copy of the report.

CONSTRUCTION METHODS

CONSTRUCTION OF VAULT AND PREFABRICATED METAL HOUSING

109-4.1 General. *Not used.*

109-4.2 Foundation and walls.

a. Reinforced concrete construction. *Not used.*

b. Brick and concrete construction. *Not used.*

c. Concrete masonry construction. *Not used.*

109-4.3 Roof. *Not used.*

109-4.4 Floor. *Not used.*

109-4.5 Floor drain. *Not used.*

109-4.6 Conduits in floor and foundation. *Not used.*

109-4.7 Doors. *Not used.*

109-4.8 Painting. *Not used.*

109-4.9 Lights and switches. *Not used.*

INSTALLATION OF EQUIPMENT IN VAULT OR PREFABRICATED METAL HOUSING

109-5.1 General. The Contractor shall furnish, install, and connect all equipment, equipment accessories, conduit, cables, wires, buses, grounds, and support necessary to ensure a complete and operable electrical distribution center for the airport lighting system as specified herein and shown in the plans. When specified, an emergency power supply and transfer switch shall be provided and installed.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and local code agency having jurisdiction. All electrical work shall comply with the NEC and local code agency having jurisdiction including the separation of under 600V work from 5,000V work.”

109-5.2 Power supply equipment. Transformers, regulators, booster transformers, and other power supply equipment items shall be furnished and installed at the location shown in the plans or as directed by the RPR. The power supply equipment shall be set on steel “H” sections, “I” beams, channels, or concrete blocks to provide a minimum space of 1-1/2 inch (38 mm) between the equipment and the floor. The equipment shall be placed so as not to obstruct the oil-sampling plugs of the oil-filled units; and name-plates shall, so far as possible, not be obscured.

If specified in the plans and specifications, equipment for an alternate power source or an emergency power generator shall be furnished and installed. The alternate power supply installation shall include all equipment, accessories, an automatic changeover switch, and all necessary wiring and connections. The emergency power generator set shall be the size and type specified.

109-5.3 Switchgear and panels. Oil switches, fused cutouts, relays, transfer switches, panels, panel boards, and other similar items shall be furnished and installed at the location shown in the plans or as directed by the RPR. Wall or ceiling mounted items shall be attached to the wall or ceiling with galvanized bolts of not less than 3/8-inch (9 mm) diameter engaging metal expansion shields or anchors in masonry or concrete vaults.

109-5.4 Duct and conduit. The Contractor shall furnish and install square-type exposed metallic ducts with hinged covers for the control circuits in the vault. These shall be mounted along the walls behind all floor-

mounted equipment and immediately below all wall-mounted equipment. The hinged covers shall be placed to open from the front side with the hinges at the front bottom.

Wall brackets for square ducts shall be installed at all joints 2 feet (60 cm) or more apart with intermediate brackets as specified. Conduit shall be used between square ducts and equipment or between different items of equipment when the equipment is designed for conduit connection. When the equipment is not designed for conduit connection, conductors shall enter the square-type control duct through insulating bushings in the duct or on the conduit risers.

109-5.5 Wiring and connections. The Contractor shall make all necessary electrical connections in the vault per the wiring diagrams furnished and as directed by the RPR. In wiring to the terminal blocks, the Contractor shall leave sufficient extra length on each control lead to make future changes in connections at the terminal block. This shall be accomplished by running each control lead the longest way around the box to the proper terminal. Leads shall be neatly laced in place.

109-5.6 Marking and labeling. All equipment, control wires, terminal blocks, etc., shall be tagged, marked, or labeled as specified below:

a. Wire identification. The Contractor shall furnish and install self-sticking wire labels or identifying tags on all control wires at the point where they connect to the control equipment or to the terminal blocks. Wire labels, if used, shall be of the self-sticking preprinted type and of the manufacturer's recommended size for the wire involved. Identification -markings designated in the plans shall be followed. Tags, if used, shall be of fiber not less than 3/4 inch (19 mm) in diameter and not less than 1/32 inch (1 mm) thick. Identification markings designated in the plans shall be stamped on tags by means of small tool dies. Each tag shall be securely tied to the proper wire by a nonmetallic cord.

b. Labels. The Contractor shall stencil identifying labels on the cases of regulators, breakers, and distribution and control relay cases with white oil paint as designated by the RPR. The letters and numerals shall be not less than one inch (25 mm) in height and shall be of proportionate width. The Contractor shall also mark the correct circuit designations per the wiring diagram on the terminal marking strips, which are a part of each terminal block.

METHOD OF MEASUREMENT

109-6.1 *The Contractor shall be compensated for "Constant Current Regulator System" on a lump sum basis. This shall consist of the Ferroresonant Switchgear Regulator System (SGRS) which includes 2 separate lineups RS-1 and RS-2, equipment housekeeping pad, regulator lift, testing, commissioning, training, and all incidentals, accepted as a complete installation.*

109-6.2 *The Contractor shall not be compensated for "Installation of Lighting Vault" in this specification. The vault structure (foundation and building extension) as well as all incidentals including excavation, compaction, crushed stone, forms, steel, concrete, backfill, structural fill, separation fabric, sealing, finishes, doors, hardware, and all equipment, conduit and cable installed within, attached to, shall be measured elsewhere in these specifications. Vault grounding and lightning protection system are also excluded from this L-109 specification section.*

Equipment, cable and conduit installed outside the vault perimeter shall be paid for under other sections of these specifications.

BASIS OF PAYMENT

109-7.1 *Payment for "Constant Current Regulator System" will be made at the contract lump sum for the completed and accepted SGRS installation, in place and approved by the Engineer. This price shall be full*

compensation for furnishing all materials and for preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item L-109-1 Constant Current Regulator System - Per Lump Sum

END OF ITEM L-109

2. The control commands shall be mechanically latched upon execution.
3. Failure of the DCME and/or loss of communication to the network shall not change the status of the airport lighting.

100-2.9 DCME Mounting

| The DCME equipment shall be mounted integral to each CCR.

GRAPHICAL USER INTERFACE OPERATION

100-3.1 General

- a. The Tower Touchscreen display shall control and monitor the airfield lighting system. The display shall show real-time information on the operational status of the airfield lighting systems.
- b. The Touchscreen control stations shall consist of multiple Touchscreen ‘pages’ each with a specific function. These Touchscreen ‘pages’ are defined as follows:
 1. **Preset:** Consists of pre-defined preset buttons used to simplify airfield lighting control commands.
 2. **Runway Lights:** Consists of runway control touch buttons used to individually control runway circuits. Multiple runway pages may be necessary for airports with several runways.
 3. **Taxiway Lights:** Consists of taxiway control touch buttons used to individually control taxiway circuits if required.
 4. **Utilities:** Consists of miscellaneous functions for calibrating the Touchscreen, granting lighting control to other locations, setting the date and time, etc.
- c. All preset and control configurations shall be defined by the airport/owner in conjunction with Air Traffic Control requirements.
- d. The ALCMS manufacturer shall provide preset tables to be used by the airport/owner to define the configuration settings.

Item 263213 Engine Generators

DESCRIPTION

263213-1.1 Summary.

- a. Section includes installation of the Owner-provided packaged engine-generator set for standby power supply with the following features:
 - i. Diesel engine.
 - ii. Unit-mounted cooling system.
 - iii. Unit-mounted control and monitoring.
 - iv. Fuel system.
 - v. Load banks.
 - vi. Retrieval of generator, and other owner-provided items outlined herein, from on-airport location and delivery to project site.
- b. Section includes furnishing and installing all cable, conduit, underground ductbank, and all other associated items required for a complete generator installation.
- c. Section includes salvage of the existing generator, ATS, fuel tank, and other equipment as noted in the drawings.
 - i. Contractor shall coordinate with generator manufacturer for packaging of the existing generator and ATS prior to demolition.
 - ii. Existing generator and ATS shall be packaged and relocated to another location on the airport. The existing diesel fuel tank shall be disconnected, made safe and relocated to another location on the airport. Coordinate location or locations with RPR.
- d. Related Requirements:
 - i. Item 263600 "Transfer Switches" for transfer switches including sensors and relays to initiate automatic-starting and -stopping signals for engine-generator sets.

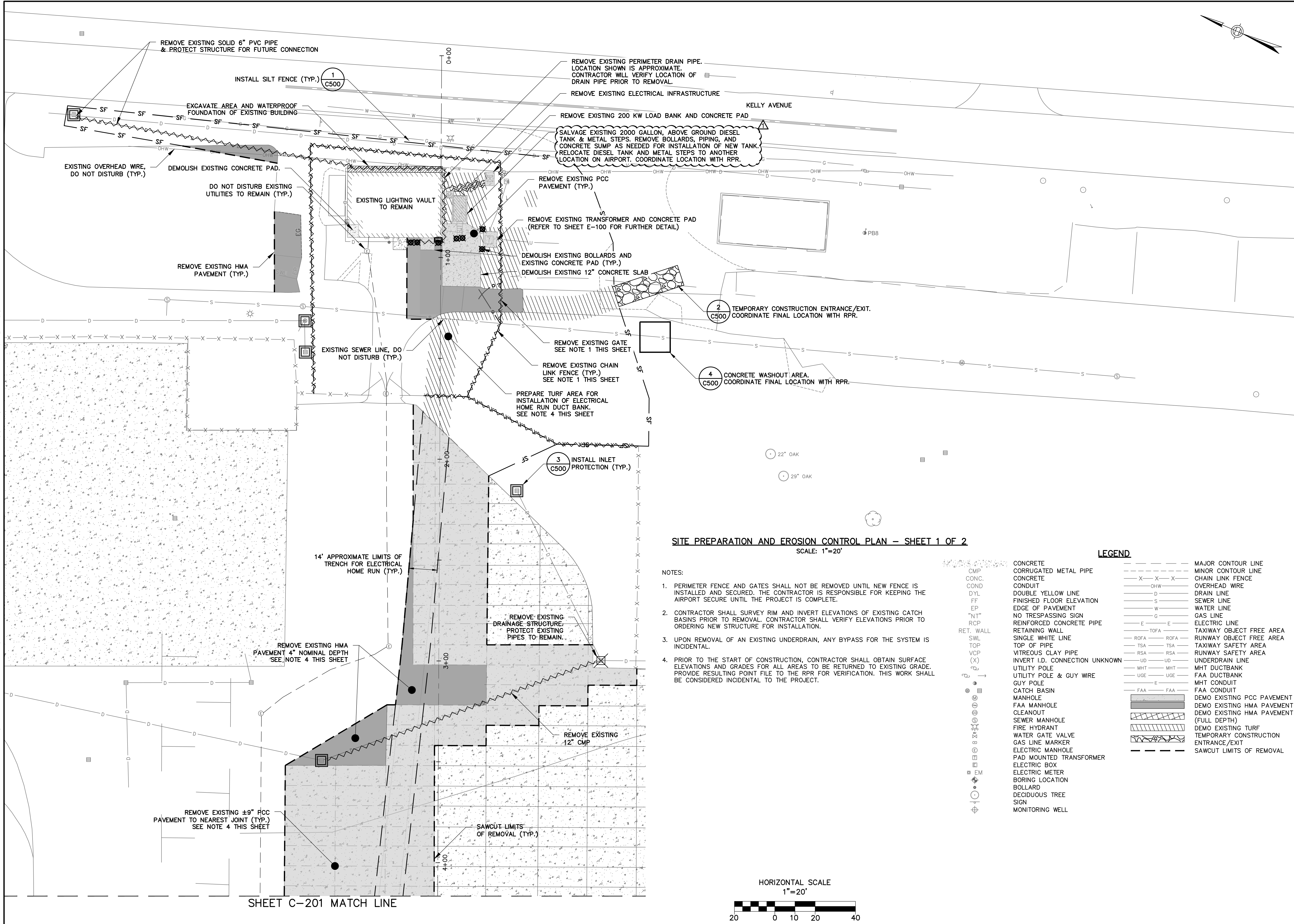
263213-1.2 Definitions.

- a. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.
- b. EPS: Emergency power supply.
- c. EPSS: Emergency power supply system.

263213-1.3 Informational Submittals.

- a. Qualification Data: For Installer, manufacturer, and testing agency.
- b. Field quality-control reports.

Jacobs - \\mrh101\JOB\2024\22X97905 - MHT Electrical Vault Design\700 CAD\702-CIVIL\Drawings\C200 - Site Demolition and Erosion Control Plans - Addendum #1.dwg [C-200] March 08, 2025 - 3:15pm [pellel@j]



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DATE: MARCH 2025

DESIGNED BY: BJV

DRAWN BY: BJV

CHECKED BY: JMH

APPROVED: JPP

MANCHESTER • BOSTON
REGIONAL AIRPORT

AIRFIELD LIGHTING VAULT EXPANSION

SITE PREPARATION AND EROSION
CONTROL PLAN – SHEET 1 OF 2

REV	NO.	DATE	DESCRIPTION	BY
	1	3/10/2025	ADDENDUM – 1	JPP

PROJ. NO.: 3-33-0011-TBD-2025
JE FILE: E2X97905

DRAWING NO.
C-200

SHEET 12 OF 81

ISSUED FOR BIDDING - NOT FOR CONSTRUCTION