

LOS RIOS COMMUNITY COLLEGE DISTRICT

1919 Spanos Court, Sacramento, CA 95825
Phone (916) 568-3071 FAX (916) 568-3145
Purchasing Department

Sacramento City College American River College Cosumnes River College Folsom Lake College

ADDENDUM NO. 1

ISSUE DATE: March 2, 2020

ARC Stadium Lighting Upgrade

LRCCD BID NO. 20011

Issued By:

LOS RIOS COMMUNITY COLLEGE DISTRICT
1919 Spanos Court, Sacramento, CA 95825
Phone (916) 568-3071 Fax (916) 568-3145

This addendum forms a part to the Contract Documents. The addendum items supersede and supplement all portions of the bidding documents with which it conflicts. All workmanship, materials, appliances and equipment which may be included in the following addendum items shall be of the same relative quality as described for similar work set forth in the general or main specifications of which these addendum items shall be considered a part.

This Addendum has been acknowledged in the space provided on the Bid Form and is considered part of the bid documents.

This Addendum consists of 43 pages.

END OF SECTION.



architecture
planning
interiors

ADDENDUM 3: March 2, 2020

**RE: Los Rios Community College District
American River College Stadium Lighting Replacement
DSA File No. 34-C3; DSA Application No. 02-117381
BCA Project Number 18042**

From: Bunton Clifford Associates, Inc. dba BCA Architects
980 8th Street, Suite 2050, Sacramento, CA 95814

To: Prospective Bidders

This Addendum forms a part of the Contract Documents and modifies the original bidding documents dated 05/03/2019, as noted below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

The following changes or clarifications shall be made part of the Bid Documents and shall be taken into consideration when submitting bids.

CHANGES TO DRAWINGS:

1. A0.0 – TITLE SHEET, GENERAL NOTES AND PROJECT INFORMATION

- A. Update Project Summary and Scope of Work to remove existing light pole work at platforms.

2. A0.1 – OVERALL SITE PLAN

- A. Update Project Scope of Work to remove existing light pole work at platforms.
- B. Update notes on photo of existing platform.
- C. Update notes on photo of existing light poles.

QUESTIONS FROM BIDDERS:

3. Our office was in attendance at the pre-bid meeting today. We were advised there have been 2 addendums issued and I am trying to inquire on how to obtain these?

- A. District incorporated Addendum 1 and Addendum 2 into the bid documents issued.

4. Plans state that no structural changes to be made to the poles. Does this include not removing the crossarms? If crossarms are to be removed and replaced, does that affect the platforms?

- A. Platforms are to be removed as poles are to be stripped, see SCR installation instructions.

5. Can poles be drilled for added equipment (ball tracker lights, driver enclosure, etc. would require 1 ½” hole)?

- A. Pole mounted transformers will be removed which will allow for access for conduit to be run for pole top fixtures and ball tracking fixtures. If required, drilling into the Cell Tower poles is acceptable and Musco can provide a 2” coupling if required.

- 6. Would it be allowable to remove existing poles P1, P2, P5, P6, P7, and P8 from foundations and lowered to complete work on ground then set back on foundations with fixtures, drivers, paint complete?**
- A. Musco takes no issue with this approach. This is an acceptable method to attach the new cross arms. Please keep in mind the foundations cannot change and the poles must be connected in the same way as removed originally.
- 7. Can the earth berm around the poles be modified temporarily to place a boom lift on the berm?**
- A. This is not acceptable. Do not modify the existing earth berm.
- 8. Are the existing landings attached to the light assembly. If so, how are they to be removed and attached to the new assembly?**
- A. Landings are to be removed completely from the pole assembly. See updated Sheet A0.0 and A0.1.
- 9. Is a crane allowed to be driven on the track and field? If so, are there any provisions for driving it on them?**
- A. Please see attached track protection requirements. Keep in mind existing asphalt is an unknown any damage will be required to be repaired to existing condition at start of project.
- 10. Are the poles allowed to be drilled for conductors to lower flood lights if necessary?**
- A. Pole mounted transformers will be removed which will allow for access for conduit to be run for pole top fixtures and ball tracking fixtures. If required, drilling into the Cell Tower Poles is acceptable and Musco can provide a 2" coupling if required.
- 11. Are the light bars at the top being replaced or just the lights?**
- A. Platforms are to be removed, and no new platforms are to be installed as the drivers will be mounted in the ECE 10'-0" above grade level. Additional, Musco's 10 year manufacturers maintenance and warranty will cover required maintenance for 10 years.
- 12. If the light bars are being replaced is a new standing area/walkway being provided?**
- A. See response to Question #11 above.
- 13. Is the lower light being removed also?**
- A. Yes, these are the existing floodlights that are to be removed per numbered sheet note 3 on E1.1.
- 14. What is the height of the poles?**
- A. Based on As-Built drawings the height of the poles is 100'-0".
- 15. Is the weight of the lights more or less than the existing lights?**
- A. Weight of new lights is more than the existing lights. KNA Structural Engineering has stamped the drawings.
- 16. Electrical drawings show a new Ground Rod Well. Can the pole be drilled into and what is the maximum size of the hole allowed?**
- A. Do not drill the pole to bond the new grounding conductor.
- 17. Are the conductors new or being reused?**
- A. Existing to remain as connected except as noted on the plans.
- 18. What is the height of the hill that the 100'-0" poles are located on top of?**

- A. Based on As-Built drawings the top of the concrete walk on the home side is approximately 19'-0" to 23'-0" above the track. This does not include the small mound you walk up to get to the base of the pole. Contractor to verify in field for installation of new equipment.

19. Can a crane be placed on the track within the field area?

- A. See response to question #9 above.

Attachments:

- Sheet A0.0 dated 03/02/2020
- Sheet A0.1 dated 03/02/2020
- Sports Cluster System TLC for LED installation
- Overview of Track Protection when changing Stadium Lighting

END OF ADDENDUM 3

Distribution:

Los Rios Community College District
BCA Project File 18042

Note: It is incumbent upon the Prime Bidder to notify his subcontractor and/or materials supplier of the above changes in the Contract Documents.

For: American River College Stadium
4700 College Oak Drive, Sacramento, CA 95841

BCA Architects
980 9th Street, Suite 2050, Sacramento, CA 95814
(916) 254-5600



Brian P. Whitmore, AIA

C30345



STATE OF CALIFORNIA – DIVISION OF STATE ARCHITECT

ARC-STADIUM LIGHTING AMERICAN RIVER COLLEGE

4700 COLLEGE OAK DR.
SACRAMENTO, CA 95841

GENERAL NOTES

- PRIOR TO SUBMITTING BIDS, BIDDER SHALL EXAMINE CONSTRUCTION DRAWINGS AND SPECIFICATIONS AND SHALL HAVE VISITED THE CONSTRUCTION SITE. HE/SHE SHALL BE FAMILIAR WITH THE CONDITIONS UNDER WHICH HE/SHE WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT. THE GENERAL CONTRACTOR SHALL NOT DISPUTE, COMPLAIN OR ASSERT THAT THERE IS ANY MISUNDERSTANDING IN REGARDS TO LOCATION, EXTENT, NATURE OR AMOUNT OF WORK TO BE PERFORMED UNDER THIS CONTRACT DUE TO THE CONTRACTOR'S FAILURE TO INSPECT THE SITE. BIDDERS SHALL NOTIFY THE ARCHITECT OF ANY CONDITIONS, REQUIREMENTS, WORK, WHICH ARE NOT COVERED IN THE CONTRACT DOCUMENTS.
- THERE WILL BE NO SUBSTITUTIONS FOR SPECIFIED ITEMS WITHOUT PRIOR APPROVAL UNLESS OTHERWISE NOTED. REQUESTS FOR SUBSTITUTIONS SHALL BE MADE IN ACCORDANCE WITH SPECIAL CONDITIONS AND DIVISION 1.
- THE FINAL LOCATION OF ALL ELECTRICAL AND SIGNAL EQUIPMENT, PANEL BOARDS, FIXTURES, ETC. SHALL BE APPROVED BY OWNER PRIOR TO INSTALLATION.
- DEFINITIONS:
 - A. 'TYPICAL' MEANS IDENTICAL FOR ALL CONDITIONS, UNLESS OTHERWISE NOTED
 - B. 'SIMILAR' MEANS COMPARABLE CHARACTERISTICS FOR THE CONDITION NOTED. VERIFY DIMENSIONS AND ORIENTATIONS.
 - C. 'PROVIDE' MEANS TO FURNISH AND INSTALL
 - D. 'FURNISH' MEANS TO FURNISH AND OTHERS WILL INSTALL
- DIMENSIONING RULES:
 - A. ALL HORIZONTAL DIMENSIONS SHALL BE FACE OF STUD OR COLUMN GRID LINE, U.O.N.
 - B. DIMENSIONS NOTED 'CLEAR', 'CLR' OR 'MINIMUM' MUST BE PRECISELY MAINTAINED.
 - C. DIMENSIONS CAN NOT BE MODIFIED WITHOUT APPROVAL OF THE ARCHITECT UNLESS OTHERWISE NOTED.
 - D. VERTICAL DIMENSIONS ARE FROM TOP OF FLOOR SLAB UNLESS OTHERWISE NOTED.
 - E. DO NOT SCALE DRAWINGS. IF ANY ITEM OF WORK CANNOT BE LOCATED, DO NOT PROCEED WITH THE WORK WITHOUT THE ARCHITECT'S APPROVAL.
 - F. DIMENSIONS MARKED 'V.L.F.' OR 'VERBIFY' SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
 - G. VERIFY ALL ROUGH OPENING DIMENSIONS FOR FABRICATED ITEMS WITH THE MANUFACTURER PRIOR TO PROCEEDING WITH CONSTRUCTION.
 - H. DOOR AND WINDOW OPENINGS SHALL BE LOCATED ADJACENT TO PERPENDICULAR WALL UNLESS DIMENSIONED OTHERWISE.
- PROVIDE REQUIRED BACKING, BLOCKING, AND BRACING FOR ALL WALL-MOUNTED FIXTURES, ACCESSORIES AND EQUIPMENT.
- VERIFY AND COORDINATE WALLS THAT MAY REQUIRE NON-TYPICAL THICKNESS OR FRAMING DUE TO ELECTRICAL, MECHANICAL, PLUMBING, STRUCTURAL AND/OR EQUIPMENT REQUIREMENTS.
- ALL GLAZING SHALL CONFORM TO FEDERAL GLAZING REGULATIONS AND CHAPTER 24, CBC.
- ALL CONTRACTORS SHALL REMOVE TRASH AND DEBRIS STEMMING FROM THEIR WORK ON A DAILY BASIS. PROJECT SITE SHALL BE MAINTAINED IN A CLEAN AND ORDERLY CONDITION.

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL LEFT-OVER MATERIALS, DEBRIS, TOOLS AND EQUIPMENT INVOLVED IN HIS/HER OPERATIONS AT THE CONCLUSION OF THE INSTALLATION. HE/SHE SHALL LEAVE ALL AREAS CLEAN AND FREE FROM DUST.
- HAZARDOUS MATERIALS: THE ARCHITECT AND THE ARCHITECT'S CONSULTANTS SHALL HAVE NO RESPONSIBILITY FOR THE DISCOVERY, PRESENCE, HANDLING, REMOVAL, OR DISPOSAL OF OR EXPOSURE OF PERSONS TO ASBESTOS OR HAZARDOUS OR TOXIC SUBSTANCES IN ANY FORM AT THE PROJECT SITE. PROFESSIONAL SERVICES RELATED TO OR IN ANY CONNECTION WITH THE INVESTIGATION, DETECTION, ABATEMENT, REPLACEMENT, USE, SPECIFICATION, OR REMOVAL OF PRODUCTS, MATERIALS, OR PROCESSES CONTAINING ASBESTOS OR HAZARDOUS OR TOXIC MATERIALS ARE BEYOND THE SCOPE OF THIS AGREEMENT.
- THE GENERAL CONTRACTOR & SUBCONTRACTORS ARE RESPONSIBLE FOR LOCATING & VERIFYING ALL EXISTING UNDERGROUND UTILITIES IN ALL AREAS OF WORK PRIOR TO COMMENCEMENT OF EXCAVATION. EXISTING UTILITIES SHOWN ON DRAWINGS ARE APPROXIMATE. ROUTING LOCATION AS BEST DETERMINED FROM EXISTING DRAWINGS AND THE CITY SCHOOL DISTRICT, BUT SHOULD NOT BE CONSTRUED TO REPRESENT REPRESENT ALL EXISTING UNDERGROUND UTILITIES.
- ALL TEMPORARY WORK SHALL BE CONSIDERED A PART OF THIS CONTRACT AND NO EXTRA CHARGES WILL BE ALLOWED. THIS SHALL INCLUDE MINOR ITEMS OF MATERIAL OR EQUIPMENT NECESSARY TO MEET THE REQUIREMENTS AND INTENT OF THE PROJECT.
- ALL WALL PENETRATIONS TO EXTERIOR WALLS SHALL BE SEALED AIRWATER TIGHT. ALL INTERIOR PENETRATIONS SHALL BE SEALED TO PROVIDE A PROFESSIONAL AND FINISHED APPEARANCE.
- THE DRAWINGS AND SPECIFICATIONS DO NOT UNDERTAKE TO SHOW OR LIST EVERY ITEM TO BE PROVIDED, BUT RATHER TO DEFINE THE REQUIREMENTS FOR A FULL AND WORKING SYSTEM FROM THE STANDPOINT OF THE END USER. FOR THIS REASON, WHEN AN ITEM NOT SHOWN OR LISTED IS CLEARLY NECESSARY FOR PROPER USE, CONTROL OPERATION OF EQUIPMENT WHICH IS SHOWN OR LISTED, PROVIDE ALL ITEMS WHICH WILL ALLOW THE SYSTEM TO FUNCTION PROPERLY AT NO INCREASE IN CONTRACT PRICE OR TIME.
- THE DETAILS REFLECT THE DESIGN INTENT FOR TYPICAL CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS AND SHALL INCLUDE, IN HIS/HER SCOPE, THE COST FOR COMPLETE FINISHED INSTALLATIONS, INCLUDING ANOMALIES, OF ALL TRADES.
- ALL WORK SHALL CONFORM TO CALIFORNIA CODES, TRADE STANDARDS WHICH GOVERN EACH PHASE OF THE PROJECT, AND ALL APPLICABLE LOCAL, CODES AND AUTHORITIES HAVING JURISDICTION, WITH THIS WORK.
- THIS DRAWING SET SHALL BE USED IN CONJUNCTION WITH THE CSI FORMAT PROJECT MANUAL PUBLISHED IN BOOK FORM. COMBINED, THEY ARE THE 'CONTRACT DOCUMENTS'.
- NO WORK SHALL COMMENCE WITH UNAPPROVED MATERIALS. ANY WORK DONE WITH UNAPPROVED MATERIALS AND EQUIPMENT IS AT THE CONTRACTOR'S RISK. SEE SPECIFICATIONS FOR SUBMITTAL AND SUBSTITUTION REQUIREMENTS.
- CONSTRUCTION MATERIAL STORED ON THE SITE SHALL BE PROPERLY STACKED AND PROTECTED TO PREVENT DAMAGE OR DETERIORATION. FAILURE IN THIS REGARD MAY BE CAUSE FOR REJECTION OF MATERIAL AND/OR WORK. SECURITY OF MATERIALS ARE THE SOLE RESPONSIBILITY OF GENERAL CONTRACTOR.
- ALL EQUIPMENT/CABINETS SHALL BE FABRICATED FROM FIELD VERIFIED DIMENSIONS AND APPROVED SHOP DRAWINGS. COORDINATE MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT WITH THIS WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE AND COSTS ATTRIBUTED TO RAIN WATER DAMAGE DURING THE DURATION OF THIS PROJECT.

- PROTECT AREAS FROM DAMAGE WHICH MAY OCCUR DUE TO TEMPERATURES, WIND, DUST, WATER, ETC., PROVIDE AND MAINTAIN TEMPORARY BARRICADES, CLOSURE WALLS, ETC., AS REQUIRED DURING CONSTRUCTION.
- MAINTAIN EXISTING PEDESTRIAN ACCESS ALONG EXISTING ADJACENT STREETS AND CAMPUS PATHWAYS.
- ALL PUBLIC IMPROVEMENTS SHALL BE MADE IN ACCORDANCE WITH THE LATEST ADOPTED CITY/COUNTY STANDARDS.
- ALL TYPICAL DETAILS SHALL APPLY UNLESS NOTED OTHERWISE.
- NOTIFY THE ARCHITECT IN WRITING AND SEEK CLARIFICATION IF ANY DISCREPANCIES OR OMISSIONS ARE FOUND. CONTRACTOR SHALL BE RESPONSIBLE FOR REMEDIAL WORK IF RELATED WORK IS CONTINUED AFTER A DISCREPANCY IS IDENTIFIED.
- NEW FINISHES AND CONSTRUCTION SHALL BE PROTECTED BY THE CONTRACTOR FROM POTENTIAL DAMAGE CAUSED BY CONSTRUCTION ACTIVITY. DAMAGE TO FINISHES OR CONSTRUCTION SHALL BE REPAIRED OR REPLACED (OWNER'S DECISION) BY THE CONTRACTOR WITH IDENTICAL MATERIAL AND/OR FINISHES. CONTRACTOR SHALL MAKE AND MAINTAIN A PHOTOGRAPHIC RECORD NOTEBOOK WITH DATED/INDEXED PHOTOGRAPHS.
- PATCH AND REPAIR ALL SURFACES ADJACENT TO AREAS AFFECTED BY MODERNIZATION TO MATCH EXISTING, U.O.N.
- SEE MECHANICAL & PLUMBING DRAWINGS FOR INFORMATION RELATED TO PLUMBING, HEATING, VENTILATION AND AIR CONDITIONING EQUIPMENT. SEE ARCHITECTURAL PLANS, REFLECTED CEILING PLANS AND ELEVATIONS FOR COORDINATED EQUIPMENT LOCATIONS. IF NOT SHOWN, CONTACT THE ARCHITECT FOR REVIEW AND DECISION.
- SEE ELECTRICAL DRAWINGS FOR INFORMATION RELATED TO TELECOMMUNICATION EQUIPMENT, POWER AND LIGHTING FIXTURES AND EQUIPMENT. SEE ARCHITECTURAL PLANS, REFLECTED CEILING PLAN AND INTERIOR ELEVATIONS FOR COORDINATED EQUIPMENT LOCATIONS. IF NOT SHOWN, CONTACT THE ARCHITECT FOR REVIEW AND DECISION.
- PROVIDE ACCESS DOORS REQUIRED FOR ACCESS TO CONCEALED MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT.
- ALL NOTED WORK IS UNDERSTOOD TO BE NEW UNLESS LABELED AS '(E)' OR 'EXISTING'
- CONTRACTOR IS RESPONSIBLE TO PROTECT ALL EXISTING STRUCTURE AND LANDSCAPE OUTSIDE THE PROJECT AREA OF WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE AND COSTS ATTRIBUTED TO THESE AREAS.

DSA REQUIREMENTS

- ALL WORK SHALL CONFORM TO THE 2016 EDITION OF THE TITLE 24, CALIFORNIA CODE OF REGULATIONS (C.C.R.).
- AS A FACILITY WHICH COMES UNDER THE APPROVAL AND AUTHORITY OF THE DIVISION OF THE STATE ARCHITECT (DSA), THIS PROJECT IS SUBJECT TO DRAWING AND JOB SITE REVIEW BY A REPRESENTATIVE OF DSA.
- CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY ADDENDA OR A CHANGE ORDER APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, C.C.R.
- A PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, PART 1, TITLE 24, C.C.R.
- GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.
- A COPY OF PARTS 1 AND 2 OF TITLE 24 SHALL BE KEPT AND AVAILABLE IN THE FIELD DURING CONSTRUCTION.
- DSA SHALL BE NOTIFIED OF THE START OF CONSTRUCTION AND PRIOR TO THE PLACEMENT OF CONCRETE PER SECTION 4-331, PART 1, TITLE 24, C.C.R.
- THE DIVISION OF THE STATE ARCHITECT IS EXEMPT FROM ARBITRATION OR MEDIATION PROCEDURES.
- SUPERVISION BY THE DIVISION OF THE STATE ARCHITECT IS PER SECTION 4-334, PART 1, TITLE 24, C.C.R.
- ADMINISTRATION OF CONSTRUCTION PER PART 1, TITLE 24, C.C.R.:
 - VERIFIED REPORTS PER SECT 4-336; PART 1, TITLE 24, C.C.R.
 - DUTIES OF ARCHITECT PER SECT 4-331, 4-341; PART 1, TITLE 24, C.C.R.
 - DUTIES OF CONTRACTOR PER SECT. 4-343; PART 1, TITLE 24, C.C.R.
- TESTING AND INSPECTION:
 - INSPECTION APPROVED BY DSA AS PER SECT. 4-333(D); PART 1, TITLE 24, C.C.R.
 - TESTS AND TESTING LABORATORIES PER SECT 4-335
 - SPECIAL INSPECTION PER SECT. 4-333(C)
- CHANGES IN LEVEL FOR FLOOR FINISHES SHALL CONFORM WITH C.B.C. SECTION 11B-302 AND 11B-303.
- ALL TESTS TO CONFORM TO REQUIREMENTS OF SECTION 4-335; PART 1, TITLE 24, C.C.R.
- TESTS OF MATERIALS AND TESTING LABORATORY SHALL BE IN ACCORDANCE WITH SECTION 4-335; PART 1, TITLE 24, C.C.R. AND THE DISTRICT SHALL REVIEW AND PAY THE LABORATORY COSTS OR RE-TEST MAY BE BACK CHARGED TO THE CONTRACTOR.
- INSPECTOR SHALL BE APPROVED BY DSA. INSPECTION SHALL BE IN ACCORDANCE WITH SECTION 4-333(B).
- THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO CONSTRUCT THE SCHOOL BUILDING IN ACCORDANCE WITH TITLE 24, C.C.R. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE CONTRACT DOCUMENTS, WHEREIN THE FINISH WORK WILL NOT COMPLY WITH SAID TITLE 24, C.C.R., A CHANGE ORDER DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY DIVISION OF THE STATE ARCHITECT BEFORE PROCEEDINGS WITH THE WORK.
- INSPECTOR OF RECORD REQUIREMENTS:
 - A. ONE OR MORE INSPECTORS EMPLOYED BY THE OWNER IN ACCORDANCE WITH THE REQUIREMENTS OF TITLE 24 OF THE CALIFORNIA CODE OF REGULATIONS WILL BE ASSIGNED TO THE WORK. THE INSPECTOR'S DUTIES ARE SPECIFICALLY DEFINED IN SECTION 4-342 OF SAID TITLE 24, PART 1 AND IN ADDITION, SHALL BE STIPULATED IN INTERPRETATION OF REGULATION DOCUMENT IR-148.
 - B. INSPECTOR SHALL BE CERTIFIED AS A CLASS 2 INSPECTOR THROUGHOUT THE DURATION OF THE STATE ARCHITECT INSPECTOR EXAMINATION PROGRAM. INSPECTOR SHALL ALSO BE SPECIFICALLY APPROVED BY THE DIVISION OF THE STATE ARCHITECT FOR THIS PROJECT AT LEAST 10 DAYS PRIOR TO THE START OF ANY WORK FOR THIS PROJECT.

PROJECT SUMMARY AND SCOPE OF WORK

REPLACE EXISTING STADIUM LIGHT FIXTURES ON EIGHT EXISTING LIGHT POLES WITH NEW LIGHTING FIXTURES.

SCOPE OF WORK FOR THE REMOVAL AND INSTALLATION OF NEW LIGHTING FIXTURES IS SHOWN ON MUSCO LIGHTING DRAWINGS.

SCOPE OF ELECTRICAL WORK AND ELECTRICAL PANELS IS SHOWN AT ELECTRICAL DRAWINGS.

NO STRUCTURAL WORK IS REQUIRED TO THE EXISTING LIGHTING POLES TO INSTALL NEW LIGHTING FIXTURES (SEE DETAILS).

SCOPE OF WORK AT EXISTING LIGHT POLES IS RESTRICTED TO:

AS REQUIRED, PREP, PRIME, AND PAINTING OF ALL SURFACES ON THE LIGHTING POLES.

NEW FINISHES AND CONSTRUCTION SHALL BE PROTECTED BY THE CONTRACTOR FROM POTENTIAL DAMAGE CAUSED BY CONSTRUCTION ACTIVITY. DAMAGE TO FINISHES OR CONSTRUCTION SHALL BE REPAIRED OR REPLACED (OWNER'S DECISION) BY THE CONTRACTOR WITH IDENTICAL MATERIAL AND/OR FINISHES. CONTRACTOR SHALL MAKE AND MAINTAIN A PHOTOGRAPHIC RECORD NOTEBOOK WITH DATED/INDEXED PHOTOGRAPHS.

PATCH AND REPAIR ALL SURFACES ADJACENT TO AREAS AFFECTED BY MODERNIZATION TO MATCH EXISTING, U.O.N.

SEE MECHANICAL & PLUMBING DRAWINGS FOR INFORMATION RELATED TO PLUMBING, HEATING, VENTILATION AND AIR CONDITIONING EQUIPMENT. SEE ARCHITECTURAL PLANS, REFLECTED CEILING PLANS AND ELEVATIONS FOR COORDINATED EQUIPMENT LOCATIONS. IF NOT SHOWN, CONTACT THE ARCHITECT FOR REVIEW AND DECISION.

SEE ELECTRICAL DRAWINGS FOR INFORMATION RELATED TO TELECOMMUNICATION EQUIPMENT, POWER AND LIGHTING FIXTURES AND EQUIPMENT. SEE ARCHITECTURAL PLANS, REFLECTED CEILING PLAN AND INTERIOR ELEVATIONS FOR COORDINATED EQUIPMENT LOCATIONS. IF NOT SHOWN, CONTACT THE ARCHITECT FOR REVIEW AND DECISION.

PROVIDE ACCESS DOORS REQUIRED FOR ACCESS TO CONCEALED MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT.

ALL NOTED WORK IS UNDERSTOOD TO BE NEW UNLESS LABELED AS '(E)' OR 'EXISTING'

CONTRACTOR IS RESPONSIBLE TO PROTECT ALL EXISTING STRUCTURE AND LANDSCAPE OUTSIDE THE PROJECT AREA OF WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE AND COSTS ATTRIBUTED TO THESE AREAS.

DETAIL DRAWING CODE

A10.84

— DRAWING NUMBER
— DIVISION PREFIX INDEX

THE DIVISION PREFIX NUMBERS ARE THOSE IDENTIFIED BY THE 28 DIVISIONS GROUPING SYSTEM OF 2004 MASTER FORMAT AS PUBLISHED BY THE CONSTRUCTION SPECIFICATION INSTITUTE (CSI) AND SHALL NOT BE SOLELY REPRESENTATIVE OF REQUIREMENTS FOR ANY ONE DIVISION. THOSE DIVISIONS NOTED AS BEING OMITTED ARE NOT APPLICABLE OR ARE INCLUDED UNDER DISCIPLINE DRAWINGS.

IN CASE OF DISCREPANCY BETWEEN THE INDEX AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.

DEFERRED APPROVALS

NONE

ADDITIVE ALTERNATES

- INCREASE STADIUM LIGHTING FOOT CANDLES FROM 50 fc (BASE BID) TO 70 fc PER SPECIFICATION SECTION 26 56 68 SPORTS FIELD LIGHTING AND SHEETS MT.1.1 AND MS1.1.

SHEET INDEX

GENERAL	TITLE SHEET, GENERAL NOTES AND PROJECT INFORMATION
AO.0	OVERALL SITE PLAN
STRUCTURAL	NOTES, FOUNDATION DETAIL
MT.1	ALTERNATE #1: NOTES, FOUNDATION DETAIL
MS.1	POLE DETAIL
MS1.1	ALTERNATE #1 POLE DETAIL
ELECTRICAL	SYMBOL LIST & ABBREVIATIONS
EO.1	POWER ONE-LINE DIAGRAM
EO.2	OVERALL SITE PLAN

CODES AND REGULATIONS

- APPLICABLE STATE CODES AND REGULATIONS WITH LATEST AMENDMENTS AND SUPPLEMENTS:
- 2016 BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 CBCS
 - 2016 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CBCS (2015 IBC & CALIFORNIA AMENDMENTS)
 - 2016 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CBCS (2014 NATIONAL ELECTRICAL CODE & CALIFORNIA AMENDMENTS)
 - 2016 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CBCS (2015 UNIFORM MECHANICAL CODE & CALIFORNIA AMENDMENTS)
 - 2016 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CBCS (2015 UNIFORM PLUMBING CODE & CALIFORNIA AMENDMENTS)
 - 2016 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 CBCS
 - 2016 CALIFORNIA HISTORICAL BUILDING CODE, PART 8, TITLE 24 CBCS
 - 2016 CALIFORNIA FIRE CODE, PART 9, TITLE 24 CBCS (2015 INTERNATIONAL FIRE CODE & CALIFORNIA AMENDMENTS)
 - 2016 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 CBCS
 - TITLE 8 C.C.R., CH. 4, SUB-CH. 6 - ELEVATOR SAFETY ORDERS
 - TITLE 19 C.C.R., PUBLIC SAFETY, SFM REGULATIONS
 - 2016 CALIFORNIA GREEN BUILDING STANDARDS CODE PART 11, TITLE 24.
- APPLICABLE FEDERAL CODES AND STANDARDS:
- AMERICANS WITH DISABILITIES ACT (ADA), TITLE 11
 - UNIFORM FEDERAL ACCESSIBILITY STANDARDS (UFAS) OR ADA STANDARDS FOR ACCESSIBLE DESIGN (APPENDIX A OF 28 CFR PART 36)
- APPLICABLE REFERENCED STANDARDS:
- NFPA 24, PRIVATE FIRE MAINS (CA AMENDED), 2016 EDITION
 - NFPA 72, NATIONAL FIRE ALARM CODE (CA AMENDED), 2016 EDITION
 - NFPA 80, FIRE DOOR AND OTHER OPENING PROTECTIVES, 2016 EDITION
 - NFPA 2001, CLEAN AGENT FIRE EXTINGUISHING SYSTEMS, 2015 EDITION
- REFERENCE CODE SECTION FOR NFPA STANDARDS - 2016 CFC (SFM) CHAPTER 80. SEE CHAPTER 80 FOR STATE OF CALIFORNIA AMENDMENTS TO NFPA STANDARDS.

SUPPLEMENTAL GENERAL NOTES

- THESE DRAWINGS DO NOT CONTAIN THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
- LOCATIONS OF ALL UTILITIES SHOWN ARE APPROXIMATE AND CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN EXCAVATING AND TRENCHING ON THIS SITE TO AVOID INTERCEPTING EXISTING PIPING OR CONDUITS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREIN OR NOT AND TO PROTECT THEM FROM DAMAGE. THE ARCHITECT IS NOT RESPONSIBLE FOR THE LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES WHETHER OR NOT SHOWN OR DETAILED AND INSTALLED BY ANY OTHER CONTRACT. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT SHOULD ANY UNIDENTIFIED CONDITIONS BE DISCOVERED. THE CONTRACTOR SHALL BEAR ALL EXPENSE OF REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED BY OPERATIONS IN CONJUNCTION WITH THE PROSECUTION OF THIS WORK.
- THESE DOCUMENTS AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, ARE THE PROPERTY OF BCJA ARCHITECTS, AND ARE NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF BCJA ARCHITECTS.
- EACH BIDDER SHALL POSSESS AT THE TIME OF BID, A CLASS B OR THE APPROPRIATE CLASS C CONTRACTORS LICENSE PURSUANT TO PUBLIC CONTRACT CODE SECTION 3300 AND BUSINESS AND PROFESSIONS CODE SECTION 7028.15. THE SUCCESSFUL BIDDER MUST MAINTAIN THE LICENSE THROUGHOUT THE DURATION OF THIS CONTRACT.
- FIRE SAFETY DURING CONSTRUCTION:
 - A. GENERAL: FIRE SAFETY DURING CONSTRUCTION SHALL COMPLY WITH 2016 CALIFORNIA FIRE CODE (C.F.C.), CALIFORNIA CODE OF REGULATIONS (C.C.R.), TITLE 24, PART 9, CHAPTER 33 - FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION.
 - B. ACCESS ROADS: FIRE DEPARTMENT ACCESS ROADS SHALL BE ESTABLISHED AND MAINTAINED IN ACCORDANCE WITH SECTION 503.
 - C. WATER SUPPLY: WATER MAINS AND HYDRANTS SHALL BE OPERATIONAL IN ACCORDANCE WITH SECTION 507.
 - D. BUILDING ACCESS: ACCESS TO BUILDINGS FOR THE PURPOSE OF FIRE FIGHTING SHALL BE PROVIDED. CONSTRUCTION MATERIAL SHALL NOT BLOCK ACCESS TO BUILDINGS, HYDRANTS OR FIRE APPLIANCES.
 - E. ALTERATIONS OF BUILDINGS: SHALL COMPLY WITH APPLICABLE PROVISIONS OF CFC CHAPTER 33.
 - F. DEMOLITION OF BUILDINGS: SHALL COMPLY WITH CFC CHAPTER 33.
 - G. FIRE WATCH: MAINTAIN FIRE WATCH WHEN REQUIRED BY THE BUILDING OFFICIAL AND WHEN EXISTING FIRE PROTECTION SYSTEMS ARE SHUT DOWN FOR ALTERATIONS. FIRE WATCH SHALL REMAIN IN EFFECT UNTIL EXISTING FIRE PROTECTION SYSTEMS ARE RETURNED TO SERVICE OR AS ALLOWED BY THE BUILDING OFFICIAL.
 - H. PENETRATIONS IN FIRE RATED MATERIALS OR ASSEMBLIES SHALL BE RESTORED TO EQUAL RATING. FIRE STOP SYSTEMS AS LISTED BY UNDERWRITERS LABORATORIES SHALL BE INSTALLED PER THE FIRE RESISTANCE DIRECTORY. FIRE STOP SYSTEMS SHALL BE AS SPECIFIED.

- NONRESIDENTIAL ENERGY STANDARDS COMPLIANCE STATEMENT (TITLE 24, PART 6):

"THE DESIGN INDICATED HEREIN COMPLIES WITH THE REQUIREMENTS OF THE ENERGY CONSERVATION STANDARDS OF TITLE 24, PART 6, CALIFORNIA CODE OF REGULATIONS. THE PROPOSED BUILDING WILL BE IN COMPLIANCE WITH THE ENERGY CONSERVATION STANDARDS PROVIDED, IT IS BUILT ACCORDING TO THESE DRAWINGS AND SPECIFICATIONS AND PROVIDED ANY FUTURE IMPROVEMENTS ARE COMPLETED ACCORDING TO THE REQUIREMENTS OF TITLE 24, PART 6, CALIFORNIA CODE OF REGULATIONS. THESE DRAWINGS AND SPECIFICATIONS HAVE BEEN PREPARED TO INCLUDE ALL SIGNIFICANT ENERGY CONSERVATION FEATURES REQUIRED FOR COMPLIANCE WITH THE STANDARDS. BUILDING AREAS THAT ARE UNCONDITIONED AND/OR NOT SUBJECT TO THE STANDARDS ARE INDICATED ON THE DRAWINGS"
- ENVELOPE MANDATORY MEASURES:
 - A. INSTALLED INSULATING MATERIALS SHALL HAVE BEEN CERTIFIED BY THE MANUFACTURER TO COMPLY WITH THE CALIFORNIA QUALITY STANDARDS FOR INSULATING MATERIAL.
 - B. ALL INSULATING MATERIALS SHALL BE INSTALLED IN COMPLIANCE WITH THE FLAME SPREAD RATING AND SMOKE DENSITY REQUIREMENTS OF TITLE 24, PART 2, CALIFORNIA CODE OF REGULATIONS, SECTIONS 719 AND 2603 AND THE INTERNATIONAL BUILDING CODE, SECTIONS 719 AND 2603.
 - C. ALL EXTERIOR JOINTS AND OPENINGS IN THE BUILDING ENVELOPE THAT ARE POTENTIAL AND OBSERVABLE SOURCES OF AIR LEAKAGE SHALL BE CALKED, GASKETED, WEATHERSTRIPPED OR OTHERWISE SEALED.
 - D. SITE CONSTRUCTED DOORS, WINDOWS, AND SKYLIGHTS SHALL BE CALKED BETWEEN THE UNIT AND THE BUILDING, AND SHALL BE WEATHERSTRIPPED (EXCEPT FOR UNFRAMED GLASS DOORS AND FIRE DOORS).
 - E. MANUFACTURED DOORS AND WINDOWS INSTALLED SHALL HAVE AIR INFILTRATION RATES CERTIFIED BY THE MANUFACTURER IN ACCORDANCE WITH TITLE 24, PART 6, CALIFORNIA CODE OF REGULATIONS, SECTION 116(a)1.
 - F. MANUFACTURED FENESTRATION PRODUCTS IN THE ENVELOPE OF THE BUILDING INCLUDING, BUT NOT LIMITED TO, WINDOWS, SLIDING GLASS DOORS, FRENCH DOORS, SKYLIGHTS, CURTAIN WALLS, AND GARDEN WINDOWS MUST BE LABELED FOR U-VALUE IN ACCORDANCE WITH THE (INFC) NATIONAL FENESTRATION RATING COUNCIL'S INTERIM U-VALUE RATING PROCEDURE.
 - G. DEMISING WALL INSULATION SHALL BE INSTALLED IN ALL OPAQUE PORTIONS OF FRAMED GLASS (EXCEPT DOORS).
- FOR EXPANSION OR EPOXY TYPE ANCHORS REFER TO 9.01 STRUCTURAL GENERAL NOTES.
 - A. MATERIAL: AUTOMATIC END WELDED STUDS SHALL BE NELSON GRANULAR FLOW-FILLED SHEAR CONNECTOR OR ANCHOR STUDS (OR APPROVED EQUAL). STUDS SHALL BE MANUFACTURED OF G-1015 COLD ROLLED STEEL WHICH CONFORMS TO ASTM A108.
 - B. INSTALLATION: THE STUDS SHALL BE AUTOMATICALLY END WELDED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS IN SUCH A MANNER AS TO PROVIDE COMPLETE FUSION BETWEEN THE WELDED END OF THE STUD AND THE PLATE. THE STUD SHALL DECREASE IN LENGTH DURING WELDING APPROXIMATELY 1/8" FOR 5/8" AND UNDER, AND 3/16" FOR OVER 5/8" DIAMETER. WELDING SHALL BE DONE ONLY BY QUALIFIED WELDERS APPROVED BY THE WELDING INSPECTOR.

PROJECT DIRECTORY

CLIENT
Los Rios Community College
District
3753 Bradview Drive
Sacramento, CA 95827
[T] (714) 964-8888

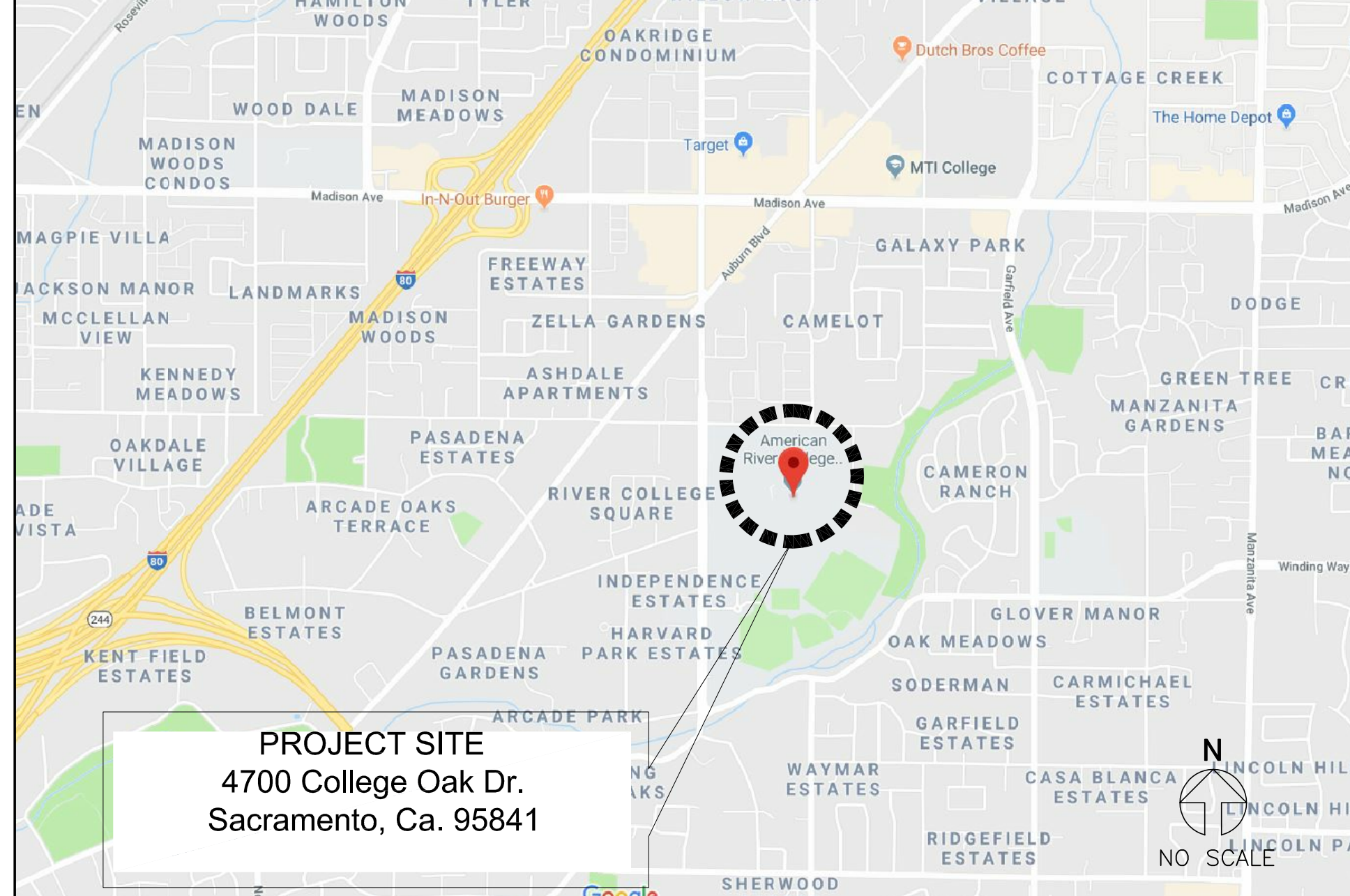
Contact Person:
Julie Moore
Facilities Management
moorej2@osrioso.edu

ARCHITECT
Brian Whitmore
Principal, AIA, LEED® AP
980 9th St., Suite 2050
Sacramento, CA 95814
[T] (916) 254-5602
brianw@bcjarchitects.com

MUSCO LIGHTING
Bob Crookham
Representative
3420 Coach Lane #9-C
Camden Park, CA 95682
[T] (866) 489-2806
bob.crookham@musco.com

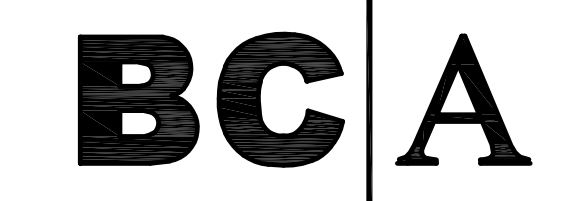
ELECTRICAL
Donny McKeivitt
Principal, LEED AP
1125 High St.
Abuburn, CA 92081
[T] (530) 886-8556
dmckeivitt@engent.com

VICINITY MAP



PROJECT SITE
4700 College Oak Dr.
Sacramento, Ca. 95841

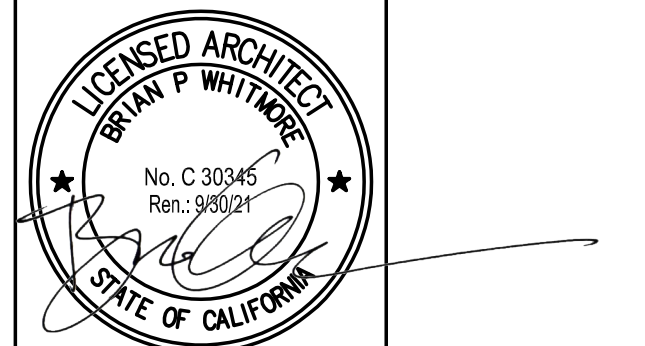
DSA STAMP



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111 North Market St. Suite 710
San Jose, California 95113
[T] 408.588.3800
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NO.	REMARKS	DATE
ADDENDUM 2		01/15/2020
ADDENDUM 3		03/02/2020

REVISION HISTORY

DATE

SCHEMATIC DESIGN

DESIGN DEVELOPMENT

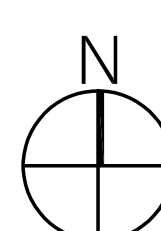
DSA PLAN CHECK

DSA BACK CHECK

BIDDING 01/15/2020

CONSTRUCTION

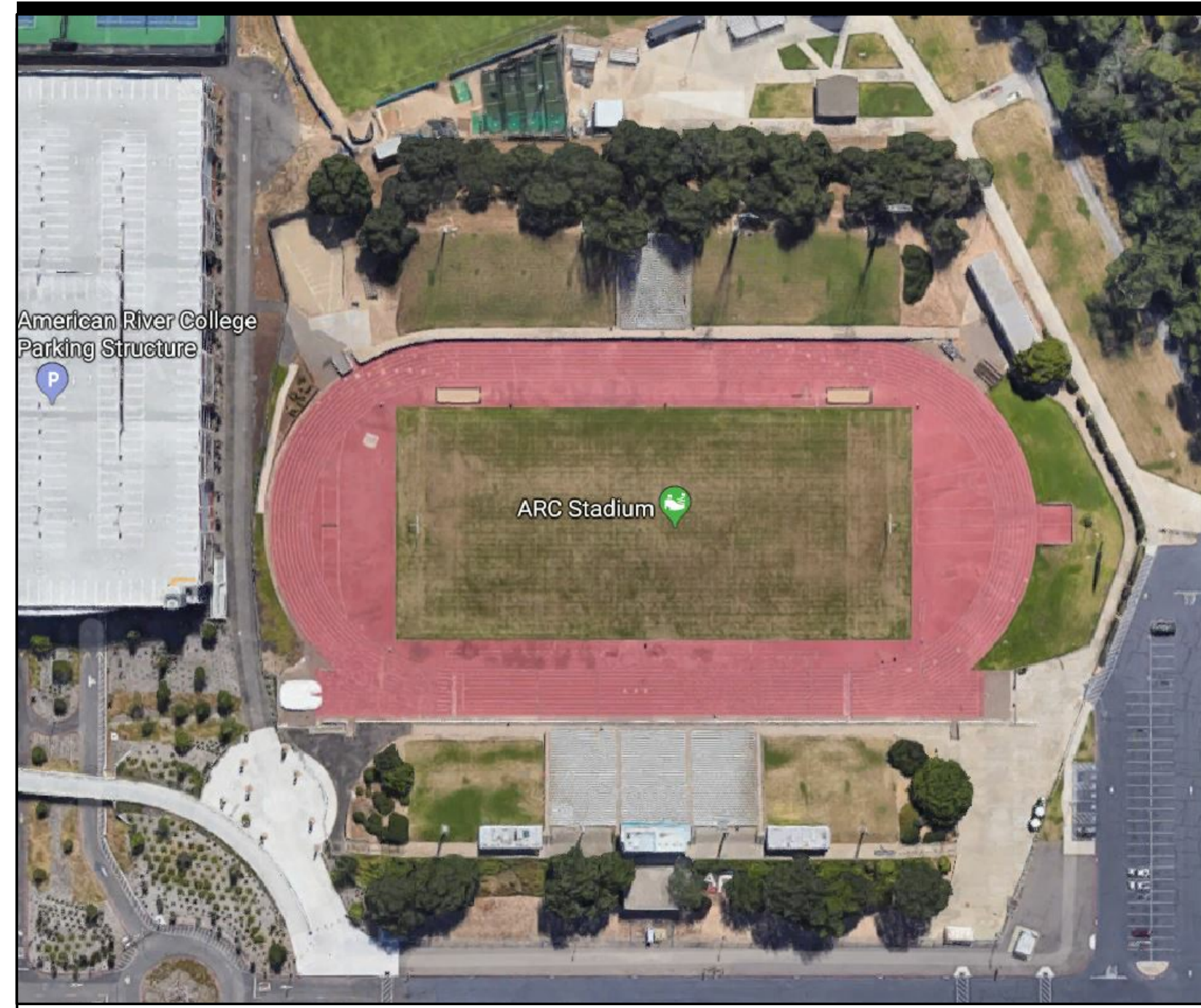
KEY PLAN



AMERICAN RIVER JR. COLLEGE
4700 COLLEGE OAK DR,
SACRAMENTO, CA 95841

TITLE SHEET, GENERAL NOTES AND PROJECT INFORMATION

Date 01/09/2020	Drawing Number
Scale AS NOTED	A0.0
Project Number 18042	



AERIAL SITE PLAN

PROJECT SCOPE OF WORK

REPLACE EXISTING STADIUM LIGHT FIXTURES ON EIGHT EXISTING LIGHT POLES WITH NEW LIGHTING FIXTURES.

SCOPE OF WORK FOR THE REMOVAL AND INSTALLATION OF NEW LIGHTING FIXTURES IS SHOWN ON MUSCO LIGHTING DRAWINGS.

SCOPE OF ELECTRICAL WORK AND ELECTRICAL PANELS IS SHOWN AT ELECTRICAL DRAWINGS.

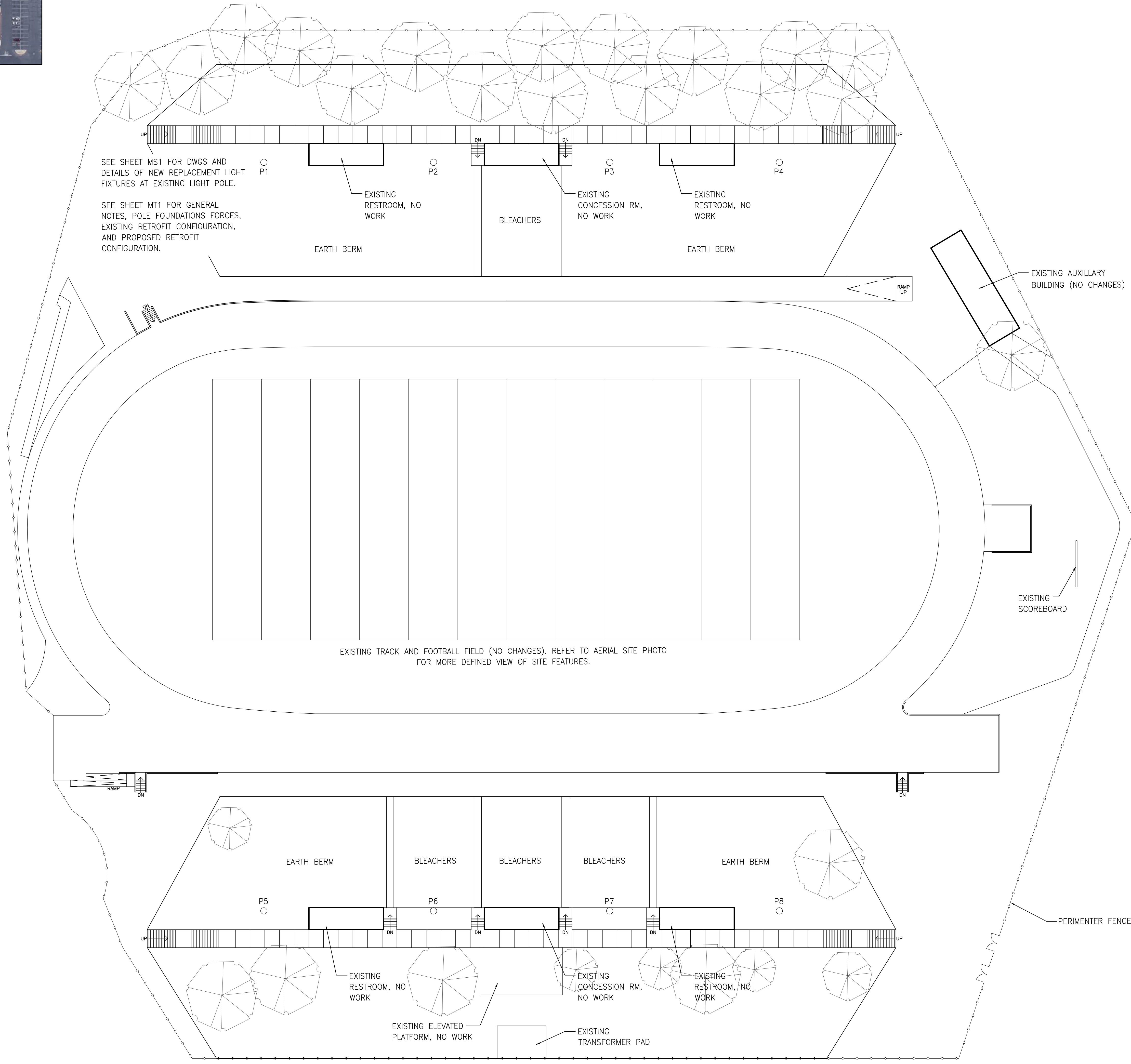
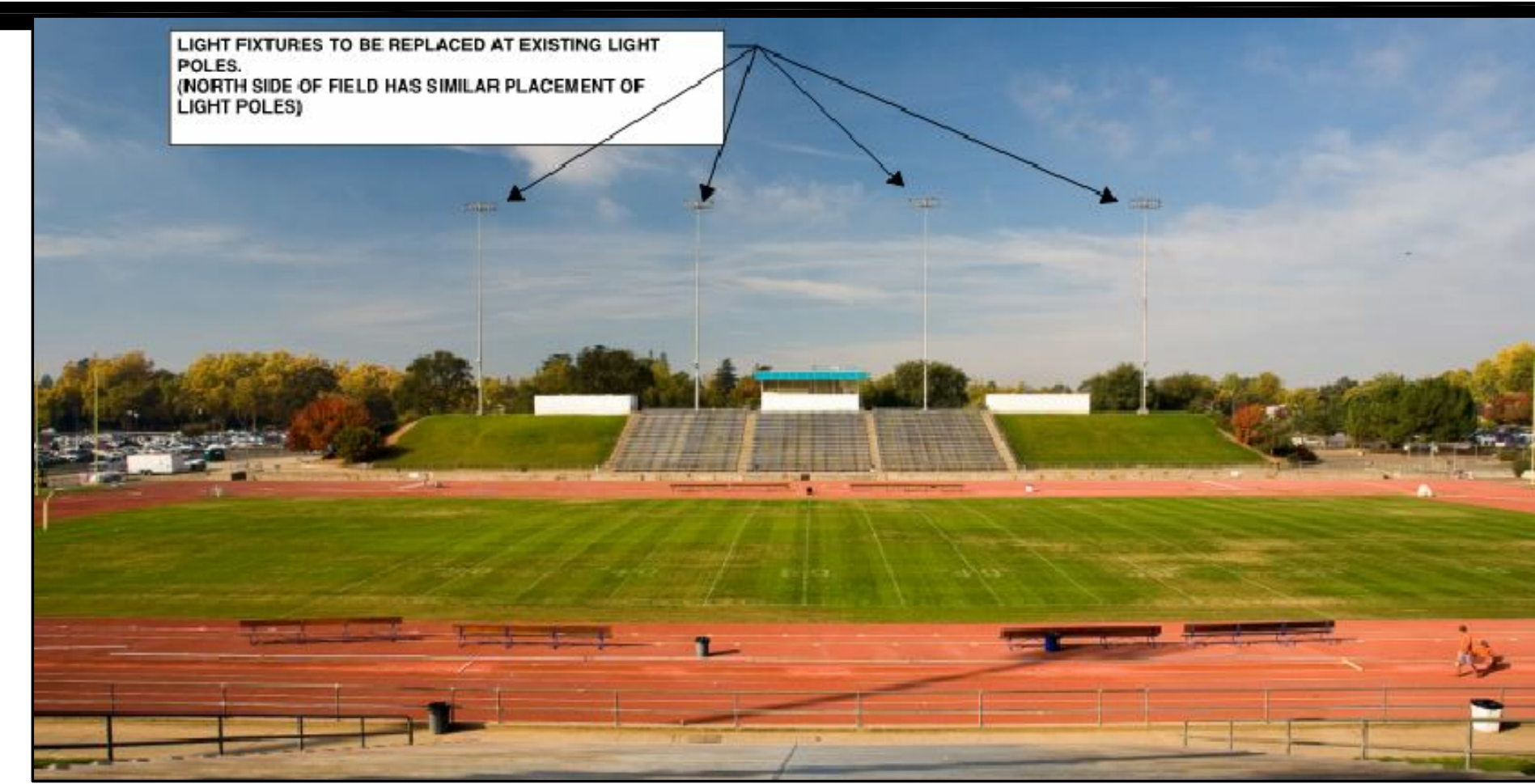
ANY STRUCTURAL WORK REQUIRED AT EXISTING LIGHT POLES IS SHOWN ON DETAILS OF ELECTRICAL POLES, SEE ELECTRICAL DRAWINGS.

SCOPE OF WORK AT EXISTING LIGHT POLES IS RESTRICTED TO:

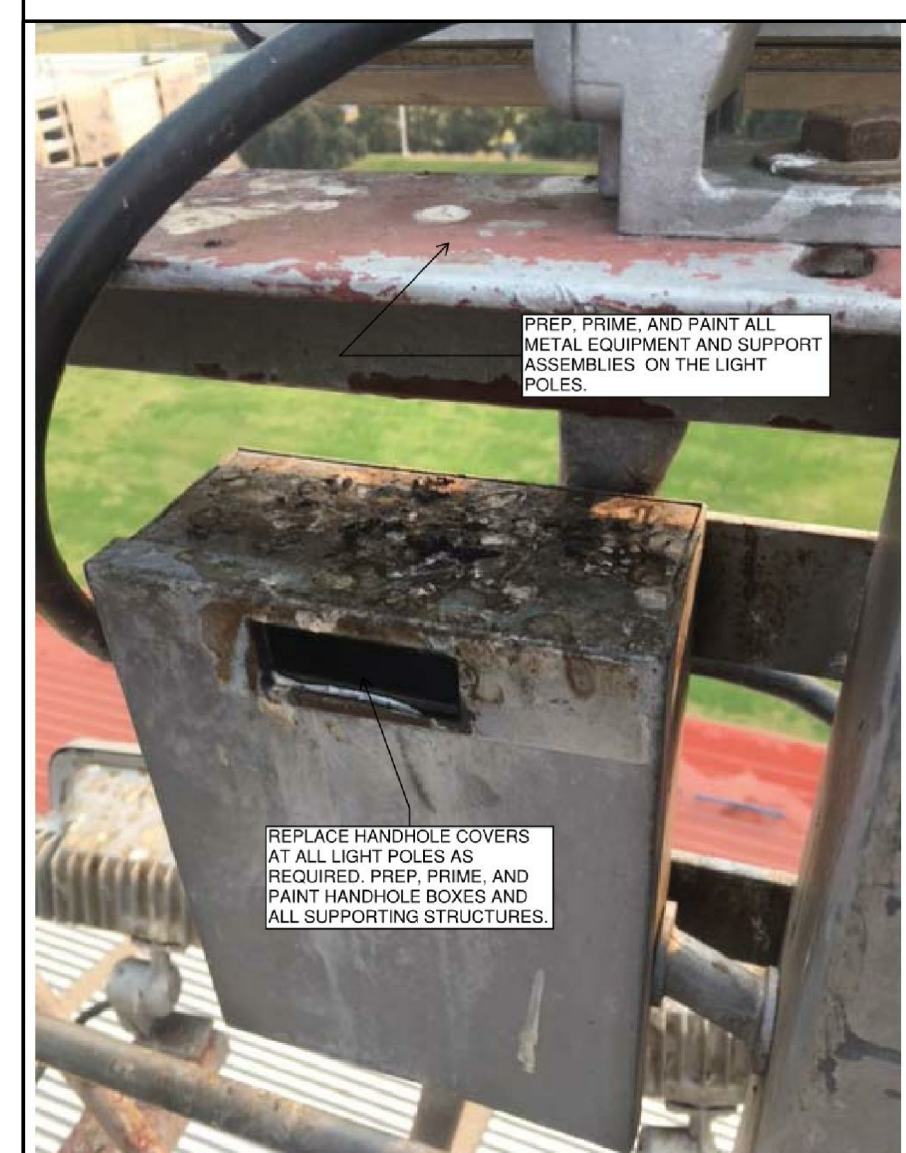
- AS REQUIRED.
- PREP, PRIME, AND PAINTING OF ALL SURFACES ON THE LIGHTING POLES.
- ADD ADDITIONAL FRAME AND MESHED STEEL PANELS THAT SERVE AS WALKING SURFACES AT THE TOP OF THE POLES TO MATCH EXISTING LANDINGS AT AREAS THAT HAVE BECOME RUSTED AND UNSERVICEABLE.

DSA HAS CONFIRMED THAT ONLY STRUCTURAL REVIEW OF THE PLAN IS REQUIRED. NO FLS OR ADA REVIEW IS REQUIRED FOR THE SCOPE OF WORK SHOWN ON THE DRAWING OF THIS SUBMITTAL. NO WORK IS TO BE DONE TO THE EXISTING WALKWAYS, RESTROOMS, OR ANY OTHER ADA RELATED ITEM ON THIS PROJECT.

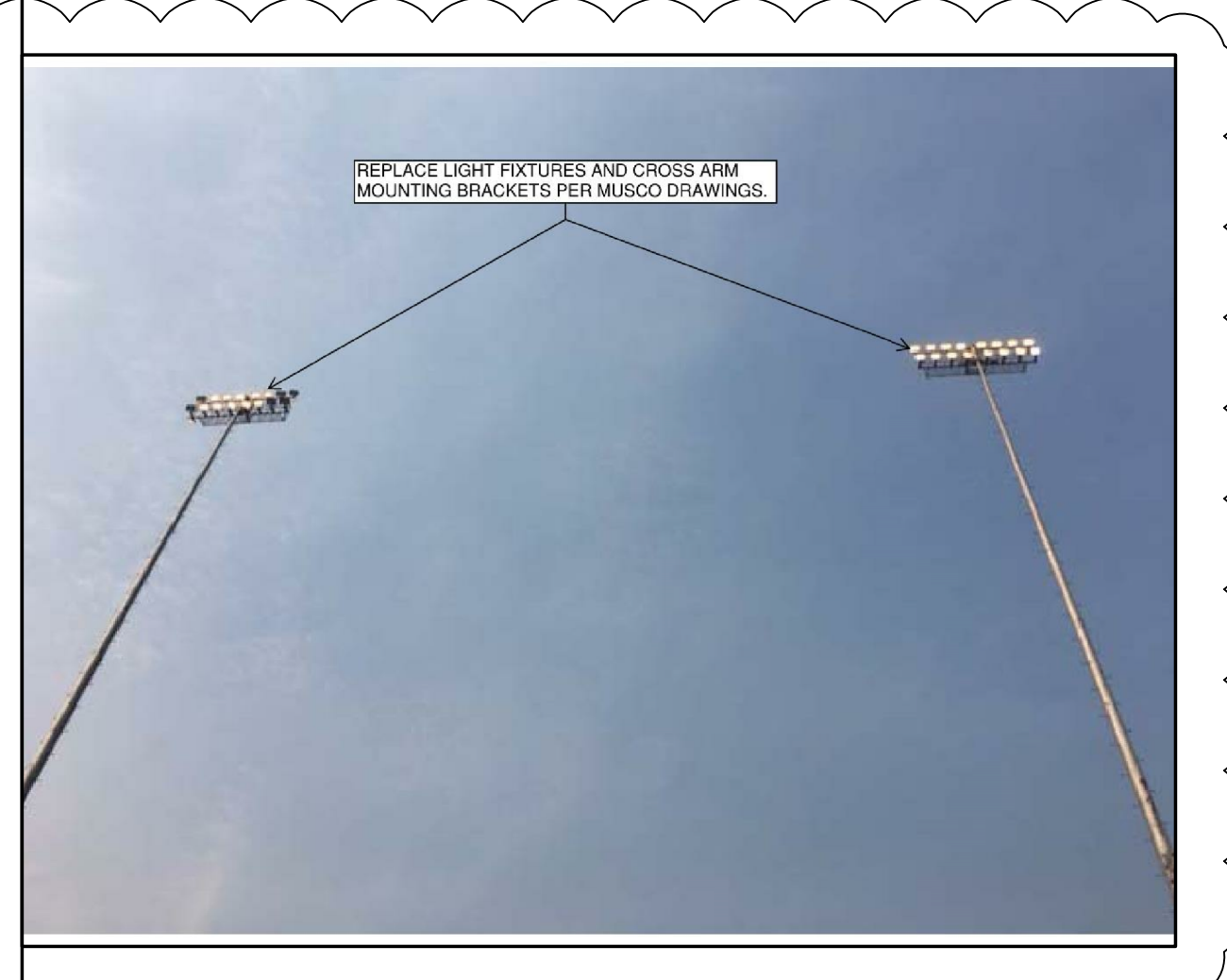
SINCE THERE ARE NO CHANGES TO ANYTHING BUT THE LIGHT FIXTURES AT THE EXISTING LIGHT POLES. PRIOR APPROVAL BY THE FIRE MARSHALL SHALL REMAIN IN EFFECT.



SUPPORT PLATFORM AND HAND HOLE BOXES AT TOP OF LIGHT POLES



EXISTING HAND HOLE BOXES SHOWING MISSING COVERS THAT ARE TO BE REPLACED



REPLACE LIGHT FIXTURES AND CROSS ARM MOUNTING BRACKETS PER MUSCO DRAWINGS

SCALE 1" = 30'-0"

OVERALL SITE PLAN

KEYNOTES

DSA STAMP



BCA Architects
111 North Market St. Suite 710
San Jose, California 95113
[T] 408.588.3800
www.BCAarchitects.com

ARCHITECT ENGINEER

LICENSED ARCHITECT
BRANK P. WITTMER
No. C 93346
Exp. 12/31/23
STATE OF CALIFORNIA

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NO.	REMARKS	DATE
1	ADDENDUM 2	03/02/2020

REVISION HISTORY

NO.	REMARKS	DATE

DRAWING STATUS

- SCHEMATIC DESIGN
- DESIGN DEVELOPMENT
- DSA PLAN CHECK
- DSA BACK CHECK
- BIDDING 01/15/2020
- CONSTRUCTION

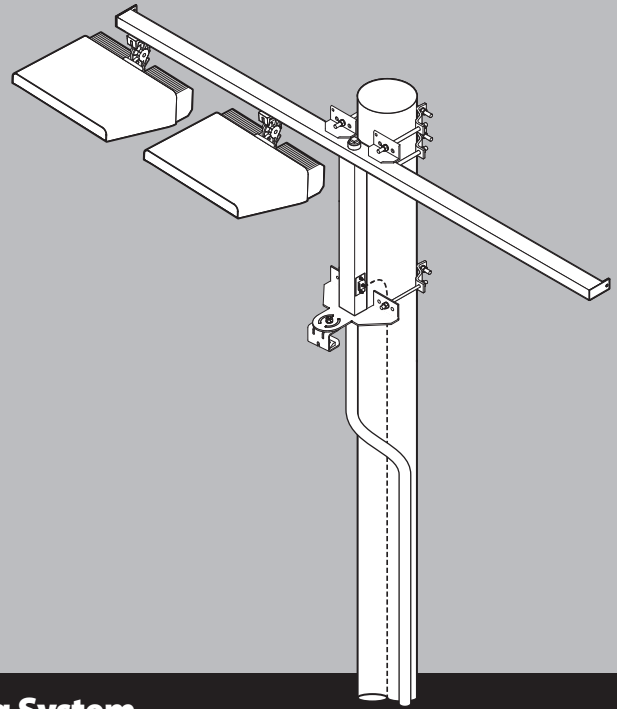
KEY PLAN

AMERICAN RIVER JR. COLLEGE
4700 COLLEGE OAK DR,
SACRAMENTO, CA 95841

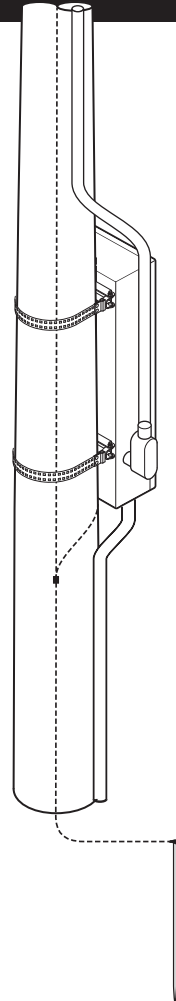
OVERALL SITE PLAN

Date 01/09/2020 Drawing Number
Scale AS NOTED A0.1
Project Number 18042

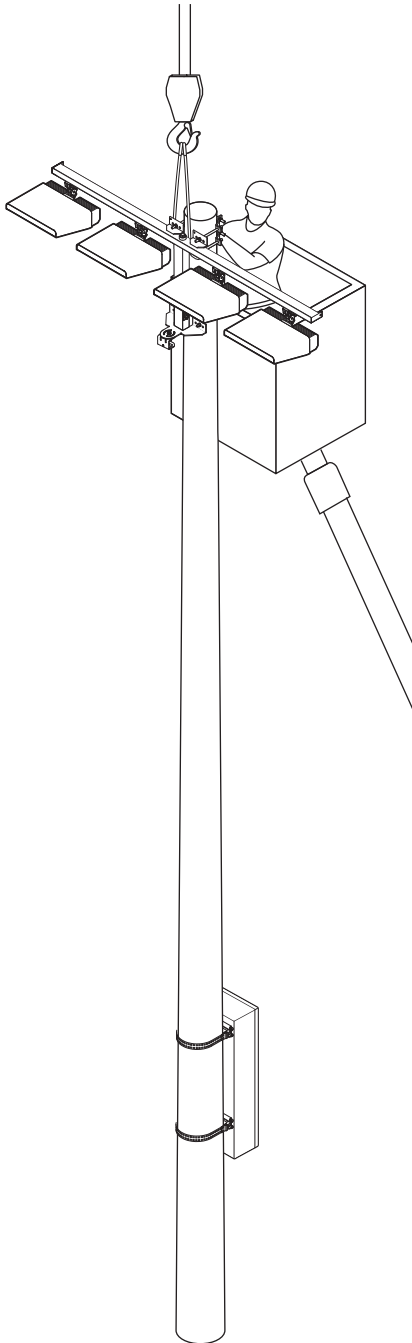
Diode Light Source—LED



Installation Instructions: **SportsCluster®** Lighting System



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Auxiliary Bracket	D

Before You Begin

Safety Information

Electrical Safety Guidelines

Use extreme caution near overhead power lines or underground utilities. Observe all safety precautions for high-voltage equipment. Only qualified personnel may perform wiring. Follow all applicable building and electrical codes.

General Safety Guidelines

Follow proper safety procedures during installation. Installers must wear the appropriate personal protective equipment including:

- Hard hat
- Steel-toed shoes
- Fall protection
- Leather work gloves
- Eye protection

Locate all underground utilities prior to digging.

All tools and equipment supplied by Musco are designed for specific use as described in these instructions. Do not use them in any other manner. Do not alter structural members in any way, such as bend, weld, or drill, without prior authorization from Musco.

Luminaires generate up to 2.6 mA per driver on the equipment grounding conductor and are designed to meet leakage current requirements per IEC 61347-1.

The luminaires should be positioned so that prolonged staring into the luminaire at a distance closer than 12–37 m (65–121 ft) is not expected, per IEC/TR 62778. See table.

Luminaire	Distance
TLC-LED-400	24 m (79 ft)
TLC-BT-575	20 m (65 ft)
TLC-LED-600	24 m (79 ft)
TLC-LED-900	24 m (79 ft)
TLC-LED-900NB	no minimum
TLC-LED-1150	12 m (40 ft)
TLC-LED-1200	37 m (121 ft)
TLC-LED-1400NB	37 m (121 ft)
TLC-LED-1500	37 m (121 ft)

About These Instructions

These instructions outline basic assembly procedures for the SportsCluster lighting system. They are not a comprehensive guide to all possible situations. Direct any questions to +1-800-825-6020 or call your local Musco representative.

Throughout this manual note these important symbols:

-  The safety alert symbol alerts you of situations that require care and caution to avoid serious personal injury.
-  The go-to arrow indicates a branch in a procedure for special situations. In case of optional equipment, the instructions may be in another document.
-  The stop and check symbol signals you to stop and verify conditions before proceeding.
-  The tip symbol points out advice that makes installation easier.
-  The contact Musco symbol appears in special situations where you may need to contact Musco for further information.
-  The recycle symbol identifies recyclable materials.

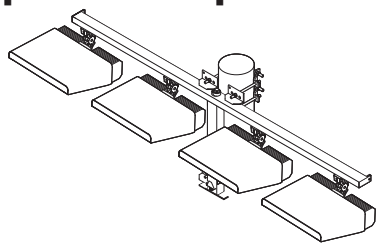
Installation Instructions: SportsCluster® Lighting System

Before You Begin

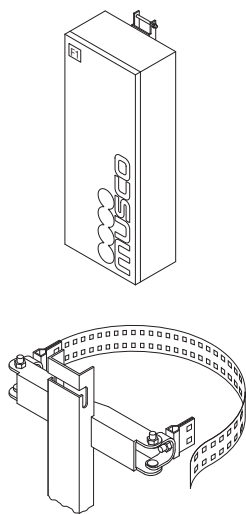
Standard Tools/Supplies

Contractor/installer supplies	Function	Page
Hammer, pry-bar, banding cutters	Unloading equipment	5
Measuring tape, 25 ft (7.5 m)	Identifying brackets and straps, locating components at proper height on pole	7, 8, 9, 16
Torque wrench	Torquing pole clamping hardware	10
Sockets: 3/8, 7/16, 1/2, 9/16 in standard and deepwell	Torquing pole clamping hardware and luminaire retaining cable stops	10, 14
Screwdrivers, standard and Phillips	Landing power, tightening enclosure hub screws	11, 31, 32
Marker	Marking hanger bracket mounting locations on pole	9
Paint, chalk, flags	Marking aiming points on field	21
Measuring tape, 300 ft (90 m)	Locating aiming points on field	21
1 1/8 in open-end torque wrench or torque wrench with 1 1/8 in crow's-foot	Torquing pole clamping hardware, torque nuts	22, 25
1 1/8 in open-end wrench	Tightening pole clamping hardware	17–20, 22, 25
Stepped drill, hole saw, or die set	Cutting conduit entryways	29
Conduit, fittings, clamps, etc.	Conduit and supplies as needed for wiring routing	29
Electrical fish tape	Pulling conductors	30, 31
Main power disconnect and distribution panels	Power to lighting system	31
Electricians pliers		31
Grounding electrode and driving sleeve*	Pole lightning ground	32, 33
Grounding conductor, AL to CU splice (if required), saddle clamp, bonding jumper, exothermic weld kit*	Pole lightning ground	32, 33
Shovel	Excavating grounding electrode	32, 33
Musco supplies	Function	Page
Snips	Cutting steel strapping	10
1/2, 9/16 in offset combination wrench	Tightening strap hardware	10, 11, 32
7/16 in ratcheting combination wrench	Tightening luminaire captive bolts	14, 31
5 mm hex key	Landing primary feed wires on 125 A disconnect switch	31
3/16 in hex key	Ground bar	31, 32
5/16 in hex key	Grounding lug	30, 33
Wago brand LEVER-NUTS® wire connector	Connecting pole harness	30
Equipment needed	Function	Page
Load-rated crane and rigging	Unloading, lifting crossarm assembly	5, 22, 24
Aerial work platform	Attaching crossarm assembly to pole and other aerial work	22, 24
10 ft (3 m) stepladder or small line truck	Attaching enclosures and enclosure wiring	9, 27–33

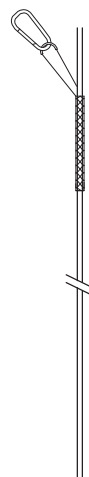
Components of SportsCluster Lighting System



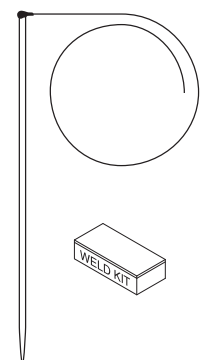
Poletop luminaire assembly and mounting hardware



Electrical components enclosure and mounting hardware



Wire harness (contractor supplied)*



Lightning ground equipment (contractor supplied)*

* May be supplied by Musco.

Before You Begin

Unloading Instructions

A typical shipment includes electrical components enclosures, poletop luminaire assemblies, luminaire cartons, attachment hardware, and may include wire harnesses. Unload and uncrate equipment. Stage for assembly placing all matched components and hardware at the proper pole location as noted on *Field Aiming Diagram*.

Tools/Materials Needed

- Crane or forklift
- Hammer
- Pry bar
- Banding cutters

As you unload, do the following:

- Check bill of lading to verify you have all materials.
- Inspect all materials for shipping damage.
- Store all lighting equipment in a dry location or cover with tarp until ready to install.



If you need additional information, contact your local Musco representative.



Please recycle.

Luminaires, hardware, and other components are shipped in recyclable cardboard packaging.

Electrical System Requirements

While portions of the SportsCluster® lighting system can be assembled by non-professionals, a qualified electrician must handle the electrical supply installation and hook-up in accordance with national, state, and local codes. Your electrician should review this information before installation begins.

The electrician is generally required to provide these items:

- Service entrance
- Main power disconnect and distribution panel(s)
- Supply wiring and insulated equipment grounding conductors
- Lightning grounding conductor and electrode, one per pole

Ensure supply wiring is rated for 90° C. Review the label inside the electrical components enclosure door and *Control System Summary* for voltage and phase requirements. All entrance hubs must be rated NEMA 3R (IP54) or better.

Other features that may affect the wiring supply requirements for this project include:

- Lighting contactor cabinets — refer to the supplemental installation instructions and the *Musco Control System Summary*.
- Control-Link® control system — refer to the supplemental installation instructions and *Musco Control System Summary*.

Always dispose of electronic waste in accordance with all applicable laws and regulations.

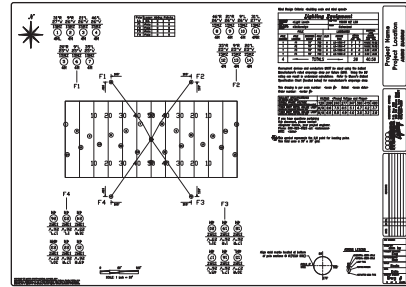
Before You Begin

Documents We Provide

Field Aiming Diagram

The *Field Aiming Diagram* is your map for locating all poles on your project. It gives this information:

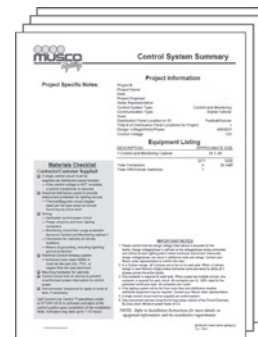
- Pole IDs, locations, and heights
- Luminaire IDs
- Field origin for coordinate measuring
- Aiming points for each pole
- Poletop luminaire assembly mounting height
- Full load current for each luminaire



Control System Summary

Projects with a control system include a *Control System Summary*. It gives this information:

- Control system diagram and details
- Contactors and cabinets
- Lighting circuits
- Voltage, phase, and frequency
- Full load current for each circuit



Electrical Components Enclosure

Hardware Sorting

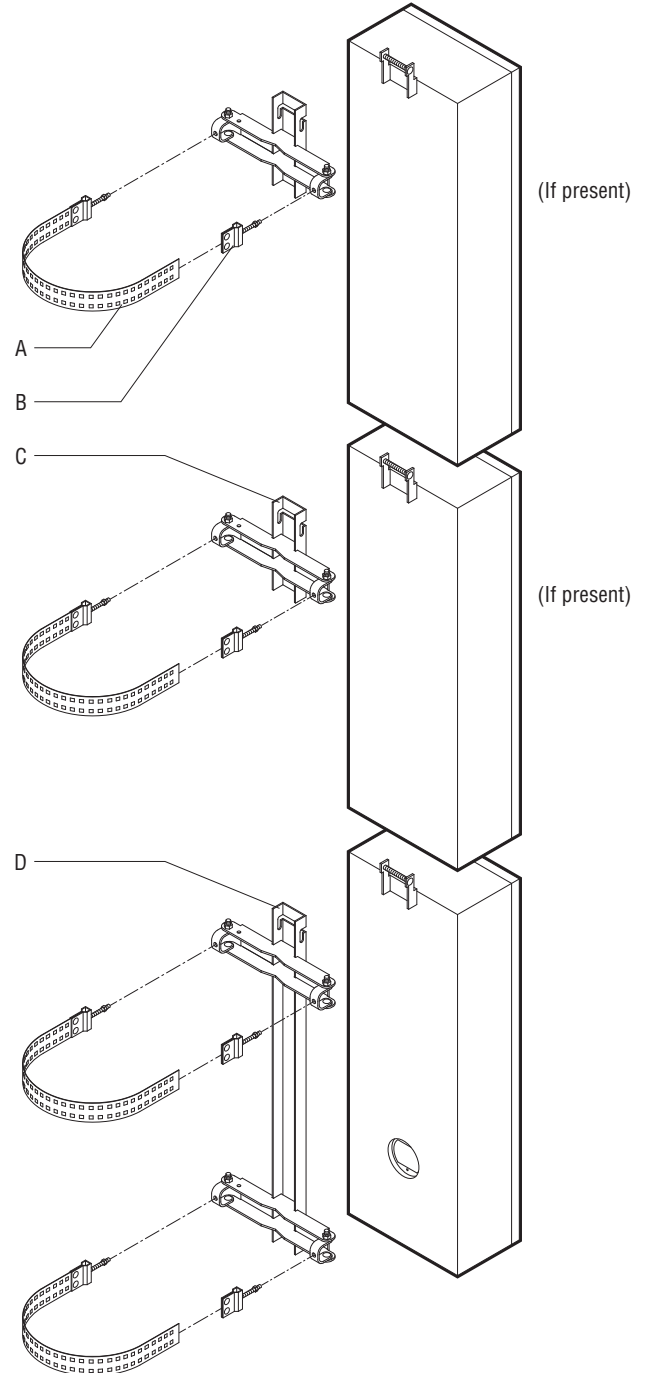
Electrical components enclosure hardware will require sorting before assembly.

Round Poles

Item	Description	Quantity (per stack)	Note
A	Strap assembly	2–4	See strap selection table.
B	Strap bracket	2–4	
C	Hanger bracket (short)	0–2	
D	Hanger bracket (tall)	1	Select hanger bracket approximately 3 in (76 mm) shorter than enclosure height. Hanger bracket arm width is 14 in (356 mm).

Strap Selection

Diameter	Strap Length
0–19 in (0–483 mm)	45 in (1143 mm)
19.1–24 in (483–610 mm)	60 in (1524 mm)
24.1–30 in (610–762 mm)	78 in (1981 mm)
30.1–36 in (762–914 mm)	96 in (2438 mm)
36.1–42 in (914–1067 mm)	114 in (2896 mm)
42.1–48 in (1067–1219 mm)	132 in (3353 mm)



Installation Instructions: SportsCluster® Lighting System

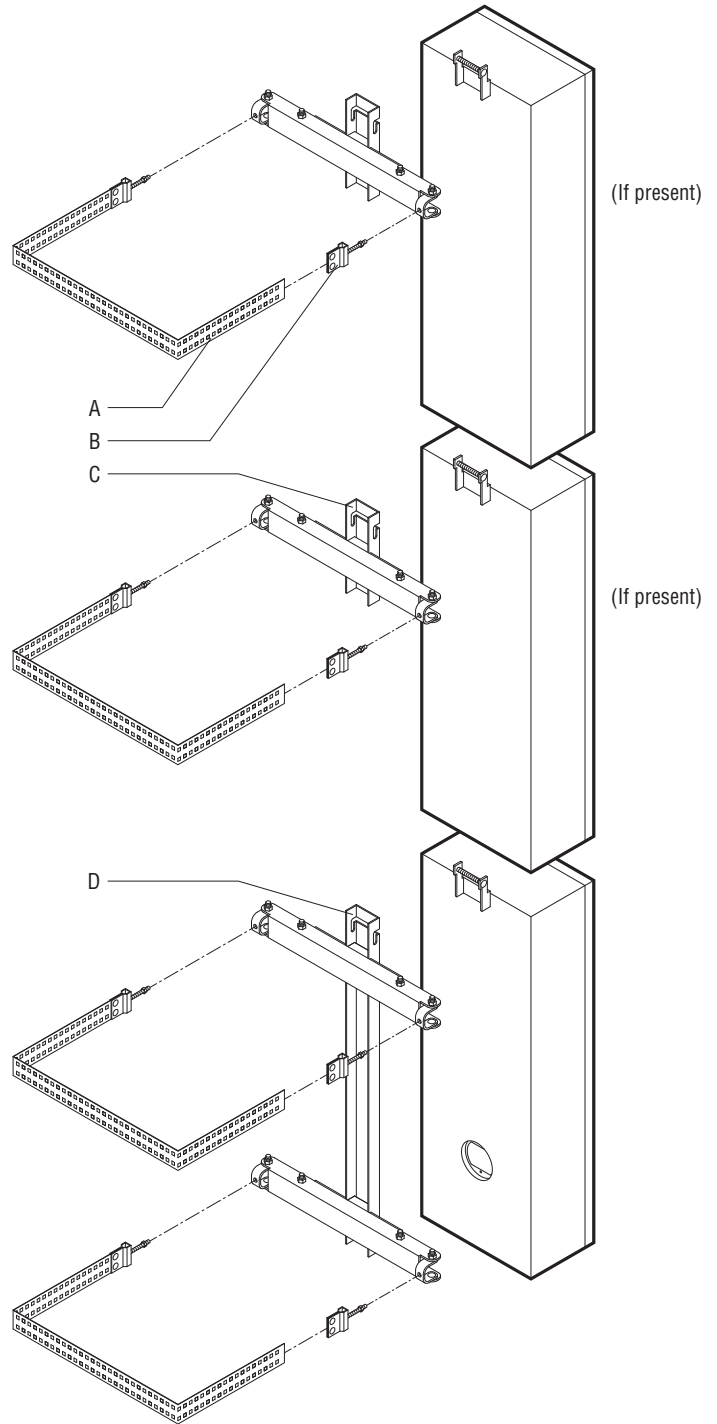
Electrical Components Enclosure

Square Poles

Item	Description	Quantity (per stack)	Note
A	Strap assembly	2-4	See strap and bracket selection table.
B	Strap bracket	2-4	
C	Hanger Bracket (short)	0-2	See strap and bracket selection table.
D	Hanger bracket (tall)	1	Select hanger bracket approximately 3 in (76 mm) shorter than the enclosure height. See strap and bracket selection table.

Strap and Bracket Selection

Pole Width	Strap Length	Bracket Arm Width
0 – 11 in (0 – 280 mm)	45 in (1143 mm)	14 in (356 mm)
11.1 – 16 in (280 – 406 mm)	45 in (1143 mm)	18.5 in (470 mm)
16.1 – 20 in (406 – 508 mm)	60 in (1524 mm)	22.5 in (572 mm)
20.1 – 24 in (508 – 610 mm)	78 in (1981 mm)	26.5 in (673 mm)
24.1 – 28 in (610 – 711 mm)	96 in (2438 mm)	30.5 in (775 mm)



Electrical Components Enclosure

Overview

The electrical components enclosure is factory-wired and tested. It contains essential electrical components of the lighting system in an accessible location. It is ideally mounted on the pole about 10 ft (3 m) above grade to discourage tampering. You may mount it in another accessible location, however limitations on conductor length and size apply.

Tools/Materials Needed

Musco Supplied

- ½ and ⅝ in offset combination wrenches
- Snips
- Field Aiming Diagram*

Contractor Supplied

- Torque wrench with ½ and ⅝ in sockets
- Large Phillips-head screwdriver
- Measuring tape
- Marker
- 10 ft (3 m) stepladder or small line truck

Installation Procedure



Verify pole ID on electrical components enclosure matches pole location on *Field Aiming Diagram*. If assembling pole on ground, determine final grade level on pole for proper measurement.

1

Using the enclosure stack ID label located on top of the enclosures, determine quantity and orientation of enclosure hanger brackets. An orientation of "0°" indicates the enclosures face the field. See *Field Aiming Diagram* for more details.

2

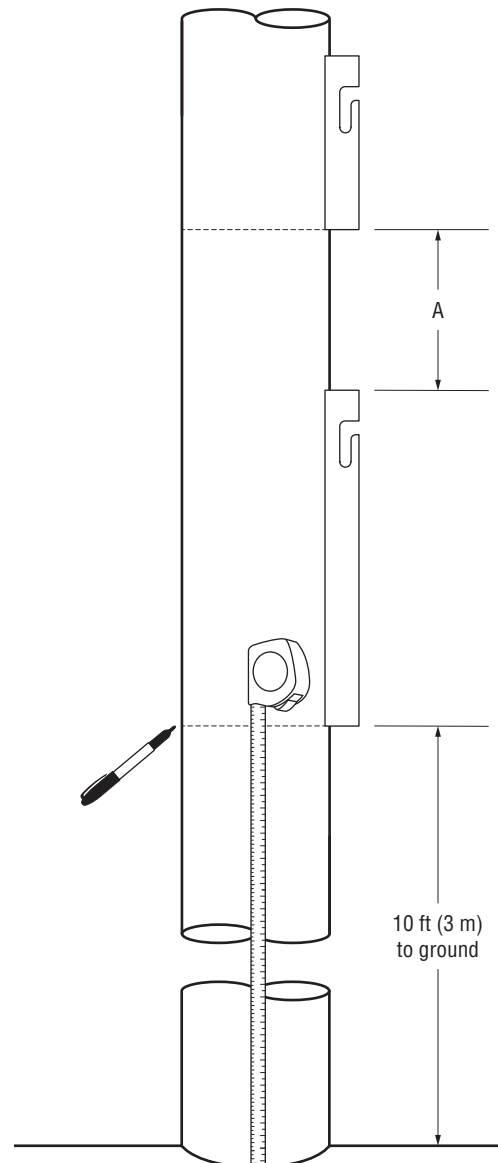
Measure and mark hanger bracket locations on pole.

Bracket Positioning

Stacker (Upper) Box Height	Dimension A
28½ in (724 mm)	19⅞ in (494 mm)
40½ in (1029 mm)	31⅞ in (799 mm)



Dimension A in chart allows for approximately 0.75 in (20 mm) gap between upper and lower enclosures.



Electrical Components Enclosure

3 Cut straps to required length. Pull tight around pole and trim excess within 1 in (25 mm) of strap bracket. Cut across square holes, not between them.

4 Attach hanger brackets to pole. Torque $\frac{5}{16}$ in strap bracket hardware A to 12 ft•lb (16 N•m) using $\frac{1}{2}$ in socket and torque wrench. Torque all $\frac{3}{8}$ in tensioning nuts B to 20 ft•lb (27 N•m) using $\frac{9}{16}$ in socket and torque wrench.



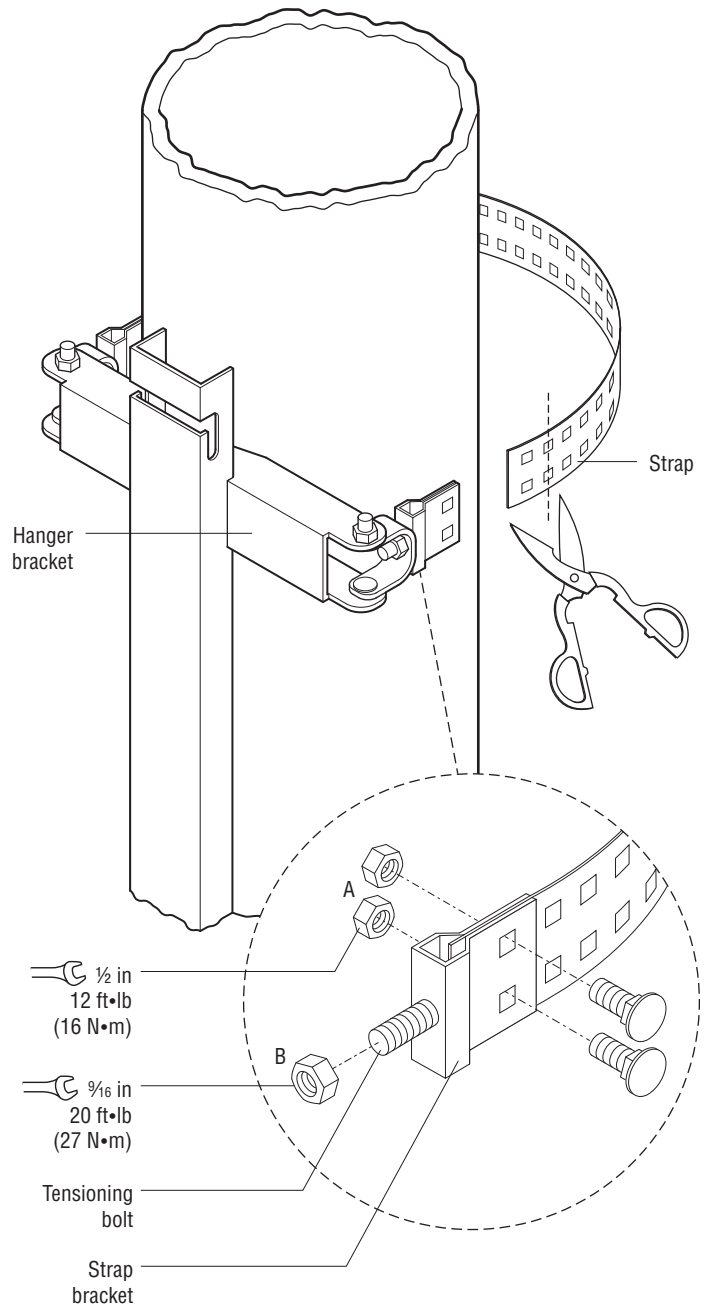
Caution

Falling equipment hazard

Ensure you meet torque values specified on all tensioning hardware.



If tensioning bolt is fully seated and strap is not yet tight, trim strap at next set of holes and repeat step 3.



Electrical Components Enclosure

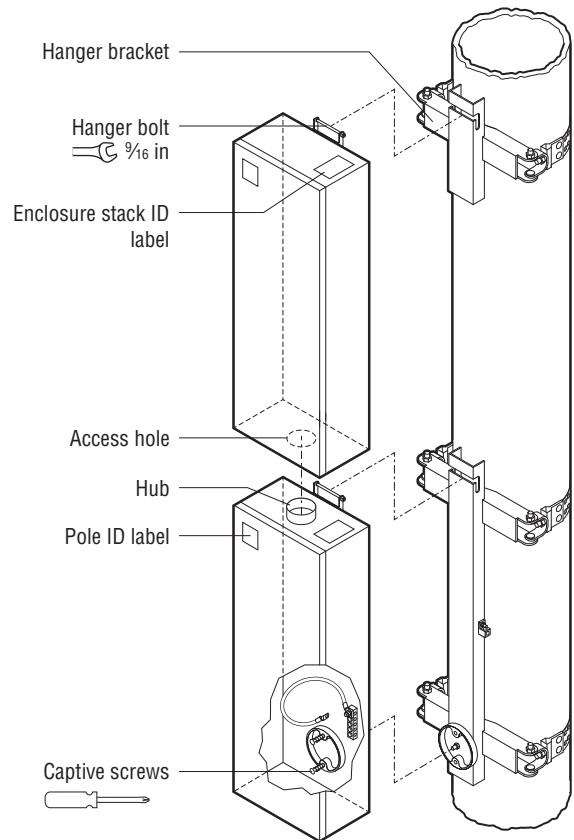
- 5** Mount bottom enclosure on hanger bracket. Tighten captive screws on hub. Tighten hanger bolt using provided $\frac{5}{16}$ in wrench.



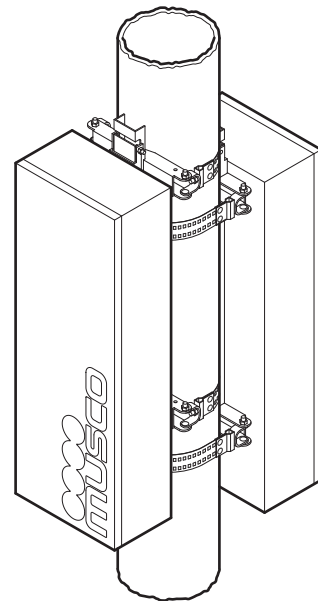
Caution

Electrical components enclosures are heavy
Electrical components enclosure may weigh up to 65 lb (30 kg). Lift carefully with two people to avoid injury.

- 6** Mount middle and/or top enclosures (if present) on hanger brackets. Align hub and drop enclosure onto hanger bracket. Tighten hanger bolt(s) using provided $\frac{5}{16}$ in wrench.



- 7** Repeat steps 1 – 5 for back-to-back or multiple stacks. Offset mounting straps vertically by 3 – 5 in (75 – 125 mm).



Poletop Luminaire Assembly

Overview

The luminaire assembly conveniently allows mounting of luminaires on the pole as a unit. Luminaires are factory built and shipped in individual cartons. Luminaires are factory aimed and ready for installation to poletop luminaire assembly. Do not disassemble.

Tools/Materials Needed

Musco Supplied

- 7/16 in ratcheting combination wrench
- Torque wrench with 7/16 in socket

*Note: Leave luminaires in box until ready to assemble.
Keep protective cover on luminaire until ready to attach to crossarm.
Do not leave luminaires unassembled from crossarm in wet conditions.*

Assembly Procedure

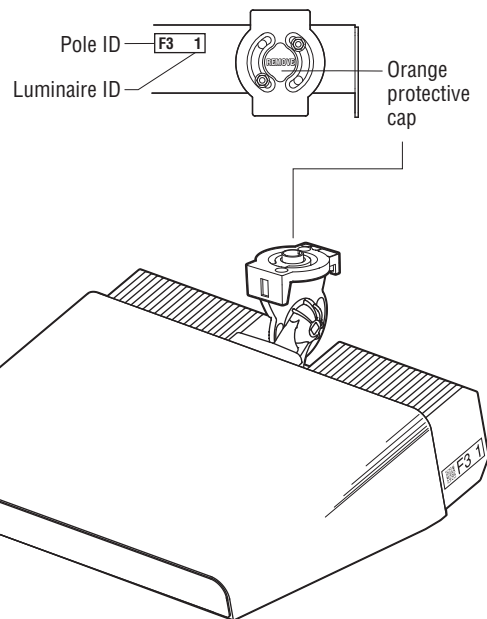


Verify pole ID on luminaire cartons matches pole and location on *Field Aiming Diagram*.

1

Remove orange protective caps from luminaire knuckle and mounting plate; discard.

Note: The luminaire style may vary from what is shown.



Poletop Luminaire Assembly

- Match luminaire ID to crossarm and install luminaire onto mounting plate. Insert knuckle into mounting plate and pivot into position.

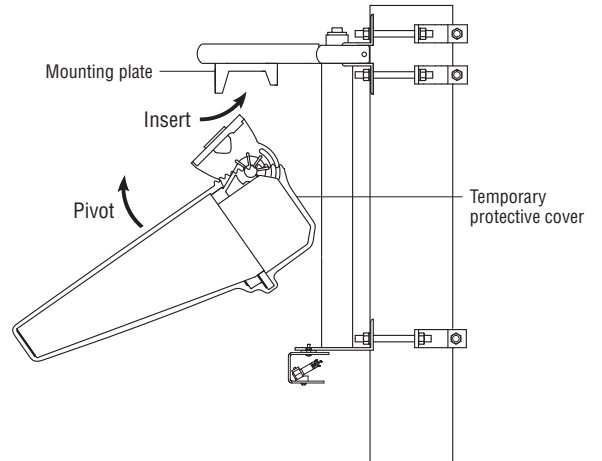
Note: The luminaire style may vary from what is shown.

Luminaire	Weight
TLC-LED-400	40 lb (18 kg)
TLC-BT-575	34 lb (15 kg)
TLC-LED-600	40 lb (18 kg)
TLC-LED-900	40 lb (18 kg)
TLC-LED-900NB	114 lb (52 kg)
TLC-LED-1150	80 lb (36 kg)
TLC-LED-1200	45 lb (20 kg)
TLC-LED-1400NB	106 lb (48 kg)
TLC-LED-1500	67 lb (30 kg)

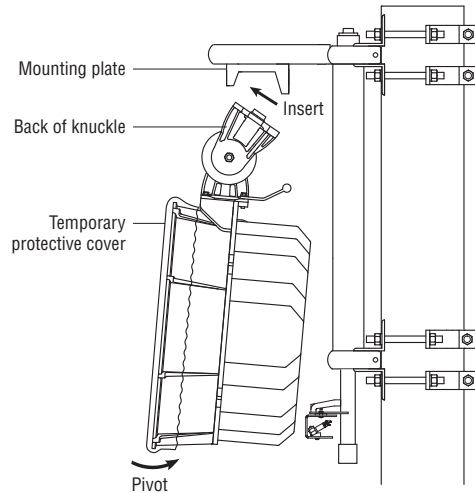


Caution

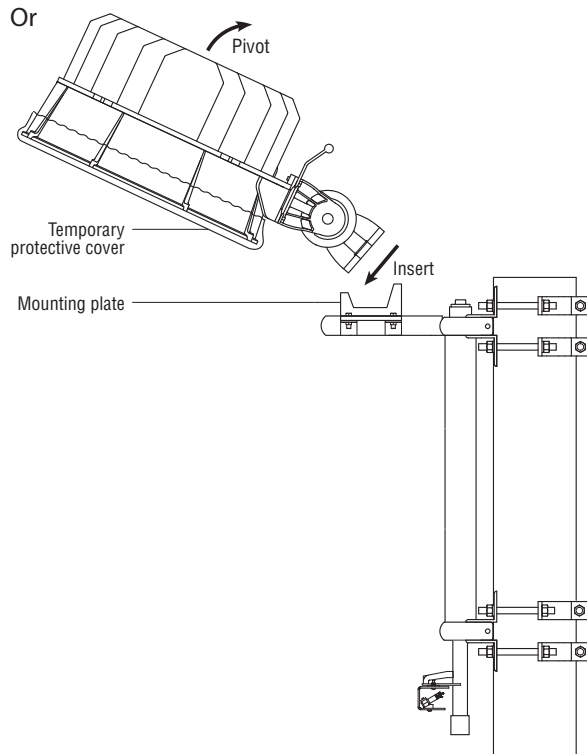
Luminaire may be heavy. Lift carefully with two people to avoid injury.



Or



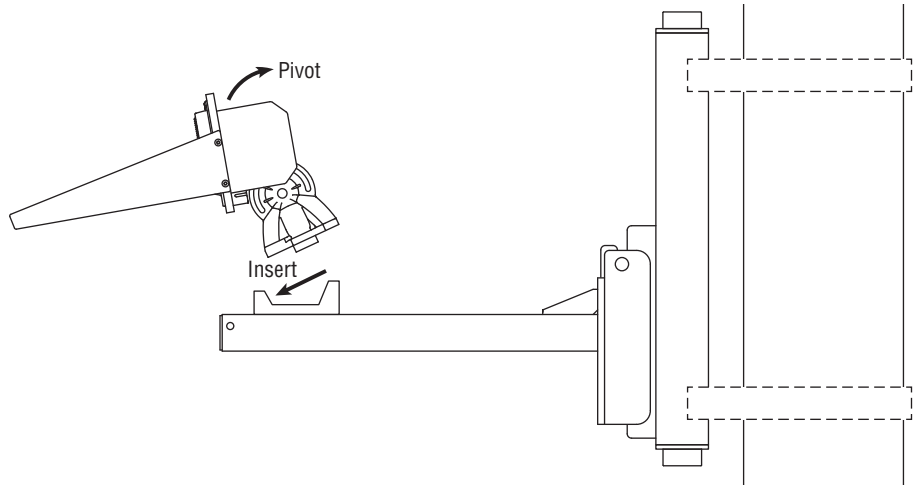
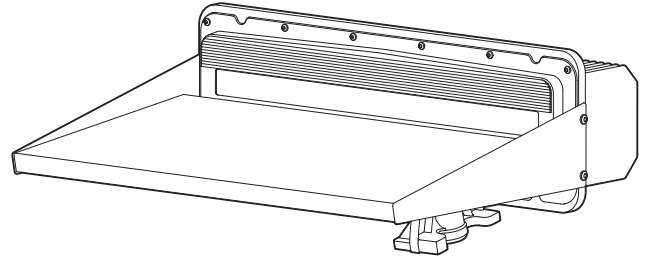
Or



Poletop Luminaire Assembly



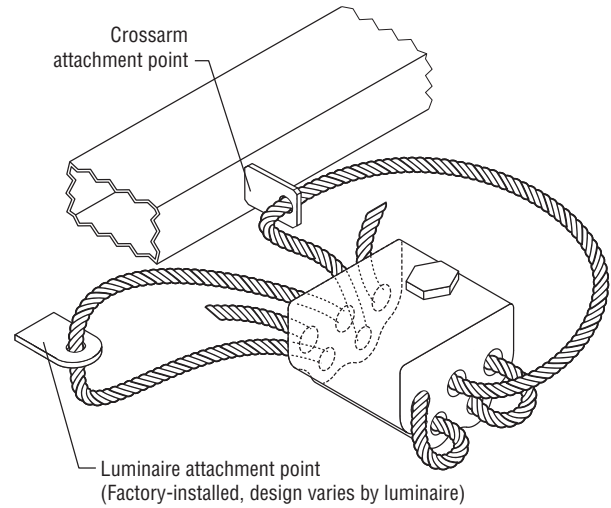
Some luminaires may attach to auxiliary brackets, refer to *Installation Instructions: Auxiliary Bracket*.




Poletop Luminaire Assembly

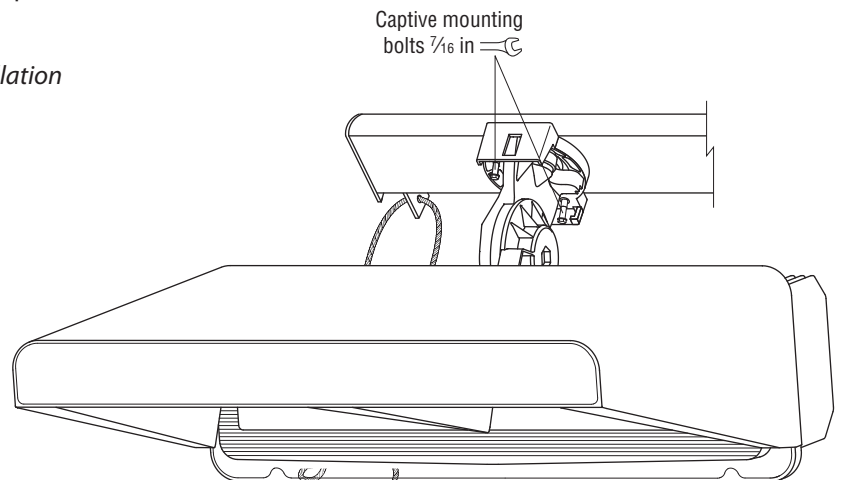
3 Attach luminaire retaining cable (if present). Route luminaire cable through crossarm anchor point, through luminaire block, and back through the block under the set screw. Luminaire attachment point will vary per luminaire design.

4 Using $\frac{7}{16}$ in socket and torque wrench, tighten cable set screw to 60 in·lb (6.8 N·m)



5 Tighten captive mounting bolts. Torque must not exceed 20 ft·lb (27 N·m). To avoid overtightening, use provided $\frac{7}{16}$ in combination wrench.

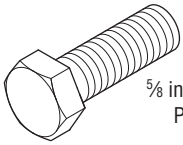
 If pole has auxiliary equipment, refer to *Installation Instructions: Auxiliary Bracket*.



Setting Poletop Luminaire Assembly

Hardware Sorting and Preassembly

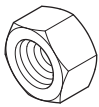
Determine necessary pole clamping hardware using illustrations provided. Partially preassemble pole clamping hardware for faster, easier aerial work. Match description and item letter below to bulk-shipped parts.



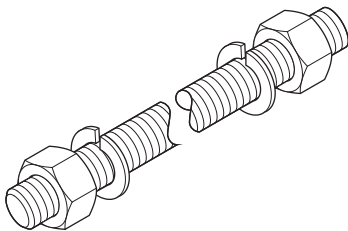
Item A
5/8 in x 1 1/4 in (44 mm) hex bolt
Part Number: PC-139-1



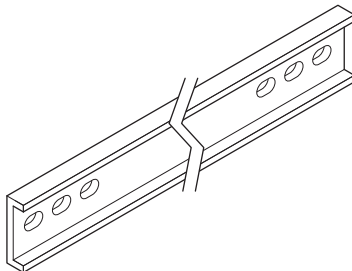
Item B
5/8 in lock washer
Part Number: PC-141-1



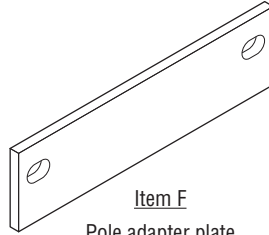
Item C
5/8 in hex nut
(standard)
Part Number: PC-140-1



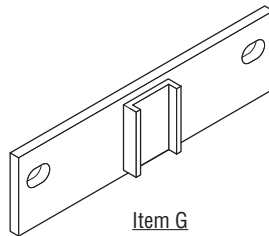
5/8 in threaded rod with nuts and washers		
Item	Length	Part Number
D1	9 1/2 in (241 mm)	SCR-1571-9-5
D2	12 in (305 mm)	SCR-1571-12
D3	14 in (356 mm)	SCR-1571-14
D4	23 1/2 in (597 mm)	SCR-1571-23-5
D5	29 1/2 in (749 mm)	SCR-1571-29-5
D6	35 1/2 in (902 mm)	SCR-1571-35-5
D7	41 1/2 in (1054 mm)	SCR-1571-41-5



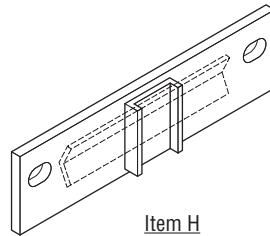
3 in channel		
Item	Length	Part Number
E1	15 1/2 in (394 mm)	SCR-1501-1
E2	23 1/2 in (597 mm)	SCR-1500-1
E3	28 1/2 in (724 mm)	SCR-1502-1
E4	34 1/2 in (876 mm)	SCR-1504-1
E5	41 in (1041 mm)	SCR-1506-1



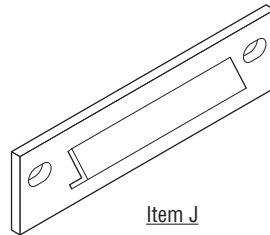
Item F
Pole adapter plate
3/8 in x 3 in (76 mm) x 11 1/4 in (286 mm)
Part Number: SCR-1119-1



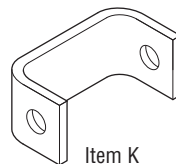
Item G
Pole adapter plate with channel
3/8 in x 3 in (76 mm) x 11 1/4 in (286 mm)
Part Number: PC-143



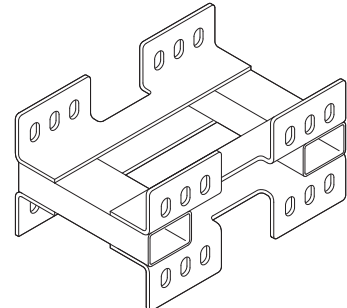
Item H
Pole adapter plate with channel and brace
3/8 in x 3 in (76 mm) x 11 1/4 in (286 mm)
Part Number: PC-142



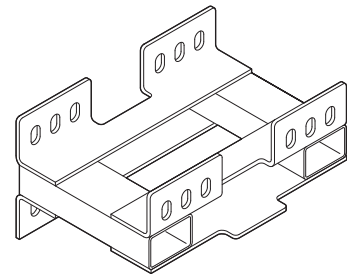
Item J
Pole adapter plate with brace
3/8 in x 3 in (76 mm) x 11 1/4 in (286 mm)
Part Number: SCR-1121-1



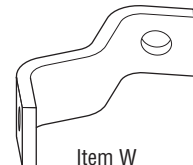
Item K
C-shaped bracket
1 1/4 in (44 mm) wide
Part Number: SCR-1120-1



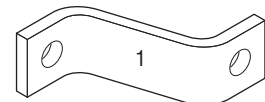
Item L1
Crossarm standoff bracket
Part Number: SCR-1163-3 or -4



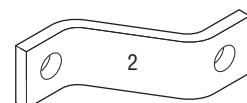
Item L2
Crossarm standoff bracket
Part Number: SCR-1163-5 or -6



Item W
W-shaped bracket
1 1/4 in (44 mm) wide
Part Number: PC-135



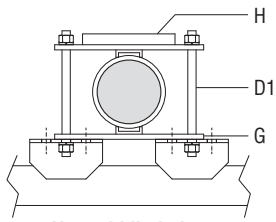
Item Z1
Z-shaped bracket, type 1
steep angle 1 1/4 in (44 mm) wide
Part Number: PC-210



Item Z2
Z-shaped bracket, type 2
shallow angle 1 1/4 in (44 mm) wide
Part Number: SCR-1118-1

Setting Poletop Luminaire Assembly

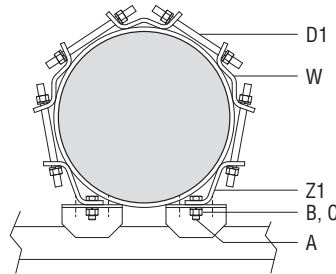
Round poles – front side only



Use middle holes

Up to 5.50 in (140 mm) diameter

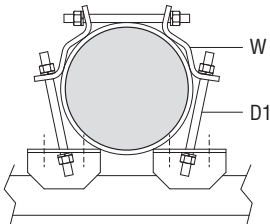
Item	Qty	Description
D1	(2)	5/8 in x 9 1/2 in (241 mm) threaded rod with nuts and washers
G	(1)	Pole adapter plate with channel
H	(1)	Pole adapter plate with channel and brace



Use middle holes

15.01 – 16.50 in (381 – 419 mm) diameter

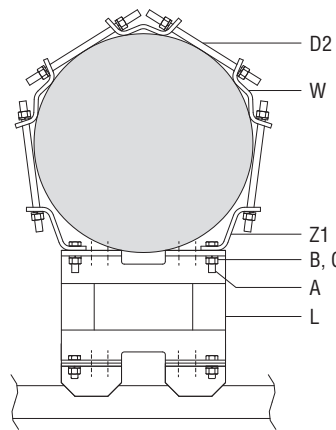
Item	Qty	Description
A	(2)	5/8 in x 1 3/4 in (44 mm) bolt
B	(2)	5/8 in lock washer
C	(2)	5/8 in hex nut
D1	(4)	5/8 in x 9 1/2 in (241 mm) threaded rod with nuts and washers
W	(3)	W-shaped bracket
Z1	(2)	Z-shaped bracket, type 1



Use middle holes

5.51 – 10.00 in (140 – 254 mm) diameter

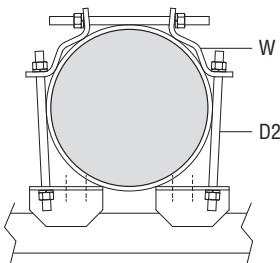
Item	Qty	Description
D1	(3)	5/8 in x 9 1/2 in (241 mm) threaded rod with nuts and washers
W	(2)	W-shaped bracket



Use outer holes

16.51 – 20.00 in (419 – 508 mm) diameter

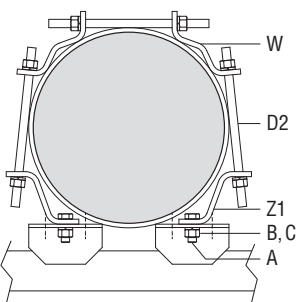
Item	Qty	Description
A	(8)	5/8 in x 1 3/4 in (44 mm) bolt
B	(8)	5/8 in lock washer
C	(8)	5/8 in hex nut
D2	(8)	5/8 in x 12 in (305 mm) threaded rod with nuts and washers
L	(1)	Crossarm standoff bracket
W	(6)	W-shaped bracket
Z1	(4)	Z-shaped bracket, type 1



Use outer holes

10.01 – 12.50 in (254 – 318 mm) diameter

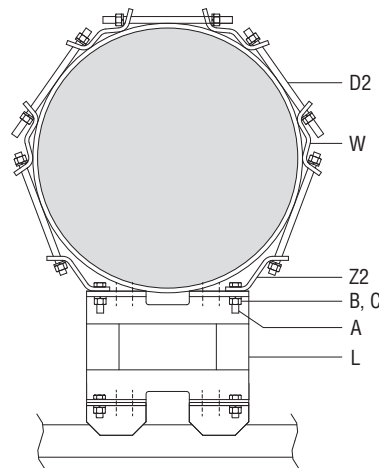
Item	Qty	Description
D2	(3)	5/8 in x 12 in (305 mm) threaded rod with nuts and washers
W	(2)	W-shaped bracket



Use middle holes

12.51 – 15.00 in (318 – 381 mm) diameter

Item	Qty	Description
A	(2)	5/8 in x 1 3/4 in (44 mm) bolt
B	(2)	5/8 in lock washer
C	(2)	5/8 in hex nut
D2	(3)	5/8 in x 12 in (305 mm) threaded rod with nuts and washers
W	(2)	W-shaped bracket
Z1	(2)	Z-shaped bracket, type 1



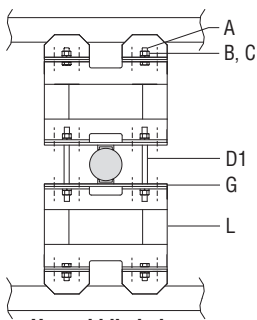
Use outer holes

20.01 – 25.00 in (508 – 635 mm) diameter

Item	Qty	Description
A	(8)	5/8 in x 1 3/4 in (44 mm) bolt
B	(8)	5/8 in lock washer
C	(8)	5/8 in hex nut
D2	(10)	5/8 in x 12 in (305 mm) threaded rod with nuts and washers
L	(1)	Crossarm standoff bracket
W	(8)	W-shaped bracket
Z2	(4)	Z-shaped bracket, type 2

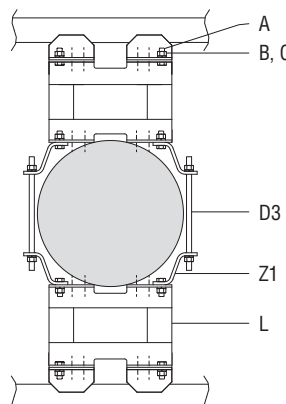
Setting Poletop Luminaire Assembly

Round poles – front and back sides



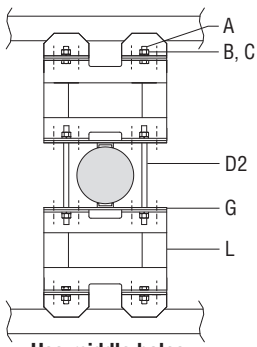
**Up to 4.00 in
(102 mm)**

Item	Qty	Description
A	(8)	5/8 in x 1 1/4 in (44 mm) bolt
B	(8)	5/8 in lock washer
C	(8)	5/8 in hex nut
D1	(4)	5/8 in x 9 1/2 in (241 mm) threaded rod with nuts and washers
G	(4)	Pole adapter plate with channel
L	(2)	Crossarm standoff bracket



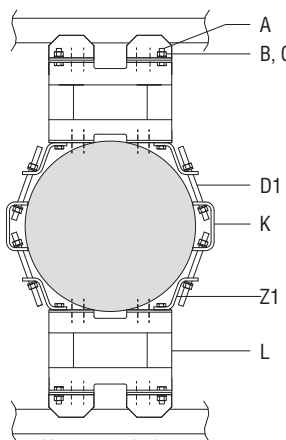
**15.01 – 18.00 in
(381 – 457 mm) diameter**

Item	Qty	Description
A	(16)	5/8 in x 1 1/4 in (44 mm) bolt
B	(16)	5/8 in lock washer
C	(16)	5/8 in hex nut
D3	(4)	5/8 in x 14 in (356 mm) threaded rod with nuts and washers
L	(2)	Crossarm standoff bracket
Z1	(8)	Z-shaped bracket, type 1



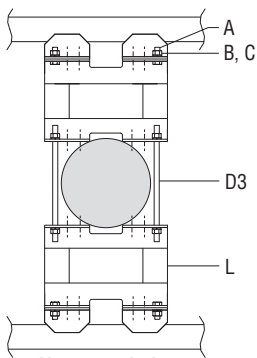
**4.01 – 7.00 in
(102 – 178 mm)**

Item	Qty	Description
A	(8)	5/8 in x 1 1/4 in (44 mm) bolt
B	(8)	5/8 in lock washer
C	(8)	5/8 in hex nut
D2	(4)	5/8 in x 12 in (305 mm) threaded rod with nuts and washers
G	(4)	Pole adapter plate with channel
L	(2)	Crossarm standoff bracket



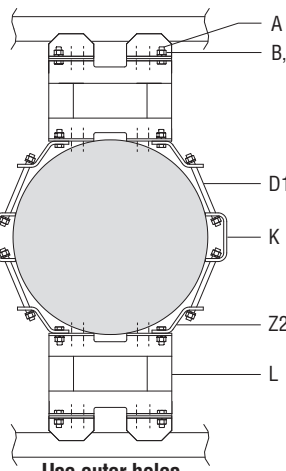
**18.01 – 21.00 in
(457 – 534 mm) diameter**

Item	Qty	Description
A	(16)	5/8 in x 1 1/4 in (44 mm) bolt
B	(16)	5/8 in lock washer
C	(16)	5/8 in hex nut
D1	(8)	5/8 in x 9 1/2 in (241 mm) threaded rod with nuts and washers
K	(4)	C-shaped bracket
L	(2)	Crossarm standoff bracket
Z1	(8)	Z-shaped bracket, type 1



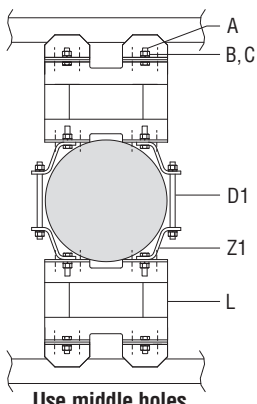
**7.01 – 11.00 in
(178 – 280 mm)**

Item	Qty	Description
A	(8)	5/8 in x 1 1/4 in (44 mm) bolt
B	(8)	5/8 in lock washer
C	(8)	5/8 in hex nut
D3	(4)	5/8 in x 14 in (356 mm) threaded rod with nuts and washers
L	(2)	Crossarm standoff bracket



**21.01 – 24.00 in
(534 – 610 mm) diameter**

Item	Qty	Description
A	(16)	5/8 in x 1 1/4 in (44 mm) bolt
B	(16)	5/8 in lock washer
C	(16)	5/8 in hex nut
D1	(8)	5/8 in x 9 1/2 in (241 mm) threaded rod with nuts and washers
K	(4)	C-shaped bracket
L	(2)	Crossarm standoff bracket
Z2	(8)	Z-shaped bracket, type 2

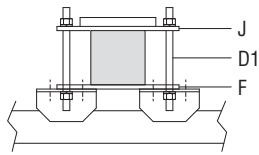


**11.01 – 15.00 in
(280 – 381 mm)**

Item	Qty	Description
A	(16)	5/8 in x 1 1/4 in (44 mm) bolt
B	(16)	5/8 in lock washer
C	(16)	5/8 in hex nut
D1	(4)	5/8 in x 9 1/2 in (241 mm) threaded rod with nuts and washers
L	(2)	Crossarm standoff bracket
Z1	(8)	Z-shaped bracket, type 1

Setting Poletop Luminaire Assembly

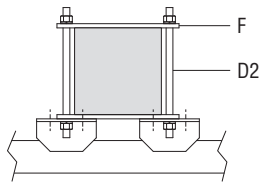
Square poles – front side only



Use middle holes

**Up to 5.00 in
(127 mm)**

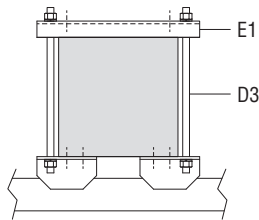
Item	Qty	Description
D1	(2)	5/8 in x 9½ in (241 mm) threaded rod with nuts and washers
F	(1)	Pole adapter plate
J	(1)	Pole adapter plate with brace



Use middle holes

**5.01 – 8.00 in
(127 – 203 mm)**

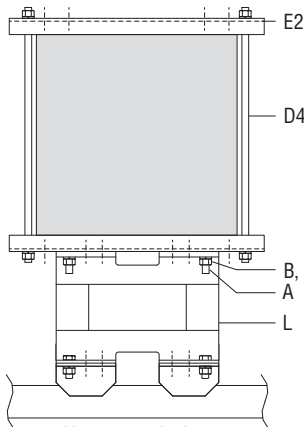
Item	Qty	Description
D2	(2)	5/8 in x 12 in (305 mm) threaded rod with nuts and washers
F	(2)	Pole adapter plate



Use outer holes

**8.01 – 10.00 in
(204 – 254 mm)**

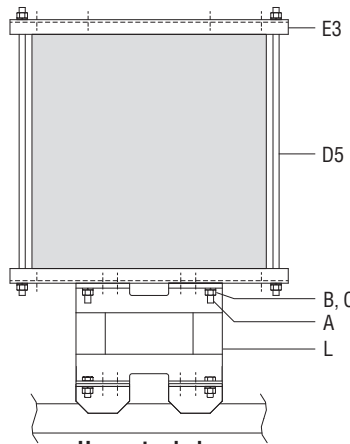
Item	Qty	Description
D3	(2)	5/8 in x 14 in (356 mm) threaded rod with nuts and washers
E1	(1)	3 in channel x 15½ in (394 mm)



Use outer holes

**10.01 – 18.50 in
(255 – 470 mm)**

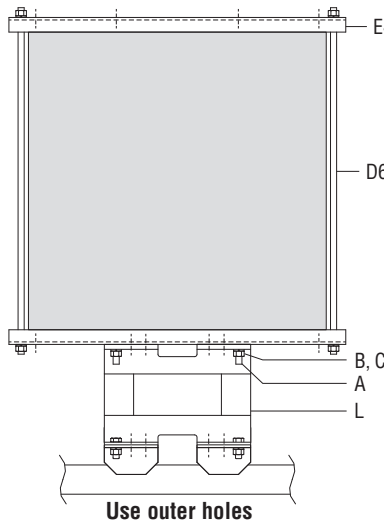
Item	Qty	Description
A	(8)	5/8 in x 1¼ in (44 mm) bolt
B	(8)	5/8 in lock washer
C	(8)	5/8 in hex nut
D4	(4)	5/8 in x 23½ in (597 mm) threaded rod with nuts and washers
E2	(4)	3 in channel x 23½ in (597 mm)
L	(1)	Crossarm standoff bracket



Use outer holes

**18.51 – 24.00 in
(470 – 610 mm)**

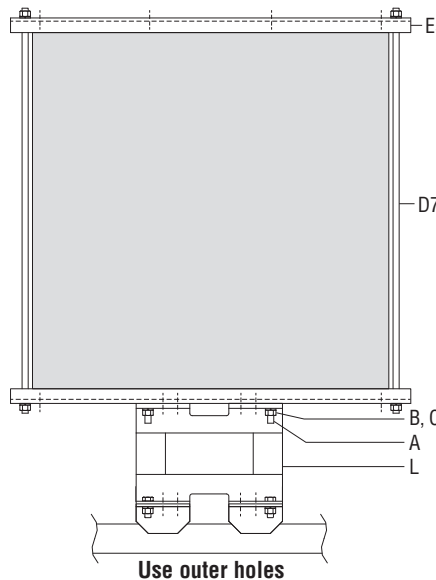
Item	Qty	Description
A	(8)	5/8 in x 1¼ in (44 mm) bolt
B	(8)	5/8 in lock washer
C	(8)	5/8 in hex nut
D5	(4)	5/8 in x 29½ in (749 mm) threaded rod with nuts and washers
E3	(4)	3 in channel x 28½ in (724 mm)
L	(1)	Crossarm standoff bracket



Use outer holes

**24.01 – 30.50 in
(610 – 775 mm)**

Item	Qty	Description
A	(8)	5/8 in x 1¼ in (44 mm) bolt
B	(8)	5/8 in lock washer
C	(8)	5/8 in hex nut
D6	(4)	5/8 in x 35½ in (902 mm) threaded rod with nuts and washers
E4	(4)	3 in channel x 34½ in (876 mm)
L	(1)	Crossarm standoff bracket



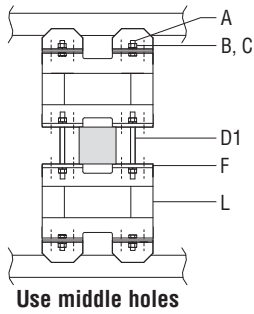
Use outer holes

**30.51 – 36.50 in
(775 – 927 mm)**

Item	Qty	Description
A	(8)	5/8 in x 1¼ in (44 mm) bolt
B	(8)	5/8 in lock washer
C	(8)	5/8 in hex nut
D7	(4)	5/8 in x 41½ in (1054 mm) threaded rod with nuts and washers
E5	(4)	3 in channel x 41 in (1041 mm)
L	(1)	Crossarm standoff bracket

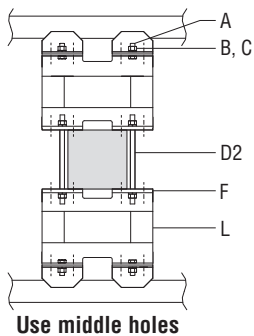
Setting Poletop Luminaire Assembly

Square poles – front and back side



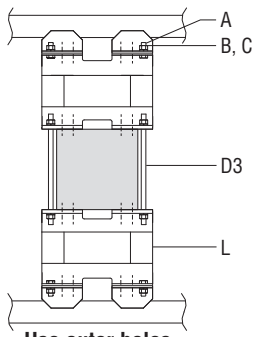
**Up to 5.00 in
(127 mm)**

Item	Qty	Description
A	(8)	5/8 in x 1 3/4 in (44 mm) bolt
B	(8)	5/8 in lock washer
C	(8)	5/8 in hex nut
D1	(4)	5/8 in x 9 1/2 in (241 mm) threaded rod with nuts and washers
F	(4)	Pole adapter plate
L	(2)	Crossarm standoff bracket



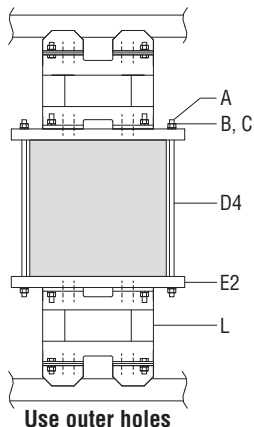
**5.01 – 8.00 in
(127 – 203 mm)**

Item	Qty	Description
A	(8)	5/8 in x 1 3/4 in (44 mm) bolt
B	(8)	5/8 in lock washer
C	(8)	5/8 in hex nut
D2	(4)	5/8 in x 12 in (305 mm) threaded rod with nuts and washers
F	(4)	Pole adapter plate
L	(2)	Crossarm standoff bracket



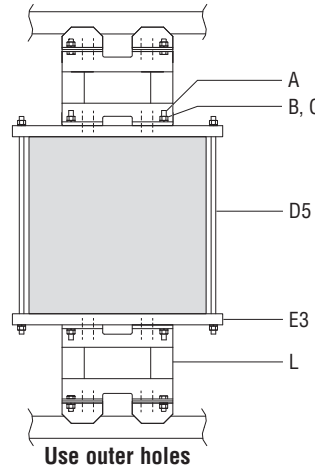
**8.01 – 11.00 in
(204 – 280 mm)**

Item	Qty	Description
A	(8)	5/8 in x 1 3/4 in (44 mm) bolt
B	(8)	5/8 in lock washer
C	(8)	5/8 in hex nut
D3	(4)	5/8 in x 14 in (356 mm) threaded rod with nuts and washers
L	(2)	Crossarm standoff bracket



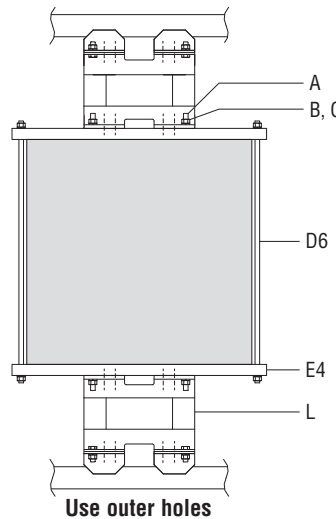
**11.01 – 18.50 in
(280 – 470 mm)**

Item	Qty	Description
A	(16)	5/8 in x 1 3/4 in (44 mm) bolt
B	(16)	5/8 in lock washer
C	(16)	5/8 in hex nut
D4	(4)	5/8 in x 23 1/2 in (597 mm) threaded rod with nuts and washers
E2	(4)	3 in channel x 2 3/2 in (597 mm)
L	(2)	Crossarm standoff bracket



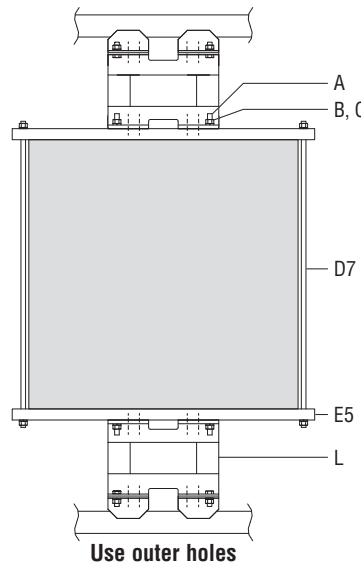
**18.51 – 24.00 in
(470 – 610 mm)**

Item	Qty	Description
A	(16)	5/8 in x 1 3/4 in (44 mm) bolt
B	(16)	5/8 in lock washer
C	(16)	5/8 in hex nut
D5	(4)	5/8 in x 29 1/2 in (749 mm) threaded rod with nuts and washers
E3	(4)	3 in channel x 2 3/2 in (724 mm)
L	(2)	Crossarm standoff bracket



**24.01 – 30.50 in
(610 – 775 mm)**

Item	Qty	Description
A	(16)	5/8 in x 1 3/4 in (44 mm) bolt
B	(16)	5/8 in lock washer
C	(16)	5/8 in hex nut
D6	(4)	5/8 in x 35 1/2 in (902 mm) threaded rod with nuts and washers
E4	(4)	3 in channel x 3 4/2 in (876 mm)
L	(2)	Crossarm standoff bracket



**30.51 – 36.50 in
(775 – 927 mm)**

Item	Qty	Description
A	(16)	5/8 in x 1 3/4 in (44 mm) bolt
B	(16)	5/8 in lock washer
C	(16)	5/8 in hex nut
D7	(4)	5/8 in x 41 1/2 in (1054 mm) threaded rod with nuts and washers
E5	(4)	3 in channel x 4 1 in (1041 mm)
L	(2)	Crossarm standoff bracket

Setting Poletop Luminaire Assembly

Overview

All luminaires are factory aimed to their exact position on the field. To ensure proper poletop luminaire assembly alignment, a simple-to-use alignment beam completes the precision field aiming. The alignment beam is attached in the factory to one poletop luminaire assembly on each pole.

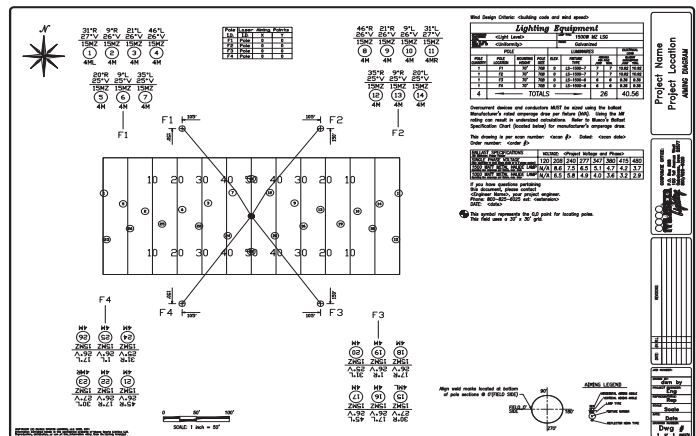
Tools/Materials Needed

Contractor Supplied

- 15/16 in open-end torque wrench or torque wrench with 15/16 in crows-foot
- 15/16 in open-end wrench
- Chalk or flags to mark aiming points on field
- Measuring tape

Installation Procedure

- 1** Plot and mark aiming point(s) on field. Refer to *Field Aiming Diagram*.

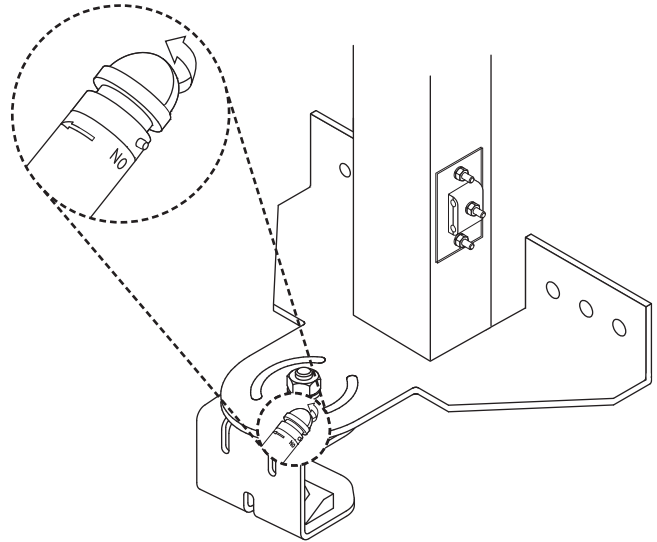


Setting Poletop Luminaire Assembly

2 Remove plastic wrap from luminaires. Do not use knife.



3 Turn on pole alignment beam.



Warning

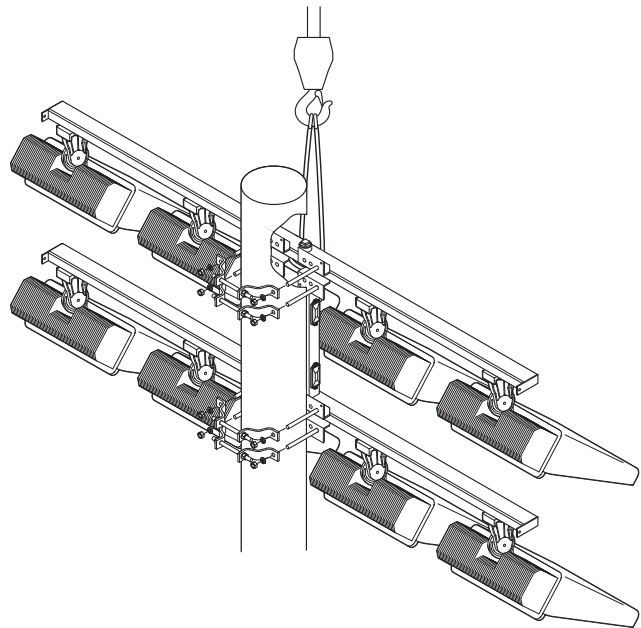
Hazard of falling personnel and materials

Use separate lifting equipment for assemblers and materials. Sling luminaire assembly properly and do not release from suspension until all pole clamping hardware is installed and torqued.

4 Attach luminaire assembly to pole using pole clamping hardware.

If pole is already standing, sling and lift luminaire assembly to poletop location.

If assembling pole on ground, ensure all pole clamping hardware is torqued to 80 ft•lb (108 N•m) using $1\frac{5}{16}$ in open-end torque wrench before lifting pole (see step 5). Instead of turning luminaire assembly, turn pole to align with aiming point.

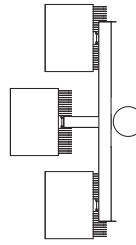


Setting Poletop Luminaire Assembly

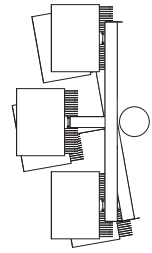


If assembling multiple poletop luminaire assemblies ensure crossarms are parallel.

Correct

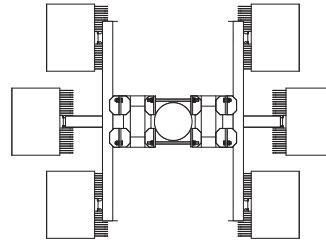


Incorrect

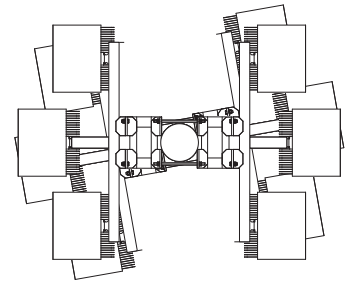


If assembling back-to-back poletop luminaire assemblies ensure crossarms are parallel.

Correct



Incorrect



Setting Poletop Luminaire Assembly

5 Aim luminaire assembly using alignment beam. Device projects a narrow vertical beam of light that is only visible when you are aligned with it. This step requires two people.

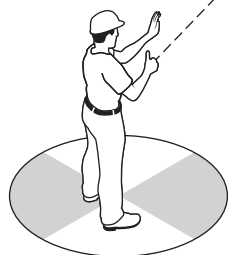
Person A: Stand on field aiming point and look at pole alignment device. It is attached to a luminaire. Walk parallel to crossarms until you see beam. Signal person B to rotate luminaire assembly left or right until beam aligns with aiming point. Beam may be visible, however when pole is aligned, you will see a bright flash as you stand directly on aiming point.

Person B: Following direction from person A, rotate luminaire assembly left or right until it is aligned.



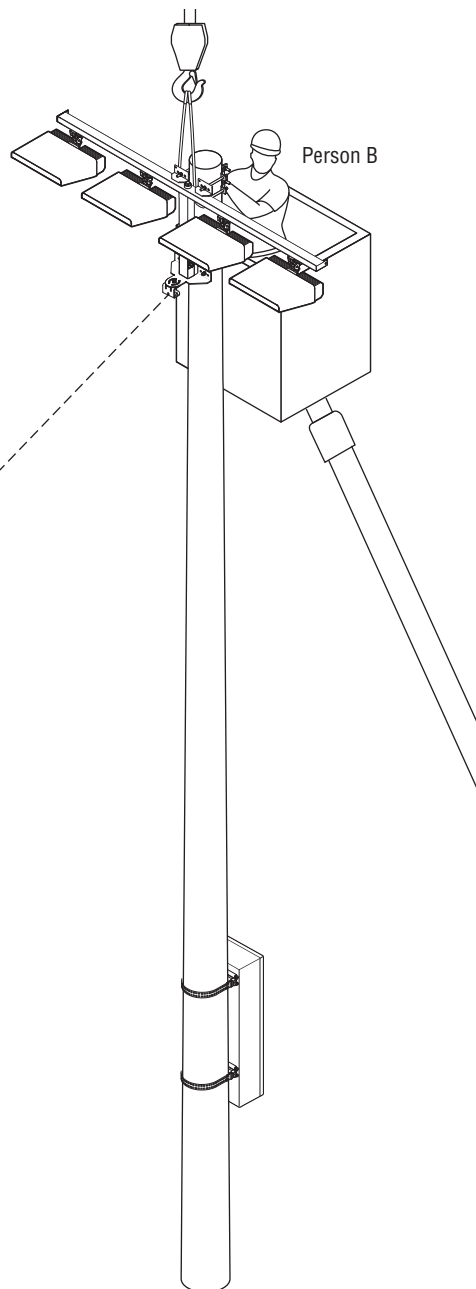
Warning
Falling material hazard

If erecting pole with luminaire assembly attached, do not attach rigging to luminaire assembly. Follow pole supplier instructions for lifting.



Aiming point

Person A



Person B




Warning
Laser radiation hazard

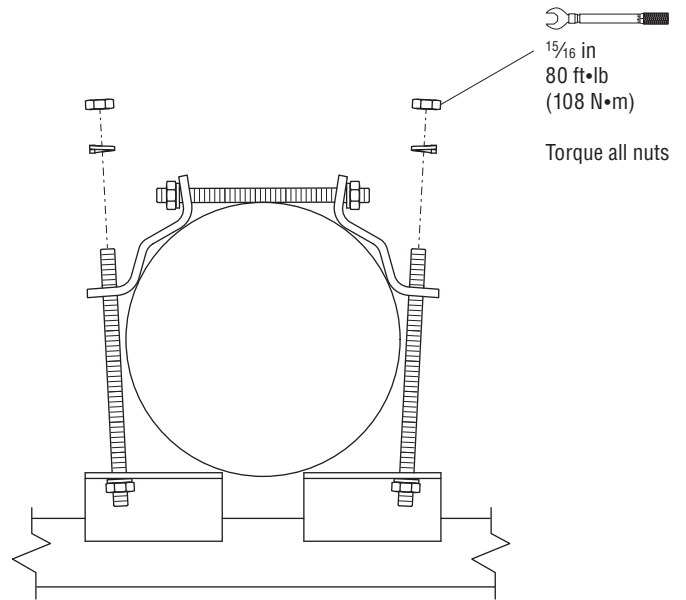
Pole alignment beam is safe for viewing at a distance of three feet (one meter) or more. Do not look into beam from closer than three feet (one meter). Do not use binoculars, camera, or telescope to view beam from any distance. Locator beam is a class 2M laser device. Wavelength: 635-660 nm, Laser power for classification: <1 mW continuous, divergence: <1.5 mrad x 1 rad. Using alignment beam in a manner other than as described here may result in hazardous exposure. Do not modify, dismantle, or attempt to repair.

Setting Poletop Luminaire Assembly

6 Tighten pole clamping hardware. Torque all nuts to 80 ft•lb (108 N•m) using $1\frac{5}{16}$ in open-end torque wrench.

 Ensure back-to-back crossarms remain parallel while tightening.

7 After all hardware is torqued and poletop luminaire assembly is secure, release rigging.

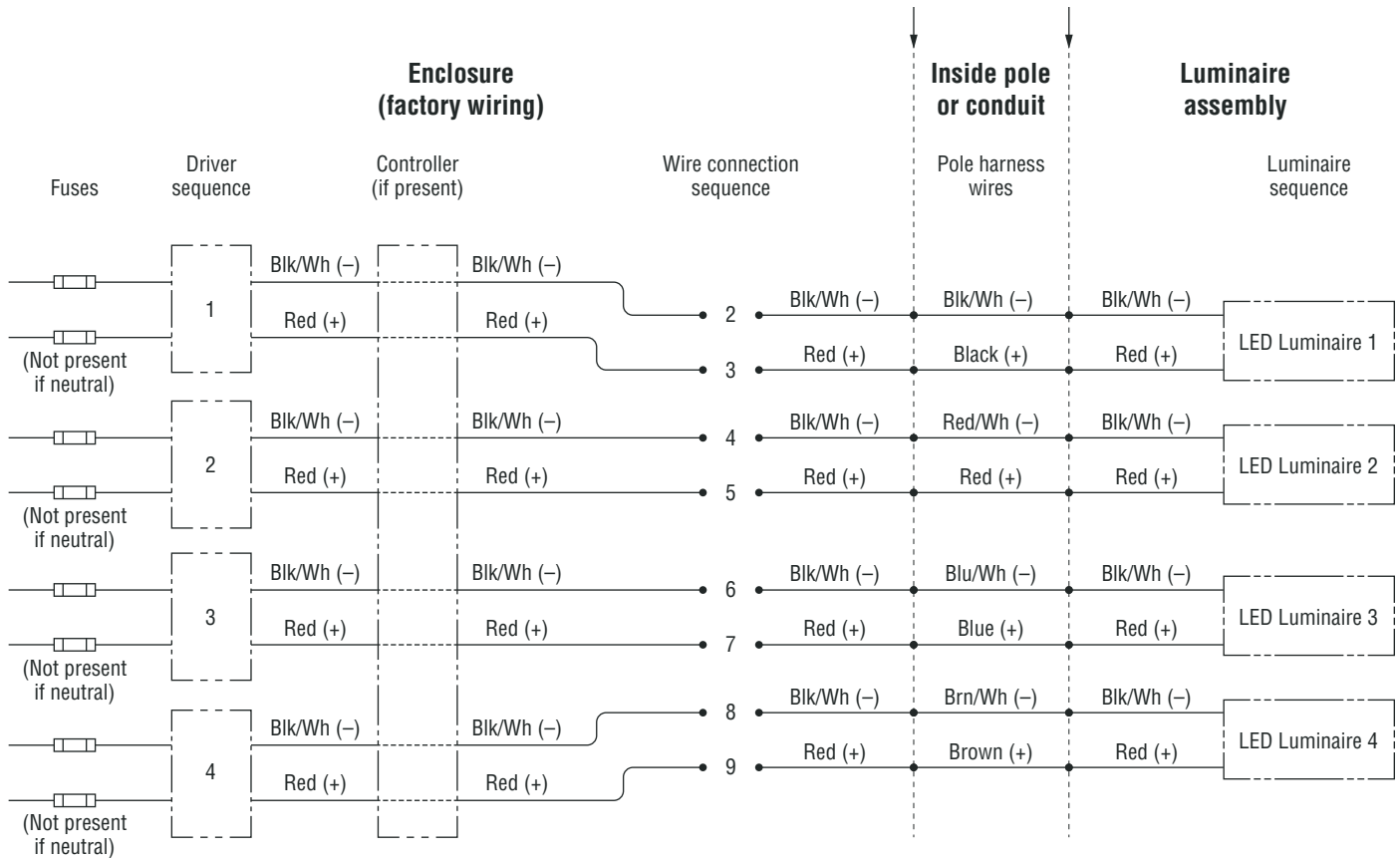


Note: Pole clamping hardware configuration varies with pole diameter and shape. See pages 15 – 19 for proper pole clamping hardware configuration. Poletop luminaire assemblies mounted to tapered poles may have different configurations for upper and lower clamps.

Wiring

Overview and System Diagram

A qualified electrician must install supply wiring for each lighting circuit and install harness between electrical components enclosure and crossarm assemblies. Depending on configuration, Musco may supply factory-built pole harness(es), and/or disconnect switch(es) in the electrical components enclosure. Each electrical components enclosure may contain up to four drivers. Each driver may power up to two luminaires.



Wiring

Tools/Materials Needed

Musco Supplied

- Field Aiming Diagram*
- Control System Summary*
- 7/16 in ratcheting combination wrench
- 3/16 in hex key (ground bar)
- 5 mm hex key (125 A disconnect terminals if present)
- Wire harness ID labels

Contractor Supplied

- Conduit and hubs rated NEMA 3R (IP54) or better
- Supply and insulated equipment grounding conductor sized per code.
- Standard screwdriver
- Hole punch or stepped drill/hole saw
- Electrical fish tape
- 10 ft (3 m) stepladder or small line truck

Installation Procedure



Only qualified personnel may perform wiring. Route wires as shown in step 1, but leave the final connections for your electrician.

1

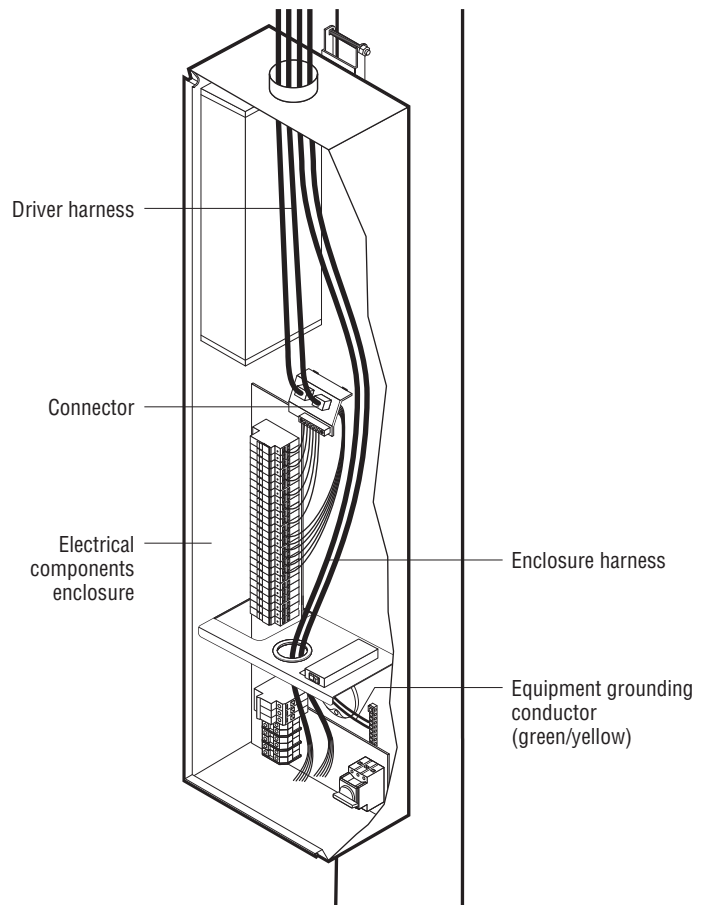
Route driver harnesses from top and middle enclosures to bottom enclosure and plug into primary wire harnesses mounted in bracket.

2

Route equipment grounding conductor and enclosure harnesses from top and middle enclosures to bottom enclosure.

3

Repeat steps 1 – 2 for each stack.



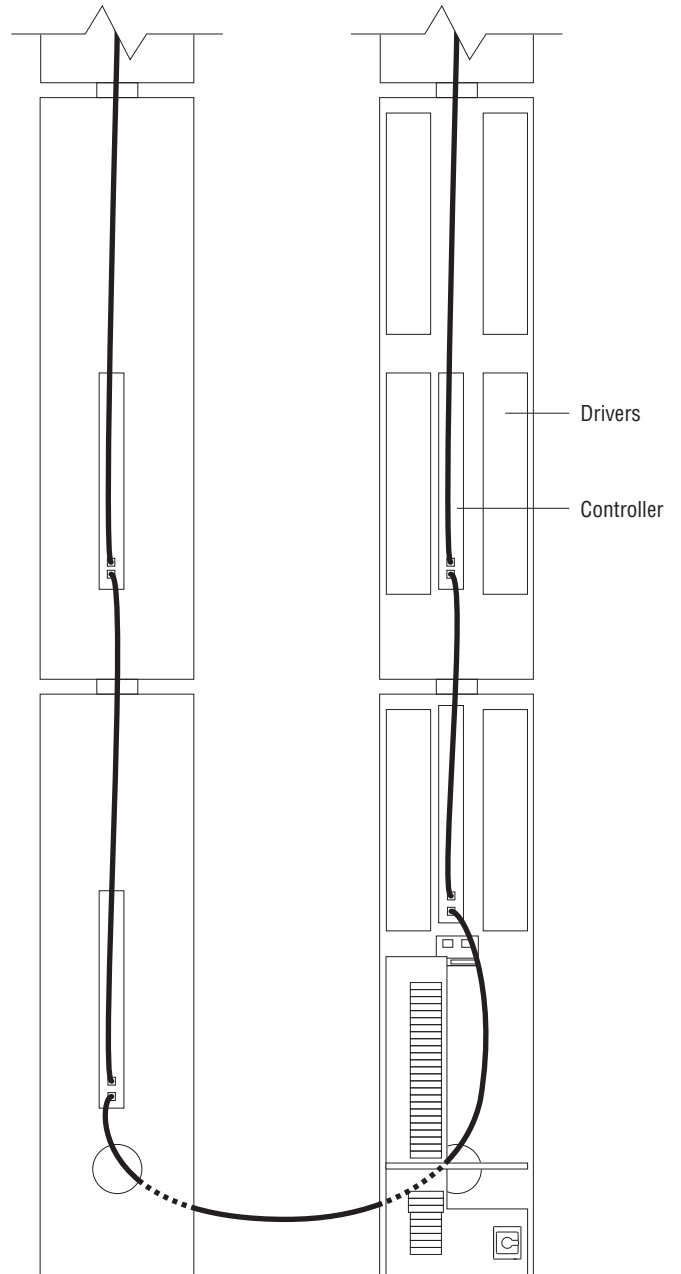
Wiring



If controller is not present, skip to step 5.

4

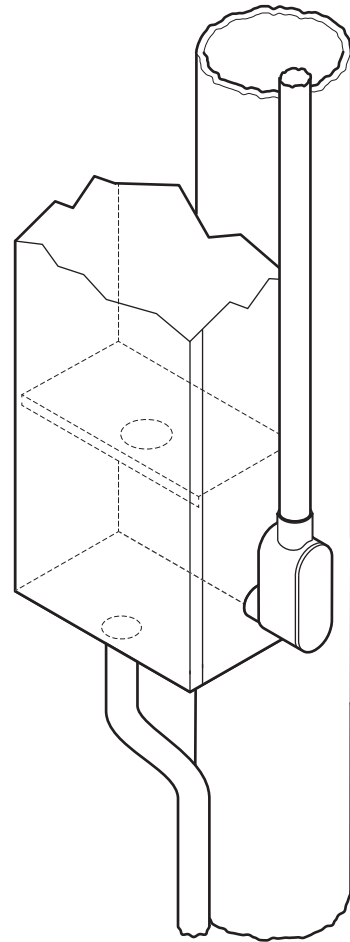
Pull communication cables down from stacker boxes and terminate in next electrical components enclosure as shown.



Wiring

- 5 Install conduit as needed for supply and/or luminaire wiring. Cut all entryways below electrical components enclosure partition.

Note: Connect the electrical components enclosure stacks that share a circuit, with conduit below partition in order to route primary wires to distribution lugs.



Installation Instructions: SportsCluster® Lighting System

Wiring



Verify pole ID on wire harness matches pole location on *Field Aiming Diagram*.

6

Fish all pole wire harnesses between poletop and appropriate electrical components enclosure(s).

7

Attach support grips at poletop and midpole (if required due to pole height).

8

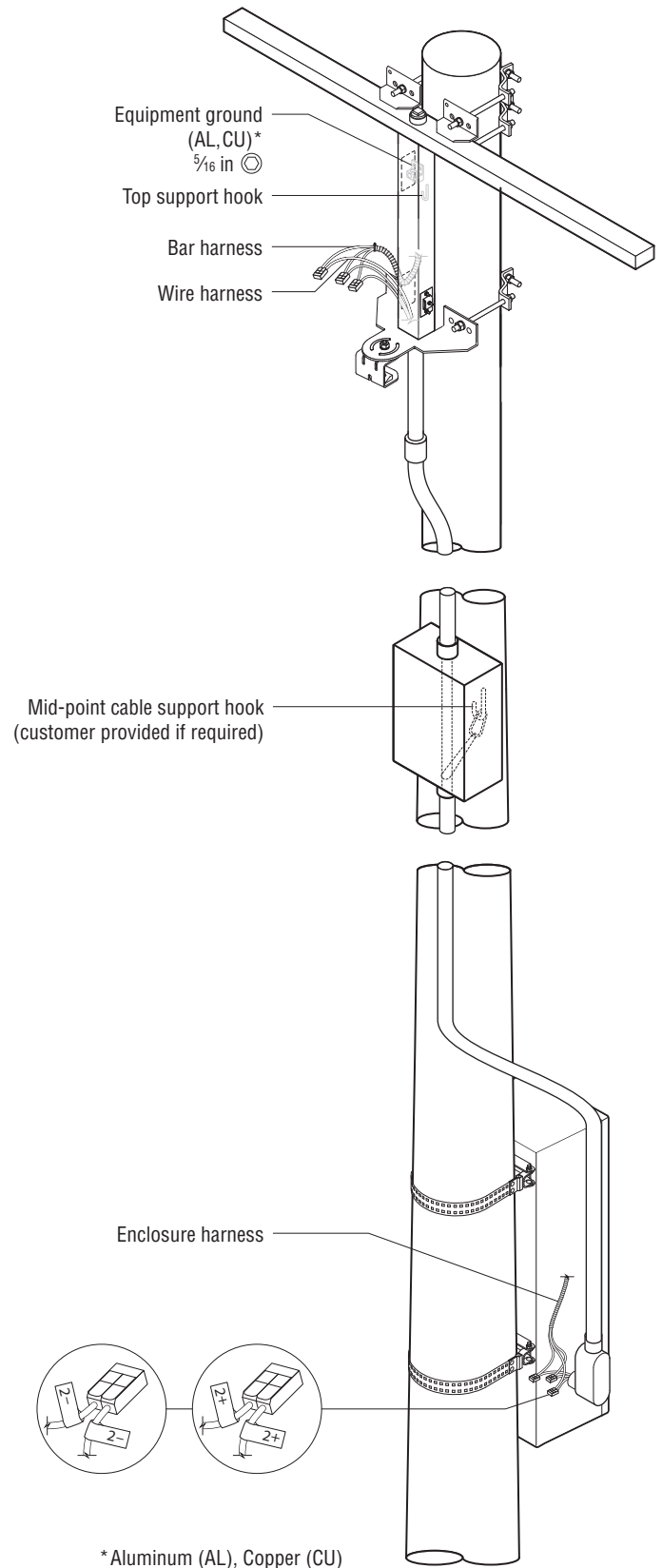
Trim wire harness to length (if required). If luminaire polarity wire ID labels are trimmed off, apply new ID labels (supplied by Musco).

9

Connect pole harness at poletop and inside electrical components enclosure(s). Match luminaire ID and wire polarity per each wire label. Use the Musco-provided LEVER-NUTS® wire connectors

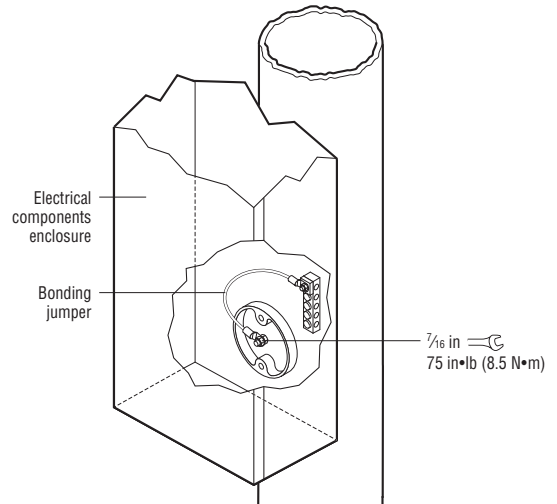


Use electrical tape to ensure LEVER-NUTS® levers stay secure and don't snag on surrounding wires.

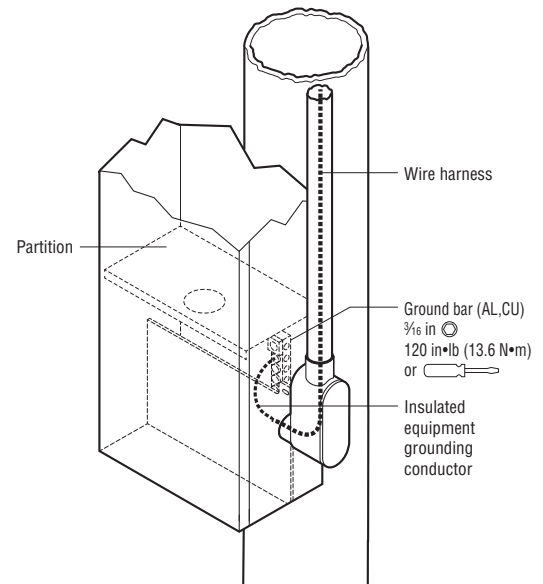



Wiring

- 10** Using $\frac{7}{16}$ in wrench connect bonding jumper from equipment ground bar in electrical components enclosure to mounting plate.



- 11** Connect equipment ground wire to ground bar inside electrical components enclosure.



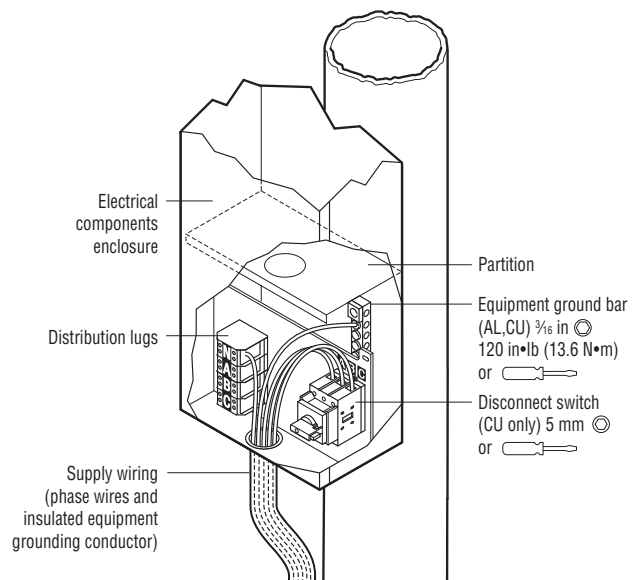
-  Musco *Control System Summary* or *Field Aiming Diagram* provides electrical loading information needed to size wire and switchgear. Musco provides instructions for installing Control-Link™ control system or lighting contactor cabinet when these items are part of your project.


- 12** Pull supply wiring into enclosure below partition. Poles with multiple circuits have multiple disconnect switches, generally in separate enclosures.

- 13** Land insulated equipment grounding conductor from supply on ground bar.

- 14** Connect equipment grounding conductors (green/yellow) from each upper enclosure to equipment ground bar in bottom enclosure. If pole has multiple stacks, connect bonding jumper from stack with circuit disconnect. Tighten lugs using $\frac{3}{16}$ in hex key.

- 15** Land supply wires on disconnect switch, and land neutral wire on distribution lugs.



-  Disconnect is rated for copper wire only. Contact Musco for adaptor or use UL-listed adaptor for aluminum wire.

Lightning Ground

Overview

Proper pole grounding is important to protect people and property from the hazards of lightning. This installation instruction is based on the recommendations found in NFPA 780 for lightning protection. Check local and other applicable codes for any additional requirements.

Tools/Materials Needed

Musco Supplied


- 5/16 in hex key
- 1/2 in wrench
- 3/16 in hex key

Contractor Supplied

- Shovel
- 5/8 in (16 mm) copper clad steel grounding electrode 8 ft (2.5 m) long, one per pole
- Grounding electrode conductor, see table
- Saddle clamp (rated for wire)
- Copper-to-aluminum connector (if required)
- Exothermic fusion-welding kit
- Bonding jumper

Installation Procedure

1 Excavate location near pole to depth of at least 2 ft (0.6 m). Drive grounding electrode into ground. In case of shallow bedrock or obstruction, you may drive electrode at 45° or shallower angle.

 Use driving sleeve to prevent deforming end of electrode. Trim any deformed portion for proper exothermic fusion-welding.

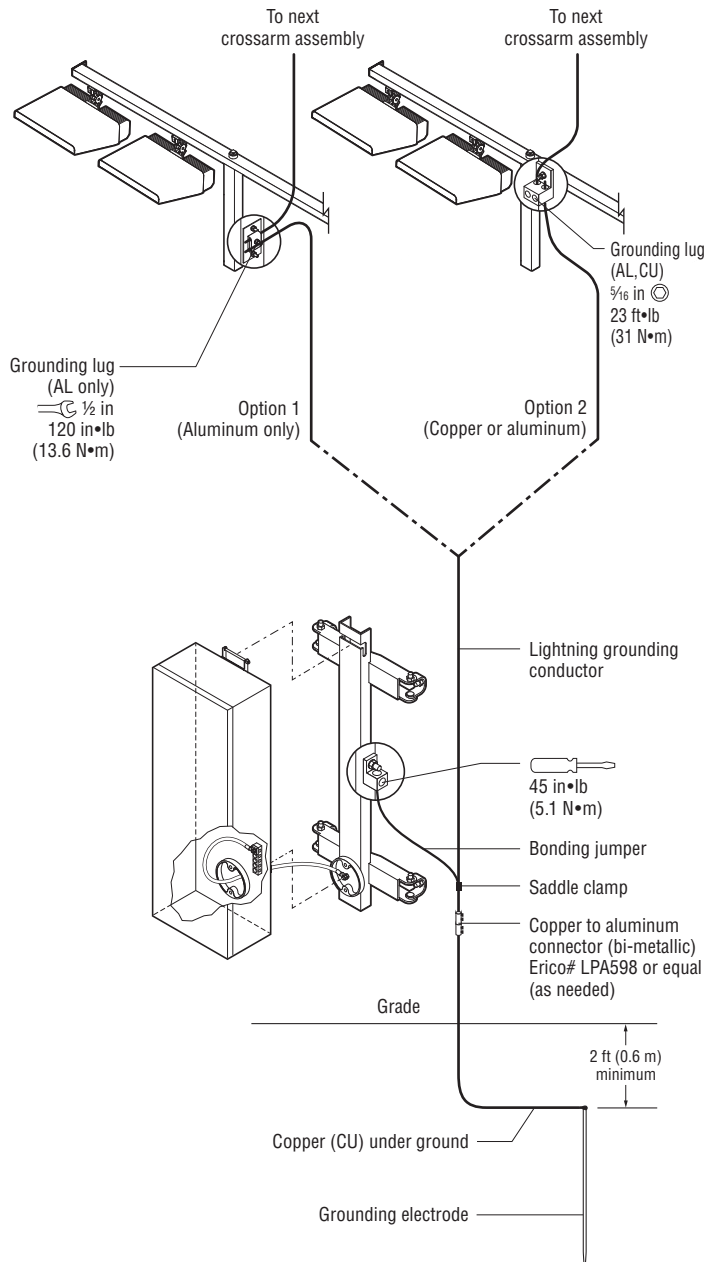
2 Install lightning grounding conductor from poletop to grounding electrode. Support per code. Attach to grounding lug on each crossarm assembly. When routing below grade, do not allow conductor to dip below top of grounding electrode.

Lightning Grounding Conductor

Attach to external lightning grounding lug (rated for aluminum only) or to internal lightning grounding lug (dual-rated).

Mounting Height	Bare Stranded Aluminum*	Bare Stranded Copper
Up to 75 ft (23 m)	1/0 AWG (cross-sectional area of 53.5 mm ²)	2 AWG (cross-sectional area of 33.6 mm ²)
Over 75 ft (23 m)	4/0 AWG (cross-sectional area of 107.2 mm ²)	2/0 AWG (cross-sectional area of 67.4 mm ²)

* Copper grounding conductor required for underground connection to grounding electrode. Use properly rated AL to CU connector.



Lightning Ground

- 3** Bond conductor to electrode using exothermic fusion-welding kit with ignitor and brush. Follow instructions inside kit.
- 4** Route bonding jumper from hanger bracket grounding lug to lightning grounding conductor. Attach with saddle clamp.
- 5** Backfill excavated area around grounding electrode.

Note: Regularly inspect and maintain lightning ground in accordance with applicable laws and regulations.

Notes

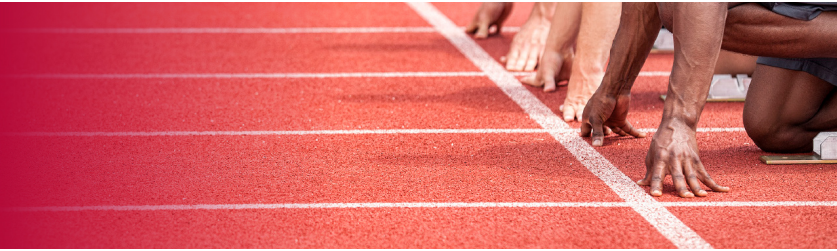
Notes



We Make It Happen.

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Musco SportsCluster® product referenced or shown may be protected by one or more of the following patents. United States Patent(s): D794244, D808052, D808053, D833662, D841854, D841855, D841856, 8300219, 8789967, 9435517, 9781780, 9951929, 10267491, 10330284, 10344948. Benelux: 87546-01, 87547-01, 87548-01. China Patent for Invention 中国发明专利: ZL201280036994.1 Canada Patent(s): 2912148. China Patents for Design 中国外观设计专利: ZL201630605072.9, ZL201830262493.5, ZL201830262495.4, ZL201830262588.7. European Union Patent(s): 2715222, 2999920. EU Design Reg. 3461409. Germany Patents: 402018100450-0001, 402018100451-0001, 402018100452-0001. Mexico Patent(s): 346527. Republic of Korea Patent(s): 10-1577571, 10-1661263, 10-1881998, 30-0912260. Russia Patent: 2616559. United Kingdom Patent(s): 6032011, 6032022, 6032023, 6056943, 6056944, 6056945, 6056946, 6056947, 6056948. U.S. and foreign patents pending. [Pat_059H]



Overview of Track Protection When Changing Stadium Lighting

- No turning of tires when stationary on track surface
- Plywood to be placed under stabilizers (3/4" – 1" recommended)
- Plastic Sheeting should be placed underneath/around vehicle to prevent fluid spills
- Immediate Notification of any damage (tears or spills) is mandatory
Spills can be cleaned and tears repaired easily if Beynon is notified immediately
- **The weight of the vehicle will not damage the track surface if above precautionary measures are taken however the asphalt base may not handle the excessive weight of a crane. The design, age and condition of existing asphalt can be an issue in certain cases. Please check with your design professional for advice on your asphalt condition.**