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MATERN PROFESSIONAL ENGINEERING, INC.

130 Candace Drive, Maitland, FL 32751

(407) 740-5020

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ADDENDUM NO. 2

Issue Date:	March 7, 2024
School / Facility Name:	DeLand High
Project Name:	Softball Field Lighting
Owner's Project No.:	2448067

Owner:	School Board of Volusia County Florida 200 N. Clara Avenue, DeLand Florida 32720
Owner's Project Manager:	James Bott
Project Manager's Location:	3750 Olson Drive, Daytona Beach Florida 32124

Engineer's Representative:	Adrian W. Baus, PE, RCDD
Engineer's Project No.:	2023-130

The following modifications shall be incorporated to the previously distributed construction documents. Any questions regarding these modifications should be directed to the project architect or engineer for consideration.

The Drawings and Specifications are hereby modified as follows:

QUESTIONS/RESPONSES

QUESTION 1: On page E501 - The number of Luminaires for each steel pole do not match the quantities shown in the Luminaire Description. Please clarify if the total # of Pole Fixtures will be (18) as shown in the fixture schedule rather than the (42) shown in the Luminaire description.

RESPONSE: Typical pole configuration detail is generic in nature and not intended to show specific quantity of fixtures on each pole. Total quantity of fixtures is 18 as shown in fixture schedule.

QUESTION 2: Do we need to account for removal of the concrete pedestal/120V receptacle that currently stands in place of Pole A4?

RESPONSE: Yes. Refer to Hex Note 9 that was added to Sheet E101 as part of Addendum No. 1.

QUESTION 3: At the pre-bid it was discussed that 120V Power/GFCI Receptacles might need to be provided at each pole. Will this become a part of the manufacturer's pole detail as described by MUSCO?

RESPONSE: Receptacles were added to three poles as part of Addendum No. 1. Refer to Sheet E101 that was issued as part of Addendum No. 1.

QUESTION 4: Will DeLand HS/VCSB allow anywhere from 10-30' of fence removal to allow for vehicle/equipment/crane entrance to the site?

RESPONSE: Contractor may remove fencing and reinstall fencing to facilitate access to site. Contractor shall not drive on track. Any vehicle encroachment onto softball playing surface will require contractor to provide suitable matting to protect field from wheel damage. Matting shall not be left on grass for more



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than 3 consecutive days to avoid killing the grass. Contractor is responsible for complete restoration of anything that he disturbs.

SPECIFICATIONS

1. Section 26 43 00 – Surge Protective Devices
 - a. ADD: Additional acceptable models to specification.
 - b. CLARIFY: Device enclosures to be Polycarbonate or stainless steel.

Attachments:

Specifications:
26 43 00 – Surge Protective Devices

END OF ADDENDUM

SECTION 26 43 00 - SURGE PROTECTIVE DEVICES

PART 1- GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes requirements for surge protective devices.

1.3 REFERENCES

- A. The latest edition of the following references shall apply to the work of this section:
 1. ANSI/IEEE C62.33 Standard Test Specifications for Varistor Surge Protective Devices
 2. ANSI/IEEE C62.41 IEEE Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits
 3. ANSI/IEEE C62.45 IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000V and Less) AC Power Circuits
 4. NFPA 70 National Electrical Code
 5. NFPA 780 Standard for Installation of Lightning Protection Systems
 6. UL 96A Standard for Lightning Protection Components
 7. UL 1363 Standard for Safety Relocatable Power Taps
 8. UL 1449, 4th Edition Standard for Surge Protective Devices

1.4 REGULATORY REQUIREMENTS

- A. Equipment Certification: Surge protective devices shall be listed by Underwriters Laboratories shall bear the UL seal and be marked in accordance with referenced standard. Surge protective devices shall be UL listed and labeled for intended use.
- B. Surge protective devices shall be installed and located in accordance with requirements of all applicable National Fire Protection Association (NFPA) codes (including NFPA 70 and NFPA 780).
- C. Comply with all standards and guides as listed under "References" above.

1.5 DESIGN REQUIREMENTS

- A. Provide and install all materials, labor and auxiliaries required to furnish and install complete surge suppression for the protection of building electrical and electronics systems from the effects of line induced transient voltage surge and lightning discharge as indicated on Drawings or specified in this Section for systems with voltages between 120 VAC and 480VAC (single phase or three phase).
- B. Equipment specified covers Surge Protective Devices (SPD).
- C. Provide surge protective devices for the following equipment:
 1. On each main electrical service panel at each building.
 2. On distribution and branch panels as called for on Drawings or in these Specifications.

1.6 SUBMITTALS

- A. Submit under provisions of the General Requirements of the Contract Documents and Section Submittals.
- B. Submit Product Data for each type of surge protective device:
 - 1. Dimensions.
 - 2. Means of mounting.
 - 3. Compliance with UL Standards referenced.
 - 4. Compliance with IEEE Standards referenced.
 - 5. Design type (Hybrid, MOV).
 - 6. Internal fusing.
 - 7. Recommended overcurrent protection.
 - 8. Size of wire leads.
 - 9. Visual failure indicator.
 - 10. Warranty.
 - 11. Performance data showing compliance with performance as specified herein.

1.7 OPERATION AND MAINTENANCE DATA

- A. Submit operation and maintenance (O & M) data as called for in Section 26 01 00 Operation and Maintenance Manuals.
- B. O & M data to include:
 - 1. All accepted shop drawings, product data, and/or cutsheets.
 - 2. Installation, connection, and maintenance information on each type of surge suppression.
 - 3. Procedure and/or time table for recommended periodic inspection of devices to determine continued usefulness.

1.8 QUALITY ASSURANCE

- A. All surge protective devices shall be manufactured by a company normally engaged in the design, development, and manufacture of such devices for electrical and electronics systems equipment.
- B. The surge protective device manufacturer shall offer technical assistance through support by a factory representative and local stocking distributor. Factory representatives are to accept installation prior to Substantial Completion.

1.9 COORDINATION/PROJECT CONDITIONS

- A. Verify proper grounding is in place.
- B. Verify proper clearances, space, etc. is available for surge protective devices.
- C. Coordinate so that proper overcurrent device, as recommended by manufacturer, is installed to feed each surge protective device.

1.10 WARRANTY

- A. All surge protective devices shall be warranted to be free from defects in materials and workmanship for a period of ten years.
- B. Any surge protective device which shows evidence of failure or incorrect operation during the warranty period shall be repaired or replaced by the manufacturer and installer at no cost to the Owner.

1.11 DEFINITIONS/ABBREVIATIONS

- A. VPR: UL Voltage Protection Rating
- B. MCOV: Maximum Continuous Operating Voltage
- C. SCCR: Short Circuit Current Rating
- D. IN: Inominal

PART 2 - PRODUCTS

2.1 GENERAL

- A. Surge protective devices shall be designed for the specific type and voltage of electrical service and shall provide clamping action for both normal (L-N) and common (N-G) mode protection.
- B. Surge protective devices shall be of a hybrid design, and include circuitry with tight, wave-tracking clamping characteristics.
- C. Surge protective devices shall be designed to withstand a maximum continuous operating voltage of not less than 115 percent of nominal RMS line voltage.
- D. Surge protective devices shall contain internal safety fusing to disconnect the surge protective device from the electrical source if the surge protective device fails, in order to prevent catastrophic failure modes.
- E. Surge protective devices shall be fail safe, shall allow no follow-through current, shall have repeated surge capability, shall be solid state, shall be self-restoring, and shall be fully automatic.
- F. Surge protective devices shall be UL 1449 listed under UL Category Code VZCA and shall be accepted for the location in which they are installed.

2.2 SERVICE ENTRANCE SURGE PROTECTIVE DEVICES

- A. General: Provide service entrance surge protective devices on each main electrical service panel at each building and/or structure. Surge protective devices shall meet or exceed the following (in addition to requirements under 'General' above):
 - 1. Surge protective devices shall be tested per UL 1449 requirements to determine voltage protection rating (VPR).
 - 2. Surge protective devices shall be sequential surge tested as per IEEE C62.45, and shall withstand 1000 test cycles at 10 kA, Cat. C3 test criteria.
 - 3. Enclosure:
 - a) UL listed
 - b) Fire retardant
 - c) NEMA 1, 2, 3R, 3S, 12, or 13, as required for each location.
 - d) Flush, Switchboard and/or Surface mounted as required for each location.

e) **NEMA 4X Polycarbonate for exterior applications.**

B. Modular Design With Remote Monitoring:

1. Remote Monitoring. Provide complete with:
 - a) Normally open and normally closed dry contacts for remote annunciation of unit status for interfacing with building management system.
2. Replaceable module design. The panel mounted surge protective device shall be designed with replaceable modules for purposes of in-service replacement.
3. The surge protective device shall be designed with redundant back-up surge protection in the event of a module failure.
4. Module status indicators shall be provided to indicate individual module status. When a module has failed, the module LED status indicator shall indicate said failure.
5. Unit status indicators shall be provided to indicate the status of the complete surge protective device. The LED status indicators shall be located on the hinged front cover to redundantly indicate module or unit failure.
6. Minimum Surge Capacity:
 - a) 300 kA per phase.
7. Voltage Protection Rating (VPR) and Maximum Continuous Operating Voltage. Comply with the following maximum voltages for UL 1449 testing requirements:

300 kA Unit	L-L	L-N	L-G	N-G	MCOV	In
120/208 V, 3ph, 4W, wye					150V	
UL 1449	1000V	700V	600V	600V		20 kA
277/480 V, 3ph, 4W, wye					320V	
UL 1449	1800V	1200V	1000V	1000V		20 kA

8. Minimum Short Circuit Current Rating:
 - a) 200,000 amps.
9. Manufacturers:
 - a) 300 kA Units.
 1. ASCO Model 460 Series (Previous Model Name APT TE/***/XAS/30) for applied voltage in enclosure as required on drawings, as specified above, and/or as required by applicable codes. **Must be ordered and supplied as a factory special with stainless steel enclosure or polycarbonate enclosure. Standard NEMA 4 steel enclosure is not acceptable.**
 2. Siemens TPS3 12 Series for applied voltage in enclosure as required on drawings, as specified above, and/or as required by applicable codes.
 3. **Siemens TPS4 12 Series for applied voltage in enclosure as required on drawings, as specified above, and/or as required by applicable codes.**
 4. **Atlantic Scientific ZoneMaster All-Mode series for applied voltage in enclosure as required on drawings, as specified above, and/or as**

required by applicable codes.

2.3 SECOND LEVEL SURGE PROTECTIVE DEVICES.

A. General. Provide second level surge protective devices on each second level of the distribution system (including sub panels). Surge protective devices shall meet or exceed the following (in addition to requirements under 'General' above):

1. Surge protective devices shall be tested as per UL 1449 requirements to determine voltage protection ratings (VPR – 3 kA).
2. Surge protective devices shall be sequential surge tested as per IEEE C62.45, and shall withstand 1000 test cycles at 3 kA, Cat. B3 test criteria.
3. Enclosure:
 - a) UL listed.
 - b) Fire retardant.
 - c) NEMA 1, 2, 3R, 3S, 12, or 13 as required for each location.
 - d) Flush, Switchboard and/or Surface mounted as required for each location.
 - e) **NEMA 4X Polycarbonate for exterior applications.**

B. Non-Modular Design with remote monitoring.

1. Remote Monitoring. Provide complete with:
 - a) Normally open and normally closed dry contacts for remote annunciation of unit status for interfacing with building management system.
2. Status indicators shall be provided to indicate individual module status. When a module has failed, the module LED status indicator shall indicate said failure. The LED status indicators shall be located on the front cover to redundantly indicate module or unit failure.
3. Minimum Surge Capacity:
 - a) 200 kA per phase.
4. Voltage protection rating (VPR) and maximum continuous operating voltage. Comply with the following maximum voltages for UL 1449 testing requirements:

200 kA Unit	L-L	L-N	L-G	N-G	MCOV	In
120/208 V, 3ph, 4W, wye					150V	
UL 1449	1000V	700V	700V	600V		20 kA
277/480 V, 3ph, 4W, wye					320V	
UL 1449	2000V	1200V	1200V	1200V		20 kA

5. Short Circuit Current Rating: 100,000 amps.
6. Manufacturers:
 - a) **200 kA Units:**
 1. ASCO Model 430 Series (Previous Model Name APT TE/**XDS/20) for applied voltage in enclosure as required on drawings, as specified above,

and/or as required by applicable codes.

2. Siemens TPS3 11 Series for applied voltage in enclosure as required on drawings, as specified above, and/or as required by applicable codes.
3. **Square D XDSE (Previous Model Name APT TE/**XDS/20) for applied voltage in enclosure as required on drawings, as specified above, and/or as required by applicable codes.**
4. **Siemens TPS4 11 Series for applied voltage in enclosure as required on drawings, as specified above, and/or as required by applicable codes.**
5. **PQ Protection PQC320 Plus series for applied voltage in enclosure as required on drawings, as specified above, and/or as required by applicable codes.**
6. **Atlantic Scientific ZoneMaster All-Mode series for applied voltage in enclosure as required on drawings, as specified above, and/or as required by applicable codes.**

2.4 SERVICE SURGE ARRESTER

- A. Service surge arrester shall be UL listed as Type 1 surge arrester and as required to comply with Local Authority Having Jurisdiction and UL 96A requirements.
- B. This suppressor shall be connected on the line side of service to each building and where required to meet UL 96A.
- C. 50 kA per phase rating.
- D. Minimum short circuit current rating: 200,000 amps
- E. Enclosure:
 1. NEMA 4X polycarbonate
- F. Manufacturers:
 1. ASCO Model 420 series (Previous Model Name APT SPDde) for applied voltage
 2. Siemens TPS3 03 series for applied voltage.
 3. **Siemens TPS4 03 series for applied voltage.**
 4. **PQ Protection PQC160 Plus series for applied voltage.**

PART 3 – EXECUTION

3.1 GENERAL

- A. Provide, install and connect surge protective devices at first piece of electrical equipment (panel, switchboard, etc.) that the electrical service encounters as it enters the facility.
- B. Provide, install and connect surge protective devices at each branch panel as noted on drawings.

3.2 INSTALLATION OF SURGE PROTECTIVE DEVICES

- A. Surge protective devices shall be installed as close as practical to the electric panel or electronic equipment to be protected, consistent with available space.
- B. Surge protective devices shall be close nipped to the device being protected in a position near the neutral bus which will minimize lead length between surge protective devices and the buses

- or control breaker to which the surge protective device connects. Suppressor leads shall not extend beyond the surge protective device manufacturer's recommended maximum lead length without specific acceptance of the Engineer.
- C. Location shown on Drawings is diagrammatic only. Provide flush mount trim for surge protective device units at flush mounted panelboards. Provide NEMA 4X enclosures for TVSS units in exterior locations.
 - D. Surge protective devices shall be installed in a neat, workmanlike manner. Lead dress shall be as short and as straight as possible and be consistent with recommended industry practices for the system on which these devices are installed.
 - E. Supplementary grounding and bonding connections required between the bonding bus or ground plane for each equipment cluster and other locations as indicated herein shall be accomplished using #6 AWG core copper conductor and accepted connections unless otherwise noted. Referenced to a common earth ground.
 - F. Surge protective devices shall be installed in a manner that allows simple replacement within short periods of downtime.
 - G. Surge protective devices other than point of use type and those for exterior lighting poles shall be installed with a means of disconnecting the suppressor at the panel. At the main service entrance location, provide a dedicated 30 amp, 3 phase CB, 100,000 AIC for the surge protective device. At the distribution secondary and/or subpanels location, provide dedicated 20 amp or 30 amp, 3 phase CB, for the surge protective device. Label disconnect or CB "Surge Protector." Fused disconnects may be substituted for the CB, with the acceptance of the Engineer. Contractor to change rating of CBs noted above as required to properly provide system as recommended by manufacturer.

END OF SECTION