**CONVENTIONAL LIGHTING**

**DESCRIPTION:**

1. **Pole Wire Detail:**
   - U.L. approved Ground Rod 5/8" diameter 20' long copper clad with approved ground connection (At all pull boxes)

2. **Metal Pole Wiring Detail:**
   - Grounding Lug
   - Breakaway Fuseholders with solid copper slugs. Slugs to be same size as 10 Amp fuse.
   - Surge Protective Device (SPD)
   - Breakaway fuseholders on Neutral side with solid copper slug (Line to Neutral Service). Slugs to be same size as 10 Amp fuse.
   - Breakaway fuseholder on 480V side with a 10 Amp slow blow fuse for line to line service both lines to be fused.

3. **Equipment Ground Conductor**
   - #6 Solid Copper Ground Wire
   - Strain Relief Fitting (See Note #2)

4. **Access Panel**
   - PVC Conduit with Type TC Cable
   - Strain Relief Fitting (See Note #2)
   - #6 TW Green Bonding Ground

5. **PVC Conduit with #6 Solid Copper Ground Wire (Bare)**
   - 1" PVC conduit with #6 Solid Copper Ground Wire (Bare)

6. **Surge Protective Device (SPD)**
   - Breakaway fuseholder on 480V side with a 10 Amp slow blow fuse for line to line service both lines to be fused.
   - Breakaway fuseholders on Neutral side with solid copper slug (Line to Neutral Service). Slugs to be same size as 10 Amp fuse.

7. **Circuit conductors in schedule 40 PVC conduit. Circuit conductors and conduit size as shown in plans. (Typical)**

8. **UL approved Ground Red 3/8" diameter 20' long copper clad with approved ground connection (At all pull boxes)**

9. **Length of Bracket Arm:**
   - Length of Bracket Arm
   - Pole setback 20' unless otherwise noted on plans

10. **Pull Box (See Metal Pole Wire Detail)**
    - Edge of traveled pavement or face of curb

11. **12" bed of Pearock or crushed stone for drainage.**

**NOTES:**

1. Barrier wall or bridge mounted poles: The wiring shall be in accordance with Section 992 of the Standard Specifications.

2. Provide cable length to remove fuseholders from transformer base, pole base or pullbox for maintenance. Remove slack from the luminaire cable to provide tension on the fuseholders if the pole breaks away. Pull excess cable into pull box tighten strain relief fittings or cable clamps at both ends of conduit to prevent cable from slipping.
NOTES:

1. Use compacted select material in accordance with Index 505.
2. Concrete shall be Class NS with a minimum strength at 28 days of f'c=2.5 ksi.
3. Outside edge of slab shall be cast against formwork.
4. The pull box shown is 13" x 24"; others approved under Section 633 of the Standard Specifications may be used.
5. Slabs to be placed around all Poles and Pull Boxes in rural locations. In urban areas or where space is limited slab dimensions may be adjusted as shown in the plans.
6. Concrete for slabs around pull boxes shall be included in the price of pull box.

CONVENTIONAL LIGHTING

SLAB DIMENSIONS

SLAB DETAILS FOR INTERMEDIATE PULLBOX LOCATIONS
NOTES:
1. Use compacted select material in accordance with Index 505.
2. Concrete shall be Class NS with a minimum strength at 28 days of f'c=2.5 ksi.
3. Outside edge of slab shall be cast against formwork.
4. The pull box shown is 1'-7" x 2'-6"; others approved under Section 835 of the Standard Specifications may be used.
5. Slabs to be placed around all poles and pull boxes. In urban areas or where space is limited slab dimensions may be adjusted as shown in the plans.
6. Concrete for slabs around poles and pull boxes shall be included in the price of pole or pull box.
7. The expansion joint shall consist of ½" of closed-cell polyethylene foam expansion material. The top ½" of expansion material shall be removed after pouring the slab and sealed with an APL approved Type A sealant meeting the requirements of Section 932.

Concrete shall be Class NS with a minimum strength at 28 days of f'c=2.5 ksi.

Outside edge of slab shall be cast against formwork.

The pull box shown is 1'-7" x 2'-6"; others approved under Section 835 of the Standard Specifications may be used.

Slabs to be placed around all poles and pull boxes. In urban areas or where space is limited slab dimensions may be adjusted as shown in the plans.

Concrete for slabs around poles and pull boxes shall be included in the price of pole or pull box.

The expansion joint shall consist of ½" of closed-cell polyethylene foam expansion material. The top ½" of expansion material shall be removed after pouring the slab and sealed with an APL approved Type A sealant meeting the requirements of Section 932.

Concrete shall be Class NS with a minimum strength at 28 days of f'c=2.5 ksi.

Outside edge of slab shall be cast against formwork.

The pull box shown is 1'-7" x 2'-6"; others approved under Section 835 of the Standard Specifications may be used.

Slabs to be placed around all poles and pull boxes. In urban areas or where space is limited slab dimensions may be adjusted as shown in the plans.

Concrete for slabs around poles and pull boxes shall be included in the price of pole or pull box.

The expansion joint shall consist of ½" of closed-cell polyethylene foam expansion material. The top ½" of expansion material shall be removed after pouring the slab and sealed with an APL approved Type A sealant meeting the requirements of Section 932.
GENERAL NOTES

1. Exothermically weld all grounding system connections. This includes all cables, ground electrode and aerials. Do not exothermically bond grounding electrode to grounding electrode. Method of Measurement and Basis of Payment as per Standard Specifications 620.

2. Contact all utility companies prior to any underground work. The utility company shall provide an access opening in the pavement for conduit to pass through the utility company poles. The contractor shall be responsible for providing conduit to the access opening in the pavement.

3. The contractor determines required date for the power company to install the power service at the pre-construction conference.

4. The power company reserves the right to install the riser, switch gear and weatherhead on power company poles at the expense of the contractor. Contact the power company for cost or for authorization for an alternate procedure.

5. Paint any damaged portions of galvanized steel poles and bracket arms in accordance with Standard Specifications 562.

6. Before final acceptance, contractor shall provide 2 sets of full size as built plans to the maintaining agency.

7. Route conduit pole to pole, maintaining pole setback distance from edge of pavement. Any cable routing in locations where guardrail is proposed shall be 2’ in front of the standard guardrail position.

8. Where guardrail is constructed, placed poles, which are considered above ground hazard, a minimum of 5’ behind the face of the guardrail.

9. Install pole foundations in accordance with Standard Specifications 715.

10. Make splices in pull boxes or the pole base, not inside the conduit. The wires at pull boxes must be long enough to remove connectors to the outside of pull boxes to make connectors accessible for changing fuses and trouble shooting the system.

11. Neutral wires to have white insulation. Do not use white or green insulated wires for ungrounded conductors.

12. Make exposed or surfaced mounted conduit out of rigid or intermediate metal. Provide exposed runs of conduit within either expansion joints or flexible metal conduit sections adequate to take care of vibrations and thermal expansions. Ground all metal conduit. Hot-dip all steel conduit.

13. Mandrel test, clean inside and cap both ends of all conduit that remains empty as spares. Leave the corrosion resistant pull/drag wire and place pull boxes to mark the location of the ends of the conduits.

14. Located pull boxes at the end of conduits crossing roadways, and as necessary for the completion of the project.

15. These plans represent minimum acceptable criteria. The inspection per these drawings represents the minimum base of acceptance.

16. All material are Underwriters Laboratory approved, unless otherwise specified.

17. Install a pull box at each pole location. Place pull boxes at a maximum of 2’ from pole unless otherwise directed by the project engineer. Ground metal pull box covers. See Standard Specifications 635.

18. At all pull boxes and pole bases, seal all ends of the conduit in accordance with Standard Specifications 630.

19. All mounting heights are ± 2-4” unless otherwise noted in plans.

20. A handhole is required in all poles. Locate handhole on the opposite side of approaching traffic, with a cover fastened with stainless steel screws and at least 20 square inches at the opening of the handhole.

21. On joint use poles ground the luminaire and arm.

BREAKAWAY FEATURE

All ground mounted metal light poles, 50 feet in height or less, shall be mounted on a frangible metal base. The base shall be one piece and be designed to breakaway without the aid of any slipping or sliding surfaces. The design of the breakaway feature shall be in accordance with the breakaway performance requirements of the AASHTO 'Standard Specifications For Structural Supports For Highway Signs, Luminaires and Traffic Signals’. The contractor (supplier) shall submit copies of test reports as evidence the breakaway feature meets the above requirements of the AASHTO wind loading specified in the contract plans. No poles are to be installed prior to approval of submittal data.

Poles behind bridge rail or barrier wall mounted, shall be installed on non-frangible bases.
HIGHMAST LIGHTING NOTES:

1. Poles are designed to support the following:
   A. One (1) cylindrical head assembly with a maximum effective projected area of 6 sf (cd=1) and 340 lbs (Max.)
   B. Eight (8) cylindrical luminaries with a maximum effective projected area of 30 sf (cd = 0.3) and 77 lbs each.

2. Shop Drawings: This Index is considered fully detailed, only submit shop drawings for minor modifications not detailed in the Plans.

3. High Mast Structure Materials:
   A. Poles and Backing Rings:
      a. Less than 7"; ASTM A1011 Grade 50, 55, 60 or 65
      b. Greater than or equal to 7"; ASTM A572 Grade 50, 55, 60 or 65
   B. Steel Plates: ASTM A709 or ASTM A36
   C. Pole Caps: ASTM A1011 Grade 50, 55, 60, or 65 or ASTM A572
   D. Hot Dip Galvanized:
   E. Stainless Steel Screws: AISI 316
   F. Anchor Bolts, Nuts and Washers:
      a. Anchor Bolts: ASTM F1554 Grade 55
      b. Nuts: ASTM A563 Grade A Heavy-Hex (5 per anchor bolt)
      c. Plate Washer: ASTM A36 (4 per anchor bolt)
   G. Nut Covers: ASTM B16 (6-19-F)
   H. Concrete: Class IV (Drilled Shaft)
   I. Reinforcing Steel: Specification Section 415

4. Fabrication:
   A. Welding: Specification Section 460-6.4
   B. Poles:
      a. Round or 16-Sided (Min.)
      b. Pole Taper: Diameter changing at 0.14 inches per foot
      c. Two longitudinal seam welds (Max.)
      d. Longitudinal seam welds within 6" of pole to base must be complete penetration welds.
      e. Longitudinal seam welds at telescopic field joints must be complete penetration welds for the splice length plus 6".
   C. Holes for Anchor Bolts, Anchor Bolt diameter plus 1/4" (Max.), prior to galvanizing.
   D. Hot Dip Galvanize after Fabrication
   E. Identification Tag: (Submit details for approval.)
      a. 2 x 4" (Max.) aluminum identification tag
      b. Locate on the outside of the pole and visible from the handhole.
      c. Secure to pole with 1/4" diameter stainless steel rivets or screws.
      d. Include the following information on the ID Tag:
         1. Financial Project ID
         2. Pole Type
         3. Pole height
         4. Manufacturer's Name
         5. Fe of Steel
         6. Base Wall Thickness

5. Coating:
   A. Galvanize Anchor Bolts, Nuts and Washers; ASTM F2229
   B. Hot Dip Galvanize all other steel items; ASTM A123

6. Construction:
   A. Foundation: Specification Section 455 Drilled Shaft, except that payment is included in the cost of the Structure.
   B. After Installation: Place wire screen between top of foundation and bottom of baseplate in accordance with Specification Section 649-6.
NOTES:
1. At all pull boxes, ends of conduit shall be sealed in accordance with Section 630 of the Standard Specifications For Road And Bridge Construction.
2. Slabs to be placed around all Poles and Pull Boxes.
3. For Pull Boxes between Poles refer to Index 17500.

For Pull Boxes between Poles refer to Index 17500.

1. Slabs to be placed around all Poles and Pull Boxes.
3. For Pull Boxes between Poles refer to Index 17500.
The contractor’s attention is directed to those plan sheets detailing the mounting of luminaires at the pole tops. Particular attention is directed to the alignment of luminaire light distributions. Special attention must be exercised in the physical alignment of these luminaires to ensure that the approved photometric layout is physically produced at each lighting standard in the field. A marking shall be placed on the external face of the refractor to allow visual inspection of alignment. The marking shall correspond to the 0° axis of the refractor.

Luminaire support ring

2" slip fitter

Lift cable sheaves

Pole cable & sheaves

Cover

See legend for number of luminaires, lamp wattage and light distribution.

Lift cables (2 minimum)

Covered receptacle to power luminaires when in the lowered position with Male Inlet.

Luminaire support ring

2" Slip/Filter Assembly (equally spaced around ring)

Power Cable Terminator

600 Volt rated Pole Cable. Size of conductors to be determined by luminaire load.

Circuit Breaker Cable with Female Plug

Hand hole

Winch

Positive drive reversible winch

A surge protector shall be located in the pole with the circuit breaker. The surge protector shall be mounted at the front near hand hole for easy access.

Winch

Female Plug

600 Volt rated Circuit Breaker Cable. Size of conductors to be determined by luminaire load.

Base plate

600 Volt rated Pole Cable. Size of conductors to be determined by luminaire load.

Female Plug

Cover

Head plate

Lift cable sheaves

Pole cable & sheaves

2" slip fitter

Power Cable Terminator

600 Volt rated Pole Cable. Size of conductors to be determined by luminaire load.

Circuit Breaker Cable with Female Plug

Hand hole

Winch

Positive drive reversible winch

A surge protector shall be located in the pole with the circuit breaker. The surge protector shall be mounted at the front near hand hole for easy access.

Winch

Female Plug

600 Volt rated Circuit Breaker Cable. Size of conductors to be determined by luminaire load.

Base plate

600 Volt rated Pole Cable. Size of conductors to be determined by luminaire load.

Female Plug

Cover

Head plate

Lift cable sheaves

Pole cable & sheaves

2" slip fitter

Power Cable Terminator

600 Volt rated Pole Cable. Size of conductors to be determined by luminaire load.

Circuit Breaker Cable with Female Plug

Hand hole

Winch

Positive drive reversible winch

A surge protector shall be located in the pole with the circuit breaker. The surge protector shall be mounted at the front near hand hole for easy access.

Winch

Female Plug

600 Volt rated Circuit Breaker Cable. Size of conductors to be determined by luminaire load.

Base plate

600 Volt rated Pole Cable. Size of conductors to be determined by luminaire load.

Female Plug

Cover

Head plate

Lift cable sheaves

Pole cable & sheaves

2" slip fitter

Power Cable Terminator

600 Volt rated Pole Cable. Size of conductors to be determined by luminaire load.

Circuit Breaker Cable with Female Plug

Hand hole

Winch

Positive drive reversible winch

A surge protector shall be located in the pole with the circuit breaker. The surge protector shall be mounted at the front near hand hole for easy access.

Winch

Female Plug

600 Volt rated Circuit Breaker Cable. Size of conductors to be determined by luminaire load.

Base plate

600 Volt rated Pole Cable. Size of conductors to be determined by luminaire load.
NOTES:

1. Use compacted select material in accordance with Index 505.
2. Concrete shall be Class N5 with a minimum strength at 28 days of f'c=2.5 ksi.
3. Outside edge of slab shall be cast against formwork.
4. The pull box shown is 13" x 24"; others approved under Section 635 of the Standard Specifications may be used.
5. Slabs to be placed around all Poles and Pull Boxes. In urban areas or where space is limited slab dimensions may be adjusted as shown in the plans.
6. Concrete for slabs around poles and pull boxes shall be included in the price of pole or pull box.
7. The expansion joint shall consist of ½" of closed-cell polyethylene foam expansion material. The top ½" of expansion material shall be removed after pouring the slab and sealed with an APL approved Type A sealant meeting the requirements of Section 932.

Concrete shall be Class NS with a minimum strength at 28 days of f'c=2.5 ksi.
Use compacted select material in accordance with Index 505.

Concrete for slabs around poles and pull boxes shall be included in the price of pole or pull box.

Use compacted select material in accordance with Index 505.

Concrete shall be Class NS with a minimum strength at 28 days of f'c=2.5 ksi.
Use compacted select material in accordance with Index 505.
GENERAL NOTES:
1. It shall be the contractors responsibility to provide a complete service assembly as per the plans and service specifications.
2. The service installation shall meet the requirements of the national electric code and applicable local codes.
3. Shop drawings are not required for service equipment, unless noted in the plans.
4. A Pull Box is required at each service point, see Index 17700.

DETAIL A
AERIAL FEED

Concrete Pole, Prestressed Type P-II, 30' Long

Clevis With Insulators

Conductor Weatherhead Height
As Required By Power Company

Meter As Required Height Specified By Power Company

Service Disconnect

#6 AWG Insulated Grounding Electrode Conductor In 1/2" Rigid Galvanized Steel Conduit

30" (Typ.)

Concrete Pad
Grade

U.L. Approved Ground Rod, 1/2" Dia. 40' long Copper Clad (All Service Points)

12' Bed Of Pea Rock Or Crushed Stone For Drainage (Typ.)

DETAIL B
UNDERGROUND FEED

Concrete Pole, Prestressed Type P-II, 12' Long

Meter As Required Height Specified By Power Company

Service Disconnect

#6 AWG Insulated Grounding Electrode Conductor In 1/2" Rigid Galvanized Steel Conduit

Concrete Pad
Grade

Connection For Pole Ground, Bond Wire, And Ground Rod

12' Bed Of Pea Rock Or Crushed Stone For Drainage (Typ.)

Connection For Pole Ground, Bond Wire, And Ground Rod

GENERAL NOTES:
1. It shall be the contractors responsibility to provide a complete service assembly as per the plans and service specifications.
2. The service installation shall meet the requirements of the national electric code and applicable local codes.
3. Shop drawings are not required for service equipment, unless noted in the plans.
4. A Pull Box is required at each service point, see Index 17700.
Keyed Notes:
2. Service Feeder in Rigid Galvanized Steel Conduit.
3. Meter Socket by Contractor
4. Service Main Disconnect.
6. Concrete Riser Pole.
7. Weatherhead.
8. Electrical Panel. Number and Rating of Branch Circuit Breakers shall be as Indicated on Distribution Point Description on Lighting Plan Sheets.
10. Copper Clad Ground Rod, 40' Long.
11. Insulated Copper Ground Wire. Bond the Service Neutral to Ground at Service Main Disconnect.
12. Fused Control Power Transformer 0.5 KVA, Single Phase, 480V Primary, 120V Secondary (Part of Lighting Contactor, Shown Outside for Clarity).
13. Lightning Arrester Mounted on Outside of Enclosure.
15. 2 Pole Electrical Lighting Contactor.
16. Photo Electric Switch-120V Rated.
17. Hand-off Automatic Selector Switch (Part of Lighting Contactor, Shown Outside for Clarity).
18. Concrete Pad.
20. Mount on Riser Pole.
21. Ground BUS.
22. NEMA 4X SST Ground Mounted Storage Cabinet with Two Shelves. Only Required for High Mast Lighting Systems.

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To Electrical Service Drop

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ONE LINE DIAGRAM DISTRIBUTION POINT

PHOTO ELECTRIC CONTROLLER DETAIL

Cut a 2" hole in the side of the Lighting Control Panel enclosure for the operation and mounting of the P.E. controller. Use plexiglass and a clear silicone sealant to cover hole, install P.E. Controller.

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TYPICAL DISTRIBUTION POINT SCHEMATIC DETAIL

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RISER DIAGRAM - TYPICAL DISTRIBUTION POINT
PLACEMENT OF SIGN LIGHTS

1. This Index details a bottom luminaire support structures. For signs requiring top luminaire support structures, the detail can be reversed.

2. Luminaires spacing and arm length is shown on guide sign worksheet.

3. Guide sign worksheet indicates sign luminaire used for basis of design. The contractor may propose a different luminaire by submitting photometric calculations for each lighted sign for review.

SIGN LIGHTING INSTALLATION

Roadway Lighting included in contract:

1. Power for the sign lighting provided from the roadway lighting circuit.

2. Indicate sign location and a pull box location for connection to the sign lighting in the lighting plans.

3. Lighting contractor installs pull box and loop 2' of lighting circuit conductors in the pull box for connection by the signing contractor.

4. Signing contractor furnishes and installs the luminaires. Nema 3R enclosure, 30 amp breaker, conduit, conductors and all other electrical equipment necessary for connection to the lighting circuit.

Roadway Lighting not included in contract:

1. Signing plans include the pay item numbers to furnish and install conduit, conductors, ground rods, pull boxes and service point equipment.

2. Signing plans indicate the location of the service point equipment and circuit runs.

3. Signing contractor provides all electrical equipment necessary for connection of the sign lights.
NOTES

1. Dimension to be established by type and make of luminaire to be purchased and used on the project.
2. Install hanger pipe to each vertical beam crossed with a 3/8" U-Bolt, lock washers and hex nuts. Cap both ends of the horizontal pipe.
3. Materials:
   - Steel Pipe: ASTM A53 (Grade A or B)
   - Steel Plate: ASTM A36
   - Hex Nuts: ASTM A563
   - Washers: ASTM F436
5. All pipe dimensions are NPS.
6. Chord D.O. + 5' (Min.)

SECTION "BB"

1/2" U-Bolt with lock washers & Elastic Nuts (2 Bolts Req'd)
1/4" Top Hanger Pipe (2" Sch. 40 Pipe)

PLATE "A"

3" Sch. 40 Pipe
3/4" 8 Holes On 5" Ø
Bolt Circle (4 Req'd)

21/2" To 1/2" Reducing Coupling
See Note #1

LUMINAIRE SUPPORT STRUCTURE

(Luminaire Support Structure)
**GENERAL NOTES**

1. Poles are designed to support the following:
   - Luminaire Effective Projected Area (EPA): 1.55 SF

2. Shop Drawings: This Index is considered fully detailed, only submit shop drawings for minor modifications not included in the Plans.

3. Materials:
   - A. Pole, Pole Connection Extrusions and Arm Extrusions: ASTM B221, Alloy 6063-T6
   - B. Bars, Plates, Stiffeners and Backer Ring: ASTM B221, Alloy 6063-T6
   - C. Caps and Covers: ASTM B221, Alloy 319-F
   - D. Steel Bearing Plate: ASTM A576 or ASTM A36 Grade 36
   - E. Aluminum Weld Material: 4043
   - G. Bolts, Nuts and Washers:
     - a. Shoe Base Bolts: ASTM A325 Type 1
     - b. Nuts: ASTM A563 Grade DH Heavy-Hex
     - c. Washer: ASTM F386 Type 1
   - H. Anchor Bolts, Nuts, and Washers:
     - a. Anchor Bolts: ASTM F1554 Grade 55
     - b. Nuts: ASTM A563 Grade A Heavy-Hex
     - c. Plate Washer: ASTM A36
   - I. Stainless Steel Fasteners: 43051 316
   - J. Nut Covers: ASTM B26 (319-F)
   - K. Concrete: Class 1
   - L. Rebar: ASTM A615
   - M. Reinforcing Steel: Specification Section 415
   - N. Frangible Transformer Base:
     - a. Tests demonstrating a pole with a 1" wall thickness achieves an ultimate moment capacity of 36 kip*ft
     - b. Tests demonstrating a pole with a 1.5" wall thickness achieves an ultimate moment capacity of 44 kip*ft
   - O. Embedded Junction Boxes (EJB):
     - a. Weld all seams continuously and grind smooth.
     - b. Not Dip Galvanize after Fabrication.
     - c. Provide a watertight cover with neoprene gasket and secure cover with galvanized screws.
   - H. For Medium Barrier Mounted Aluminum Light Poles, the fabricator must demonstrate the ability to produce a crack free pole, the fabricator’s Department-approved QC Plan must contain the following information prior to fabrication:
     - a. Tests demonstrating a pole with a 1/4" wall thickness achieves ultimate moment capacity of 36 kip*ft in the strong axis and 30 kip*ft in the weak axis.
     - b. Tests demonstrating a pole with a 1/2" wall thickness achieves ultimate moment capacity of 44 kip*ft in the strong axis and 37 kip*ft in the weak axis.
     - c. Test results showing the pole does not buckle at the shape transition area under the ultimate moment capacity loads.
     - d. Complete details and calculations for the reinforced 4"x 6" (Min.) handhole located 1'-6" above the base plate.
   - I. Identification Tag: (Submit details for approval.)
     - a. 2" x 4" [Max] aluminum identification tag.
     - b. Include all relevant information on the ID Tag.
     - c. Cover to Transformer base with 1/4" diameter stainless steel rivets or screws.
     - d. Include the following information on the ID Tag:
       - 1. Financial Project ID
       - 2. Pole Height
       - 3. Manufacturer’s Name
   - 5. Coatings/Finish:
     - A. Pole and Arm Finish: 50 grid satin rubbed.
     - B. Galvanize Steel Bolts, Screws, Nuts and Washers: ASTM F2329
     - C. Hot Dip Galvanize 0.060" and other steel items including poles: ASTM A123
   - 6. Construction:
     - A. Foundation, Specification Section 455, except payment for the foundation is included in the cost of the pole.
     - B. Frangible Base and Clamp:
       - a. Certify that the Clamp and Frangible Transformer Base Design are capable of providing the required capacity.
       - b. Certify the clamp conforms to the current FHWA required AASHTO Frangibility Requirements, tested under NCHRP Report 350 Guidelines (e.g., Akron Foundry T87-173).
       - c. Do not erect pole without Luminaire attached.

7. Payment Note: Include the cost of the EJB in the cost of the median barrier or Traffic Railing it is embedded in.
**ARM TABLE**

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<th>Arm Length (FT)</th>
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<th>Lower Arm</th>
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<td>O.D. (IN)</td>
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* Increase Member Wall Thickness as necessary to meet minimum requirements of the Welding Code for the connection weld sizes shown in the Arm and Pole Tables.

**ARM ELEVATION**

Pole connection extrusion (Typical). See note in Sheet 2 for material specification.

Provide 1/4" drain holes in underside of arm tubes 1 1/2" from the base weld.

Double arm configuration is only for median barrier mounted aluminum light poles.

**ARM & DAMPER DETAILS**

**ARM TUBE EXTRUSIONS NOTES:**

At the pole connections, provide arm tube extrusions with dimensions as shown in the Arm Section and as tabulated in the Arm Data Tables.

The fabricator may substitute elliptical cross sections other than those tabulated, provided the section properties about the vertical axis and the area of the section equal or exceed that of the required section, and provide minimum wall thickness of 1/8" nominal and within the aluminum association tolerances.

The outside diameter about the minor axis should be held at 2 1/8" at the upper and lower arms.

**INDEX NO. 17515**

**2016 DESIGN STANDARDS**

**STANDARD ALUMINUM LIGHTING**

**HIGH TEMP VINYL CAP DETAIL**

**VIBRATION DAMPER ELEVATION**

**VIEW B-B**

**VIEW C-C**

**VIEW D-D**

**DIMPLE DETAIL**

**SECTION A-A**

(See Cap Details)
**POLE AND BASE DETAILS FOR ROADWAY ALUMINUM LIGHT POLE**

**SECTION C-C**

**TOP VIEW**

**TRANSFORMER BASE**

**BOTTOM VIEW**

**TRANSFORMER BASE**

**TOP MOUNT TENON**

**VIEW B-B**

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**NOTES**

- Ace Aluminum Base Shoe 13⁄16" Bolt Circle
- Cast Aluminum Base Shoe See Note on Sheet No. 2
- Cast Aluminum Base Shoe See Note on Sheet No. 2

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**FOOTING TABLE W/ARM**

**FOOTING TABLE W/ARM**

**POLE TABLE W/ARM**

**POLE TABLE W/ARM**

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**INDEX**

**SHEET NO.**

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**DESIGN STANDARDS**

**STANDARD ALUMINUM LIGHTING**

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**LAST REV: 07/01/15**

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**2016 DESIGN STANDARDS**

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**INDEX NO.**

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**NO. 17515**

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**4 of 8**

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**DO NOT TAMPER**
**BASE PLATE DETAILS FOR MEDIAN BARRIER MOUNTED ALUMINUM LIGHT POLE**

**DESCRIPTION:**

- **STIFFENER PLATE DETAIL**
  - Base Plate & Light Pole
  - Full Penetration Weld
  - Stiffener Plate (see Stiffener Plate Detail)

- **BASE PLATE PLAN**
  - Base Plate & Light Pole
  - Full Penetration Weld

- **BASE PLATE ELEVATION**
  - Base Plate & Light Pole

- **BEARING PLATE ELEVATION**
  - Base Plate & Light Pole
  - Full Penetration Weld

- **BEARING PLATE PLAN**
  - Base Plate & Light Pole

**POLE TABLE**

<table>
<thead>
<tr>
<th>WIND SPEED (MPH)</th>
<th>ARM LENGTH (FT)</th>
<th>DESIGN MOUNTING HEIGHT (FT)</th>
<th>POLE WALL (IN)</th>
<th>FILL HEIGHT (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>110</td>
<td>6.10, 12</td>
<td>40</td>
<td>0.25</td>
<td>Up to 10</td>
</tr>
<tr>
<td>130</td>
<td>6.10, 12</td>
<td>40</td>
<td>0.25</td>
<td>Up to 10</td>
</tr>
<tr>
<td>150</td>
<td>6.10, 12</td>
<td>40</td>
<td>0.313</td>
<td>&gt;20 to 29</td>
</tr>
</tbody>
</table>

**NOTE:**

- Pole wall thicknesses shown in the POLE TABLE are nominals and shall be within the Aluminum Association tolerances.
- Thicker walls are permitted and tapered walls may be used provided the minimum Aluminum Association thicknesses are not violated.

- **POLE TABLE**
  - Wind Speed (MPH)
  - Arm Length (FT)
  - Design Mounting Height (FT)
  - Pole Wall (IN)
  - Fill Height (FT)

- **NOTE:**
  - For locations of Bearing Plates, Base Plates and Base Plate Details A: See Sheets 6 & 7.

- **BASE PLATE DETAILS FOR MEDIAN BARRIER MOUNTED ALUMINUM LIGHT POLE**

- **BASE PLATE PLAN**
  - Base Plate & Light Pole

- **BASE PLATE ELEVATION**
  - Base Plate & Light Pole

- **BEARING PLATE ELEVATION**
  - Base Plate & Light Pole

- **BEARING PLATE PLAN**
  - Base Plate & Light Pole
Provide dowel bars @ construction joint

Min. 10' from free end, barrier wall transition, approach ends and guardrail.

For reinforcement steel see Index 410 & 421

For Base Plate Details see Sheet 5.

NOTE:

For Bearing Plate Details see Sheet 5.
CYLINDRICAL FOUNDATION DETAILS FOR MEDIAN BARRIER MOUNTED ALUMINUM LIGHT POLE

Plan:
- Reinforcing steel not shown.
- Provide dowel bars @ construction joint.
- Min. 10' from free end.

Elevation:
- 2" Ø Conduit for grounding.
- 2" Ø Conduit for approach ends and barrier wall transition.

End View:
- Class I Concrete may be Cast-in-Place or Preced with "Flowable Fill" Backfill.

NOTE:
- For Roadway Concrete Barrier Wall reinforcing steel see Index 410.
Bridge Deck

PLAN
(Reinforcing steel not shown)

ELEVATION
(Longitudinal and transverse deck reinforcing steel not shown)

BAR BENDING DIAGRAMS

END VIEW
(Longitudinal and transverse deck reinforcing steel not shown)

DETAILS FOR TRAFFIC RAILING (MEDIAN 32" F SHAPE) MOUNTED ALUMINUM LIGHT POLE

NOTES:
1. For Base Plate Details, Bearing Plate Details and Detail 'A' see sheet 5.
2. See Index 421 for details of Traffic Railing (Median 32" F Shape) and angles LA and LB.