

ADDENDUM No. 9
 TO THE
 CITY OF FRESNO
 PUBLIC WORKS STANDARD DRAWINGS AND SPECIFICATIONS
 ADOPTED MARCH 4, 1970, BY RESOLUTION NO. 70-36

THIS UPDATED VERSION IS APPROVED: MAY 31, 2024

This addendum is attached to, and made a part of, the above-entitled standard drawings.

The following City Standard Drawings have been amended as indicated below:

1. Most drawings received minor drafting and typographical edits to detail and callouts for clarity, any such changes that result in practical differences are annotated below.

DPW – ELECTRICAL (E Series)	
E-1	<ol style="list-style-type: none"> 1. Note 1, "ALL WORK SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE SPECIFICATIONS ENTITLED "STANDARD SPECIFICATIONS, STATE OF CALIFORNIA, BUSINESS AND TRANSPORTATION AGENCY, DEPARTMENT OF TRANSPORTATION" (1997 REVISION) AND THE NATIONAL ELECTRICAL CODE." revised to read: "ALL WORK SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE CALTRANS STANDARD SPECIFICATIONS (LATEST ADOPTED REVISION) AND THE NATIONAL ELECTRICAL CODE."
E-31	<ol style="list-style-type: none"> 1. Note 3, "POLES MUST MEET CALTRANS 1997 STANDARD SPECIFICATIONS FOR TYPES 1-A, 16-1-113 AND 17B-1-113." Revised to read, "POLES MUST MEET CALTRANS STANDARD SPECIFICATIONS (LATEST ADOPTED REVISION) FOR TYPES 1-A, 16-1-100 AND 17-2-100." 2. Drawing exhibit labels revised to reflect the pole type changes noted above.
E-32	<ol style="list-style-type: none"> 1. Drawing exhibit for pole type 19-3-113 revised as follows: <ol style="list-style-type: none"> a. Exhibit label, "19-3-113" revised to read: "19-3-100". b. Mast arm mounting height dimension, "22'-7"±" revised to read, "22'-8" TO 23'-0"". 2. Drawing exhibit for pole type 24-3-113 revised as follows: <ol style="list-style-type: none"> a. Exhibit label, "24-3-113" revised to read, "24-3-100". b. Mast arm mounting height dimension, "22'-7"±" revised to read, "23'-0"" 3. Note 3, "POLES MUST MEET CALTRANS 1997 STANDARD SPECIFICATIONS FOR TYPES 19-3-113 AND 24-3-113." revised to read, "POLES MUST MEET CALTRANS STANDARD SPECIFICATIONS (LATEST ADOPTED REVISION) FOR TYPES 19-3-100 AND 24-3-100."
E-33	<ol style="list-style-type: none"> 1. Drawing exhibit for pole type 29-5-113 revised as follows: <ol style="list-style-type: none"> a. Exhibit label, "29-5-113" revised to read "29-5-100". b. Mast arm mounting height, "22'-7"±" revised to read, "23'-7" TO 25'-7"" 2. Drawing exhibit for pole type 26-3-113 revised as follows: <ol style="list-style-type: none"> a. Exhibit label, "26-3-113" revised to read, "26-3-100". b. Mast arm mounting height dimension, "22'-7"±" revised to read, "23'-0" TO 23'-8"" 3. Note 3, "POLES MUST MEET CALTRANS 1997 STANDARD SPECIFICATIONS FOR TYPES 29-5-113 AND 26-3-113." revised to read, "POLES MUST MEET CALTRANS STANDARD SPECIFICATIONS (LATEST ADOPTED REVISION) FOR TYPES 29-5-100 AND 26-3-100."

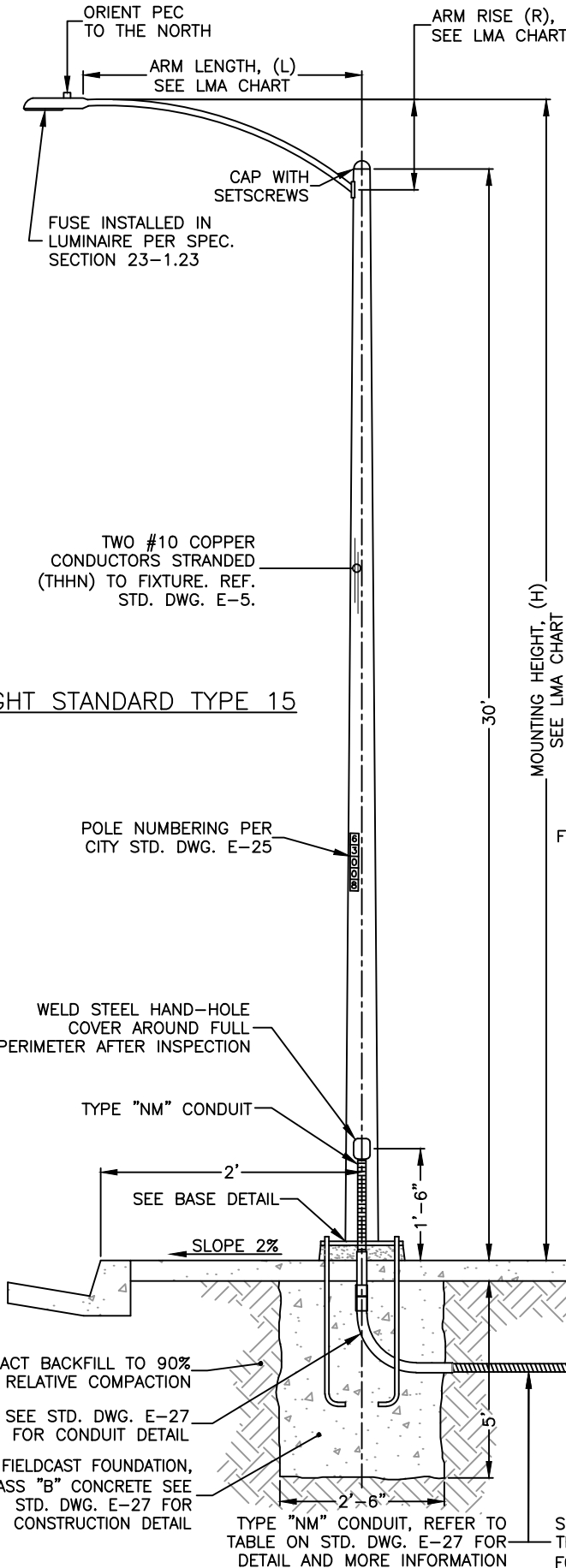
Addendum 9 to the Public Works Standard Drawings and Specifications, dated May 31, 2024

Reviewed and Approved:



Scott Mozier, P.E.
Public Works Director/City Engineer

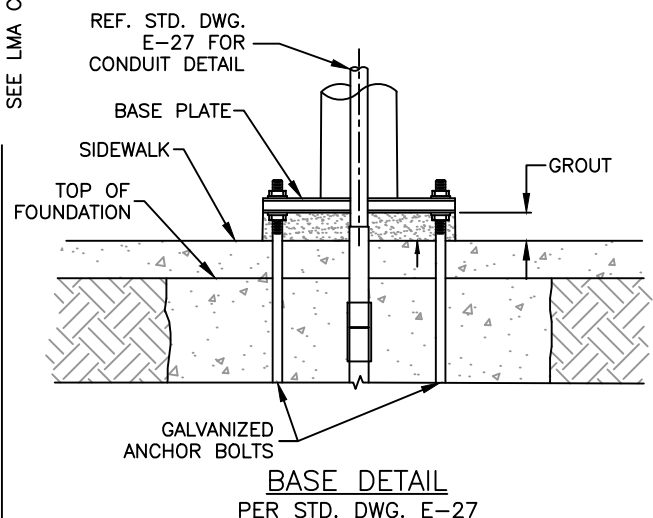
5-31-2024
Date



NOTES:

1. ALL WORK SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE CALTRANS STANDARD SPECIFICATIONS (LATEST ADOPTED REVISION) AND THE NATIONAL ELECTRICAL CODE.
2. LUMINAIRE SHALL BE COBRA HEAD TYPE, 120V LIGHT EMITTING DIODE (LED). PHOTOELECTRIC CELL SHALL BE EXTENDED LIFE, QUICK ACTING.
3. ALL STREET LIGHTS SHALL BE NUMBERED. NUMERICAL SEQUENCE TO BE OBTAINED FROM P.G.&E. NUMBERS TO BE 2-1/2" HIGH AND INSTALLED 10'-6" ABOVE FINISHED GRADE PER STD. DWG. E-25.

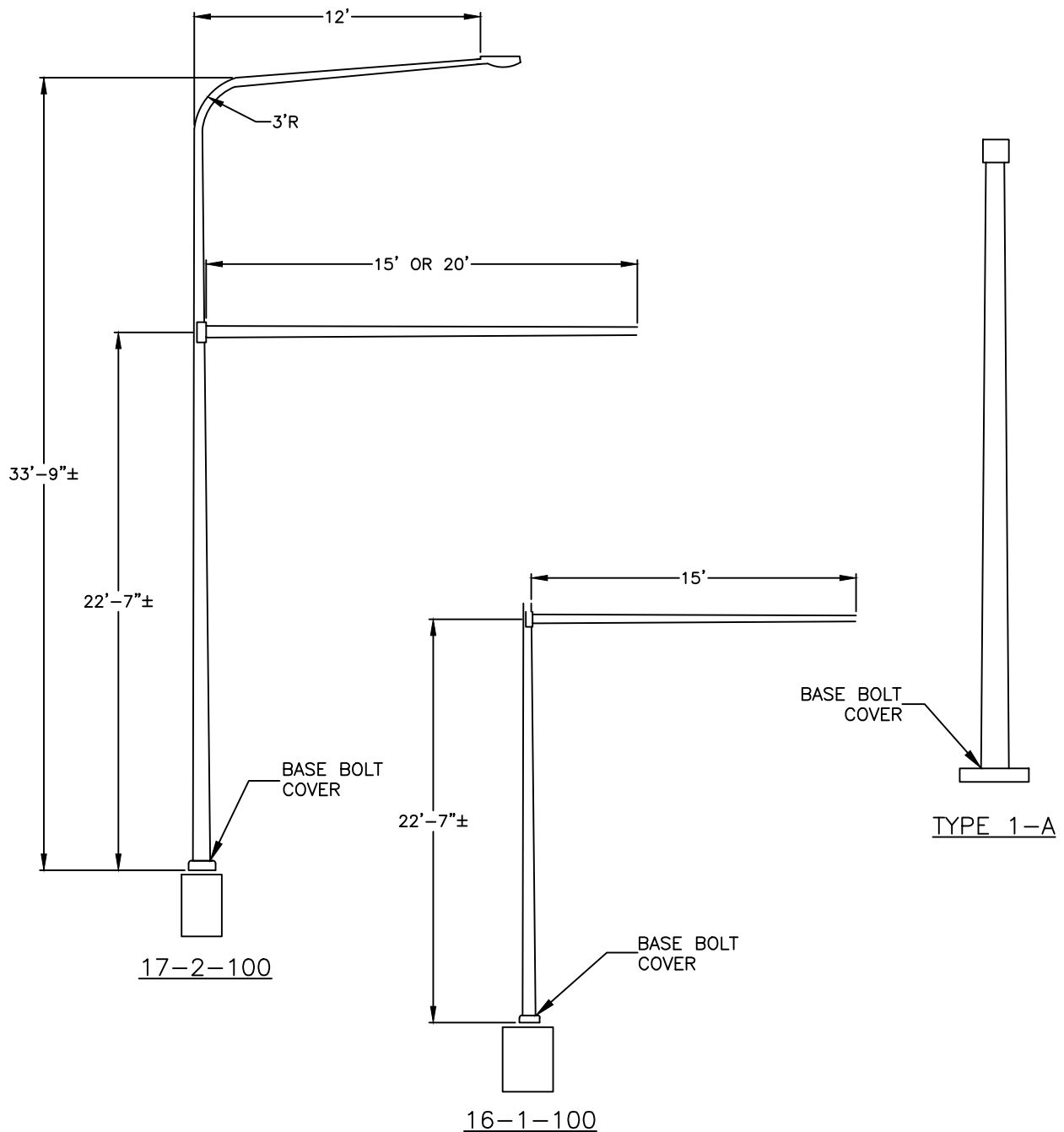
LMA CHART			
ROADWAY CLASSIFICATION	L	R	H
LOCAL STREET:	8'	2'-6"	33'-0"
COLLECTOR, ARTERIAL, OR EXPRESSWAY:	12'	4'-3"	33'-9"



**STREETLIGHT-WITH BASE
INCLUDES PULL BOX & PVC CONDUIT**

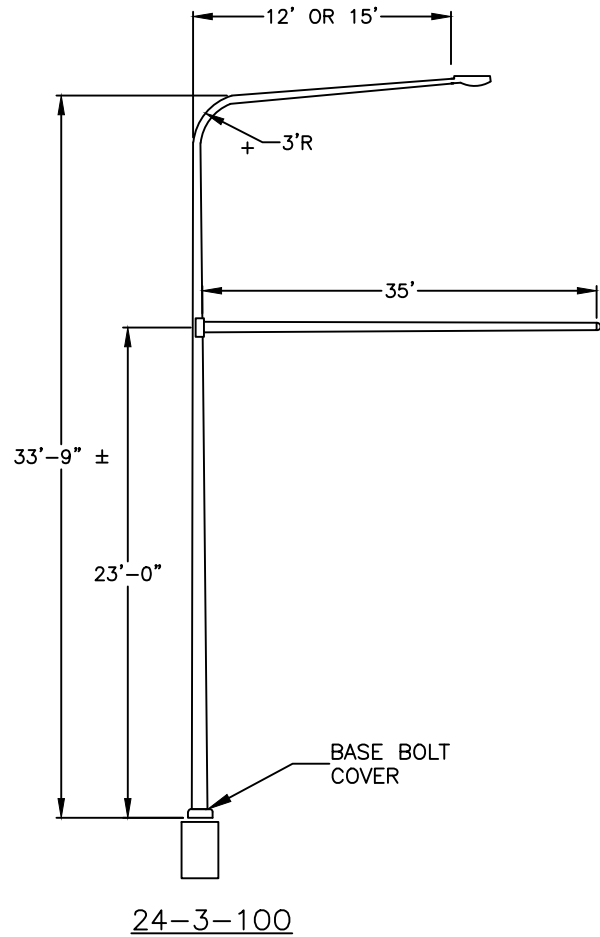
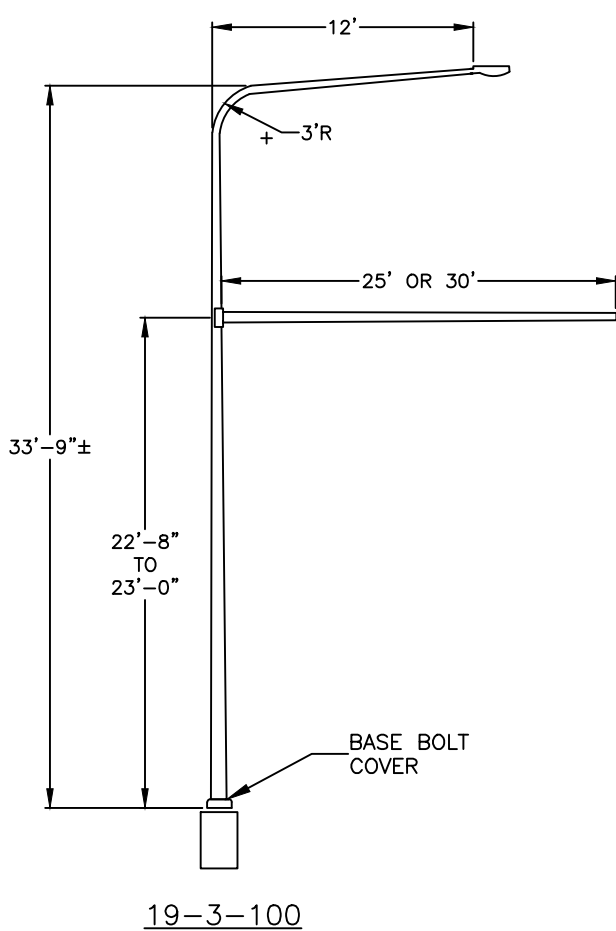
REF. & REV.
AUG. 2015
JAN. 2023 (A.8)
MAY 2024 (A.9)

CITY OF FRESNO
E-1



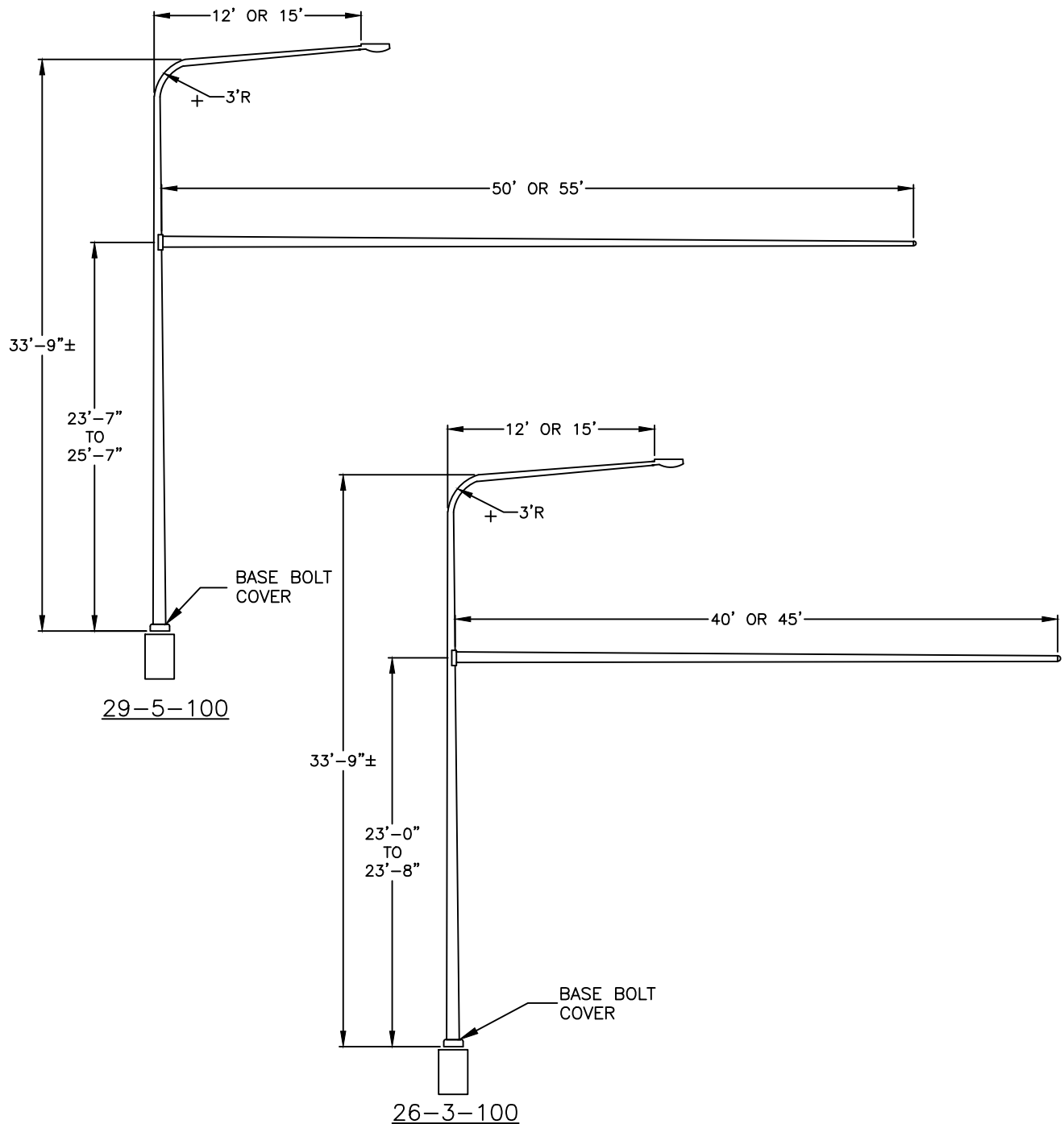
NOTES:

1. THE DECORATIVE POLE STANDARDS SHALL APPLY TO THE "DOWNTOWN FRESNO AREA" AS DEFINED BY P.W. STD. DWG. E-29.
2. POLE FINISH: BASE COAT – HOT DIP GALVANIZE TO ASTM A123
 FINISH COAT – TGIC OR URETHANE POLYESTER POWDER
 COLOR – BRONZE TO MATCH ADJACENT DECORATIVE POLES
3. POLES MUST MEET CALTRANS STANDARD SPECIFICATIONS (LATEST ADOPTED REVISION) FOR TYPE 1-A, 16-1-100, AND 17-2-100.
4. MATCHING BASE BOLT COVERS SHALL BE INSTALLED.



NOTES:

1. THE DECORATIVE POLE STANDARDS SHALL APPLY TO THE "DOWNTOWN FRESNO AREA" AS DEFINED BY P.W. STD. DWG. E-29.
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FINISH COAT - TGIC OR URETHANE POLYESTER POWDER
COLOR - BRONZE TO MATCH ADJACENT DECORATIVE POLES
3. POLES MUST MEET CALTRANS STANDARD SPECIFICATIONS (LATEST ADOPTED REVISION) FOR TYPES 19-3-100 AND 24-3-100.
4. MATCHING BASE BOLT COVERS SHALL BE INSTALLED.



NOTES:

1. THE DECORATIVE POLE STANDARDS SHALL APPLY TO THE "DOWNTOWN FRESNO AREA" AS DEFINED BY P.W. STD. DWG. E-29.
2. POLE FINISH: BASE COAT - HOT DIP GALVANIZE TO ASTM A123
FINISH COAT - TGIC OR URETHANE POLYESTER POWDER
COLOR - BRONZE TO MATCH ADJACENT DECORATIVE POLES
3. POLES MUST MEET CALTRANS STANDARD SPECIFICATIONS (LATEST ADOPTED REVISION) FOR TYPES 29-5-100 AND 26-3-100.
4. MATCHING BASE BOLT COVERS SHALL BE INSTALLED.

DOWNTOWN SIGNAL POLES
DECORATIVE POLE DETAILS - TYPE 26, 29

REF. & REV.
SEPT. 2009
MAR. 2021 (A.7)
MAY 2024 (A.9)

CITY OF FRESNO

E-33

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This addendum is attached to, and made a part of, the above-entitled standard specifications.

The following City Standard Specifications have been amended as indicated below:

1. Update Caltrans standard specification references in Sections 13 and 23, and minor text revisions.

13-1	1. Removed "2010 edition" for State Standard Specifications
13-3	1. Added 15% Max. RAP content
13-5	1. Revised "Section 37" to read "Section 37-3" of the State Standard Specifications for slurry seals
13-9	1. Revised "Paint Binder" to read "Payment"
23-1.1	1. Removed "1995 Edition,)113 km rating/70 mph rating)" for State Standard Specifications
23-1.7	1. Removed "86-3.01", Added "87-1.03E" and Removed "1995"
23-1.8	1. Removed "86-3.01", Added "86--1.02J" and Removed "1995"
23-1.9	1. Removed "86-1.02B", Added "87--1.03B"
23-3.7	1. Removed "86-2.03 of the 1995", "Added 87-1.03E"
23-3.8	1. Removed "Section 86-3.01" and "1995", Added "Sections 86-1.02J, 87-1.03J and 56-3"

Addendum 9 to the Public Works Standard Drawings and Specifications, dated May 31, 2024

Reviewed and Approved:



 Scott Mozier, P.E.
 Public Works Director/City Engineer

5-31-2024

 Date

SECTION 23 – TRAFFIC SIGNALS AND STREET LIGHTING

23-1 TECHNICAL SPECIFICATIONS FOR TRAFFIC SIGNALS

23-1.1 General

Furnishing and installing traffic signals and highway lighting and payment therefore shall conform to the provisions in Section 86 and 87 of the State Standard Specifications and the State Standard Drawings, the City Standard Drawings, Plans and Specifications.

Traffic Signal Poles & Standards shall be in accordance with State Standard Specifications.

Signals and lighting Work is to be performed at the locations shown on the Plans.

Existing electrical systems, or approved temporary replacements thereof, shall be kept in effective operation during the progress of the Work, except when shutdown is permitted.

Work or equipment not specified or shown on the Plans which is necessary for the proper operation of the traffic signal in this section shall be provided and installed at no additional cost to the City.

The locations of foundations, poles, standards, services, pull boxes and other appurtenances shown on the Plans are approximate. Exact locations and grades will be established as necessary by either the Traffic Engineer and/or City CM Engineer in the field.

All work shall be completed in a neat and workmanlike manner.

23-1.2 Materials

Attention is directed to Section 6 of the State Standard Specifications and SECTION 4 these Specifications.

All materials required to complete the Work under this contract shall be furnished by the Contractor after receiving approved submittals from City of Fresno Traffic Signal and Street Lights (TSSL) Division.

The materials furnished and used shall be new, except such used materials as may be specifically provided for on the Plans.

All Work and materials shall be in full accordance with the latest rules and regulations of the National Board of Fire Underwriters, and local or State laws and regulations, the State of California Industrial Accident Commission's Safety Orders, and

Regulations of the Pacific Gas and Electric Company pertaining to service equipment and installations thereof. All Work shall comply with Section 11-104 of the City of Fresno Municipal Code, the National Electrical Manufacturer's Association Standards and all regulations and codes as stated in Section 86-1.01D of the State Standard Specifications. Nothing in these Plans and Specifications shall be construed to permit Work not complying with these codes.

23-1.3 Equipment List

Equipment list and drawings shall conform to the provisions in Section 86-1.01C, of the State Standard Specifications and these Specifications.

All equipment and materials that the Contractor proposes to install shall conform to these Specifications and the contract Plans. A list of substitute equipment and/or materials, along with a written descriptive summary, describing the functions of the components which the Contractor proposes to install shall be submitted along with his/her Proposal. The list shall be complete as to the name of the manufacturer, size and identifying number of each item. The list shall be supplemented by such other data as may be required.

In all cases, the judgment of the Electrical Superintendent shall be final as to whether substitute equipment and/or material recommended by the Contractor conforms to the intent of these Specifications and is acceptable for use.

23-1.4 Warranties, Guarantees and Instruction Sheets

Warranties, guarantees and instruction sheets shall conform to the provisions in Section 5-1.47 of the State Standard Specifications and these Specifications.

All equipment furnished shall be guaranteed to the City by the manufacturers for a period of not less than one (1) year, unless otherwise indicated, following the date of acceptance of the signal installation of such equipment. If any part(s) is found to be defective in materials or workmanship within the one-year period, and it is determined by the Electrical Superintendent, or by an authorized manufacturer's representative, that said part(s) cannot be repaired on the Site, the manufacturer shall provide a replacement part(s) of equal kind and/or type during the repair period and shall be responsible for the removal, handling, repair or replacement and reinstallation of the part(s) until such time as the traffic signal or Street lighting equipment is functioning as specified and as intended herein; the repair period shall in no event exceed 72 hours, including acquisition of parts.

The one-year guarantee on the repaired or replaced parts shall again commence with the date of reassembly of the system.

All Work done by the Contractor shall be guaranteed in writing to the City CM Engineer for the 12 months from the date of acceptance.

23-1.5 Maintaining Existing and Temporary Electrical Systems

Existing traffic signal systems, including detection, and/or safety lighting, shall remain operational during construction, unless otherwise authorized in writing by the City Engineer.

The Contractor shall notify the City CM Engineer at least two full working days (not less than 48 hours) prior to the shutdown of any traffic signal and lighting system. The Contractor may use temporary splices and wiring as approved by the City CM Engineer to maintain existing and temporary traffic signal and lighting systems. Shutdowns of traffic signal and lighting systems shall be limited to the period from 9 a.m. to 4 p.m. of normal working days, excluding legal holidays, weekends, and non-working days as determined by the City CM Engineer.

23-1.6 Scheduling of Work

Scheduling of Work shall conform to the provisions in Section 8-1.02 of the State Standard Specifications and these Specifications.

The Contractor shall notify the City CM Engineer at least two working days in advance of any electrical work and also at least two working days in advance of any Work done intermittently to facilitate inspection.

23-1.7 Foundations

Foundations shall conform to the provisions in Section 87-1.03E of the State Standard Specifications and these Specifications.

Concrete for reinforced pile foundations shall contain not less than 590 pounds of cement per cubic yard.

Foundation concrete shall be placed in a single pour except that pouring of the top six inches may be postponed when prior approval has been obtained. Exact location for controller cabinet shall be designated by the Traffic Engineer and approved by Electrical Superintendent, 48-hour notice required.

No Utilities shall be permitted to run through any foundations.

PVC wire-ways in pole foundations shall be installed as detailed in City Standard Drawing No. E-27. Foundations shall be poured against undisturbed earth where practicable. The exposed portion shall be formed and finished to present a neat appearance. Where obstructions or other conditions prevent construction of planned foundations, the Contractor shall construct an effective foundation satisfactory to the City CM Engineer.

The bottom of concrete foundations shall rest on firm ground. When placing the foundations, the Contractor shall place all conduit ends in their proper position, at the correct heights and shall securely hold them in position during the pouring of concrete. Conduits exiting the controller foundation and entering into the controller cabinet shall be aligned to enter within the TEES specified cabinets without any modifications to the cabinet base. Conduit shall be capped before any concrete is poured. Both forms and earth to be in contact with foundations shall be thoroughly moistened before placing concrete.

Anchor bolts shall be galvanized and shall extend above the finished base as needed to ensure a minimum extension above the top nut of three (3) threads. The maximum extension above the top nut is 1 inch. Each bolt shall be supplied with two (2) nuts and two (2) flat washers to facilitate leveling. The distance between the top of the bottom nut and the top of the finished sidewalk shall vary depending on the nut thickness of the anchor bolt being used. The distance shall be no less than 1-1/2 times and no more than two times the thickness of the anchor bolt nut being used.

The anchor bolts and conduits shall be held in place by means of a template until the concrete sets.

Locations shown on the Plans are schematic.

Poles, standards, and pedestals shall not be erected until the foundation concrete has set at least seven Days and shall be plumbed or raked as directed by the City CM Engineer. Top of concrete foundations shall be finished relative to curb or sidewalk grade or as shown on the Plans or as directed by the City CM Engineer.

The top of controller cabinet foundation shall be 12 inches above the surrounding grade or sidewalk, as shown in City Standard Drawing No. E-37.

23-1.8 Standards, Steel Pedestal and Posts

Standards, steel pedestals and posts shall conform to the provisions in Section 86-1.02J of the State Standard Specifications and these Specifications.

If relocation of Utilities is required, immediate notification shall be given to the appropriate Utility Company by the Contractor.

The Contractor may install all underground electrical components, including foundations for signal standards and controller cabinet at the site of the project; however, no traffic signal standards shall be erected until all controlling equipment is available to the Contractor for installation.

All nuts, washers, screws, and other post hardware shall be galvanized.

Signal mast arms shall not have mid-arm tenons. Signal heads shall be installed with Astro-Bracket, or approved equal.

23-1.9 Conduit

Conduit shall conform to the provisions in Section 87-1.03B of the State Standard Specifications and these Specifications.

Nonmetallic-type conduit shall not be used, unless specifically called for on Plans, with the exception of conduits between standards and adjacent pull boxes which shall be installed per City Standard Drawing No. E-27.

Conduit shall be of rigid type, conforming to Article 346 of the National Electrical Code. All conduit and fittings shall be hot dip galvanized. Each length shall bear the labels of Underwriters Laboratories, Inc. Installation shall conform to appropriate Articles of the Code.

All couplings shall be tightened to provide a good electrical and mechanical connection throughout the entire length of the conduit run. All conduit ends shall be threaded and joined with City TSSL Division approved fittings. The use of threadless or set screw fittings is not allowed. No running threads are permitted. Three piece, Erickson type, couplings shall not be used without prior authorization from City TSSL Division and will be only allowed under special circumstances necessitating their use.

Conduit threads cut in the field and damaged conduit surfaces on metal conduit shall be thoroughly painted with zinc rich paint conforming to Military Specification DOD-P-21035A.

All conduit ends shall be threaded and capped with standard conduit caps until wiring is started. When the caps are removed the threaded ends shall be provided with approved insulated hot dipped galvanized malleable iron bushings with cast integral lay-in lugs.

It shall be the privilege of the Contractor, at his/her own expense, to use larger size conduit than indicated on the plans if desired, and where larger size conduit is used, it shall be for the entire length of the run from outlet to outlet. No reducing couplings will be permitted.

All conduit shall be laid to a depth of not less than twenty-four inches, nor greater than thirty-six inches below the curb grade in the sidewalk areas and from the finished surface in Street areas. Conduits in sidewalk areas parallel to the curb shall not be installed more than twenty-four inches from inside of curb line toward property line unless approved by the City CM Engineer. Conduits not able to be placed under concrete sidewalk, or roadway, shall be encased in at least 6" of two-sack slurry.

Conduit shall be placed under existing pavement by directional boring and jacking method. Pavement shall not be disturbed without the written permission of the City CM Engineer and then only in the event insurmountable obstructions are encountered. Excessive use of water, such that pavement might be undermined, or subgrade softened, will not be permitted.

Conduit in pull boxes shall not extend more than two inches inside the box wall. No conduit may enter the pull box from the bottom unless approved by the City CM Engineer. No conduit or Utility shall pass through a signal, controller or Street light base or pull box except the conduit which terminates within the base or pull box.

No 90° elbows shall be installed unless specified or approved by City of Fresno, Construction Management.

After the installation of all conductors and cables, the ends of conduits terminating in pull boxes, the controller cabinet and service pedestal shall be sealed with an approved duct seal material. In as much as possible, conduit shall be run in a straight line from one pull box or pole to the next, maintaining a consistent setback from the curb. Any variation from this requirement shall be approved by the City CM Engineer.

23-1.10 Pull Boxes

Concrete pull boxes shall conform to the provisions in Section 86-1.02C of the State Standard Specifications and these Specifications.

All pull boxes shall be No. 5 unless otherwise noted on the Plans. See City Standard Drawings No. E-4A through E-4C, regarding requirements for grouting, drain hole, etc.

All pull boxes shall be installed with extensions. The pull box lid at the Pacific Gas & Electric Company's point of connection shall be marked "PG&E." All others shall be inscribed "Traffic Signal," "Interconnect," "Electrical" or "Street Lights" as appropriate.

Pull boxes on long runs shall be installed and spaced at not over 200-foot intervals and shall be required in all conduit change of directions.

All pull boxes shall be wrapped with 15 lb. roofing paper prior to backfilling.

Pull boxes installed in non-concrete areas shall be surrounded by a one (1) foot wide concrete collar and to a depth equal to the pull box and extension. The collar shall be sloped to drain away from the pull box.

Existing pull boxes accessed during the course of work shall be cleaned, drain holes opened, bonding and grounding connections secured, conduits duct-sealed and grout repaired. Any pull boxes broken in the course of work shall be replaced.

23-3.5 Maintaining Existing and Temporary Electrical Systems

Existing lighting systems shall remain operational during construction, unless otherwise authorized in writing by the City Engineer.

The Contractor shall notify the City CM Engineer at least one full working day (not less than 24 hours) prior to the shutdown of any street lighting system. The Contractor may use temporary splices and wiring as approved by the City CM Engineer to maintain existing and temporary street lighting systems.

23-3.6 Scheduling of Work

Scheduling of Work shall conform to the provisions in Section 8-1.02 of the State Standard Specifications and these Specifications.

The Contractor shall notify the City CM Engineer at least one working day in advance of any electrical Work and also at least one working day in advance of any Work done intermittently to facilitate inspection.

23-3.7 Foundations

Foundations shall conform to the provision in Section 87-1.03E State Standard Specifications and these Specifications.

Portland cement concrete shall conform to Section 90-2 of the State Standard Specifications.

Foundation concrete shall be placed in a single pour except that pouring of the top six (6) inches may be postponed when prior approval has been obtained. All dirt and debris shall be cleaned from the top of the foundation prior to pouring the top 6”.

No utilities shall be permitted to run through a foundation.

Foundations shall be poured against undisturbed earth where practicable. The exposed portion shall be formed and finished to present a neat appearance. Where obstructions or other conditions prevent construction of planned foundations, the Contractor shall construct an effective foundation satisfactory to the City CM Engineer.

The bottom of concrete foundations shall rest on firm ground. When placing the foundations, the Contractor shall place all conduit ends in their proper position, at the correct heights and shall securely hold them in position during the pouring of concrete. The conduit ends shall be capped before any concrete is poured.

Both forms and earth to be in contact with foundations shall be thoroughly moistened before placing concrete.

Anchor bolts shall be galvanized and shall extend above the finished base as needed to ensure a minimum extension above the top nut of 3 threads. The maximum extension above the top nut is 1 inch. The distance between the base plate bottom and the top of the finished sidewalk shall be 2". Each bolt shall be supplied with 2 nuts and 2 flat washers to facilitate leveling. The anchor bolts and conduits shall be held in place by means of a template until the concrete sets.

Poles shall not be erected until the foundation concrete has set at least seven days and shall be plumbed as directed by the City CM Engineer. The top of concrete foundations shall be finished relative to curb or sidewalk grade as shown on the Plans or as directed by the City CM Engineer.

When grouting the base of the pole, the Contractor shall take care not to allow grout to enter or foul the conduit within the foundation.

Locations shown on the Plans are schematic.

23-3.8 Poles

Poles shall conform to the provisions in Sections 86-1.02J, 87-1.03J and 56-3 of the State Standard Specifications and these Specifications.

All hand hole covers must be of steel construction to allow welding after installation.

Embedded Steel poles shall conform to PG&E specifications for pole type 35-7274.

If relocation of Utilities is required, immediate notification shall be given to the appropriate Utility company by the Contractor.

The Contractor may install all underground electrical components, including foundations at the Site of the project; however, no streetlight poles shall be erected until underground conduit is in place.

Street light numbers shall be installed on the poles using minimum 2 ½" high numerals in accordance to City Standard Drawing No. E-25. Numbers shall be adhesive backed Almetek PS-2.5 or approved equivalent. The numbers shall be black on a contrasting background. Pole numbers shall be shown on the As-Built plans.

All nuts, washers, screws and other post hardware shall be galvanized.

23-3.9 Conduit

Conduit shall conform to the provisions in Section 86-1.02B of the State Standard Specifications and these Specifications.