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LIGHT STANDARD FOUNDATION DETAILS - CONCRETE

(GROUND MOUNTED UNITS)

1. All ground mounted light poles shall be provided with a galvanized anchor plate and/or device per the Illinois Tollway Supplemental Specifications Section 1070.

2. All ground mounted light poles shall be provided with a galvanized anchor plate and/or device per the Illinois Tollway Supplemental Specifications Section 1070.

3. All slopes are expressed as units of vertical displacement to units of horizontal displacement (V:H).

4. All reinforcement bars shall be epoxy coated.

5. For details of fuse holder, pole base wiring and conductor splice see Standard H2.

6. For details of fuse holder, pole base wiring and conductor splice see Standard H2.

7. All equipment shall be grounded and bonded in accordance with the National Electrical Code and the National Electrical Safety Code.

8. All reinforcement bars shall be epoxy coated.

9. All equipment shall be grounded and bonded in accordance with the National Electrical Code and the National Electrical Safety Code.

NOTES:

1. All ground mounted light poles shall be provided with an accepted FHWA breakaway base or device per the Illinois Tollway Supplemental Specifications Section 1070.

2. All ground mounted light poles shall be provided with a galvanized anchor plate and/or device per the Illinois Tollway Supplemental Specifications Section 1070.

3. All slopes are expressed as units of vertical displacement to units of horizontal displacement (V:H).

4. All reinforcement bars shall be epoxy coated.

5. For details of fuse holder, pole base wiring and conductor splice see Standard H2.

6. For details of fuse holder, pole base wiring and conductor splice see Standard H2.

7. All equipment shall be grounded and bonded in accordance with the National Electrical Code and the National Electrical Safety Code.

8. All reinforcement bars shall be epoxy coated.

9. All equipment shall be grounded and bonded in accordance with the National Electrical Code and the National Electrical Safety Code.
BASE ATTACHMENT DETAIL

ISOMETRIC

LIGHT STANDARD FOUNDATION DETAILS - HELIX
(GROUND MOUNTED UNITS)

NOTES:
SEE SHEET 1 OF THIS SERIES FOR NOTES.
LIGHT STANDARD FOUNDATION DETAILS - MEDIAN BARRIER
(MODIFICATIONS FOR SLIPEFORM POUR, 42" BARRIER)

COUPLING NUT

SETTING PLATE

NOTES:
1. SEE SHEET 1 OF THIS SERIES FOR NOTES.
2. PLUG TOP OF COUPLER WITH PLASTIC PLUG ON COVER HOLE PLACING CONCRETE.

APPROVED DATE
CHIEF ENGINEERING OFFICER 2-7-2012

#6 a1 (E) BARS 10" SPACING
L/C NO. 2 BARE TINNED COPPER GROUND WIRE BOLTED TO POLE GROUNDING LUG
COUPLING NUT REMOVED 3/4" BELOW TOP OF WALL

MINIMUM TWO (2) CONNECTED (THREADED)
4" DIA. SCHEDULE 40 PVC OR ONE CONNECT
TOP OF GROUND ROD MINIMUM 1 INCH

1" DIA. THREADED EXTENSION
NOT DIPPED GALVANIZED TOP OF BARRIER

#6 a1 (E) BARS 10" SPACING
L/C NO. 2 BARE TINNED COPPER GROUND WIRE BOLTED TO POLE GROUNDING LUG
COUPLING NUT REMOVED 3/4" BELOW TOP OF WALL

MINIMUM TWO (2) CONNECTED (THREADED)
4" DIA. SCHEDULE 40 PVC OR ONE CONNECT
TOP OF GROUND ROD MINIMUM 1 INCH
LIGHT STANDARD FOUNDATION DETAILS - GRADING W/ FORESLOPE
(GROUND MOUNTED UNITS)

NOTE:
(SEE NOTE 1)
LEVEL GRADED AREA
(SEE NOTE 3)

LIGHT STANDARD FOUNDATION
ADJACENT TO AGGREGATE SHOULDER

LIGHT STANDARD FOUNDATION
ADJACENT TO GUTTER

PLAN
LIGHT STANDARD FOUNDATION DETAILS - GRADING W/ BACKSLOPE

GROUND MOUNTED UNITS

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.
LIGHT STANDARD FOUNDATION - HELIX
ADJACENT TO AGGREGATE SHOULDER

LIGHT STANDARD FOUNDATION - CONCRETE
ADJACENT TO AGGREGATE SHOULDER

LIGHT STANDARD FOUNDATION - HELIX
ADJACENT TO GUTTER

LIGHT STANDARD FOUNDATION - CONCRETE
ADJACENT TO GUTTER

LIGHT STANDARD FOUNDATION DETAILS - ADJACENT TO GUARDRAIL
(GROUND MOUNTED UNITS)

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.
NOTES:
1. FOR STRUCTURAL PARAPET FOUNDATION DETAILS, SEE STRUCTURAL PLANS.
2. THE END 4'-0" SECTION OF ARIAL/PARAPET SHALL BE KEPT FREE FROM ANY ATTACHMENTS TO AVOID CONFLICT FROM TRAFFIC BARRIER TERMINAL.
3. ALL CONDUIT, JUNCTION BOXES AND APPURTENANCES MOUNTED TO STRUCTURE SHALL BE OFFSET FROM THE FACE OF THE STRUCTURE A MINIMUM OF ONE (1) INCH BY MEANS OF A STAINLESS STEEL C-CHANNEL. C-CHANNEL SHALL BE SECURED TO BRIDGE PARAPET WITH 1/2" DIA. EXPANSION ANCHORS 1/2" LONG. EXPANSION ANCHORS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION AND SHALL BE MADE BY PARABOLT, KWICK-BOLT OR WIDE-BOLT. CONDUIT SHALL BE SECURED WITH APPROVED CLAMPS A MINIMUM OF 5 FEET FROM CENTER AND A MINIMUM OF 2 FEET FROM ANY CHANGE IN DIRECTION OR JUNCTION BOX.
5. EXPANSION/DEFLECTION JOINTS SHALL BE PROVIDED AT ALL BRIDGE EXPANSION JOINTS.
6. ALL CLAMPS AND HARDWARE FOR CONDUIT MOUNTING SHALL BE OF LIKE MATERIAL AS THE CONDUIT.
7. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.

CONDUIT EMBEDDED IN BRIDGE PARAPET
CONDUIT EMBEDDED IN BRIDGE PARAPET WALLS
(INTEGRAL/SEMI-INTEGRAL ABUTMENT WITH PARAPET ENDING ON BRIDGE DECK)

UNIT DUCT SIZE PER PLANS

STAINLESS STEEL JUNCTION BOX
SIZED PER PLANS

UNIT DUCT IN CONDUIT TO STAINLESS-STEEL JUNCTION BOX

NOTE:
EMBEDDED IN STRUCTURE
OR CNC CONDUIT
2" DIA. SCH. 40 PVC

BRIDGE PARAPET
SIZED PER PLANS
JUNCTION BOX
STAINLESS STEEL

WING WALL
SIZED PER PLANS
JUNCTION BOX
STAINLESS STEEL

STRUCTURE
RIGID CONDUIT ATTACHED TO 2" DIA. STAINLESS STEEL CONDUIT
ON EITHER END TO REDUCE DISTANCE TO 6'-0" OR LESS
CONDUIT ATTACHED TO STRUCTURE AS REQUIRED ON EITHER END TO REDUCE DISTANCE TO 6'-0" OR LESS
(6'-0" MAX. LENGTH) PROVIDE ADDITIONAL RIGID CONDUIT
2" DIA. LIQUID-TIGHT FLEXIBLE NON-METALLIC CONDUIT
ATTACHED TO STRUCTURE AS REQUIRED ON EITHER END TO REDUCE DISTANCE TO 6'-0" OR LESS

PLAN

SECTION A-A

ELEVATION

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.
CONDUIT DETAILS

PLAN VIEW

ELEVATION OF TYPICAL WINGWALL CONDUIT TRANSITION

CONDUIT ATTACHED TO BRIDGE PARAPET

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

STANDARD H3-06
**Heavy-Duty Handhole Details**

**NOTES:**

1. **Heavy-Duty Handhole located in Unpaved Areas and NOT Shielded by Guardrail** should be constructed with the top flush with the adjacent slope.

2. **Heavy-Duty Handhole shall be constructed in Non-Paved Areas.** The frame and hinged cover shall be either Neenah Foundry R-6662-PS or East Jordan Iron Works EJ 8216 iron cover with hinge or approved equal. The hinged cover shall be provided with a lift assist mechanism. There shall be two sets of hinges and the design shall allow for the cover to open > 90 degrees. The cover shall be provided with a self-open safety arm that catches to prevent accidental closure. The cover shall also be able to be made fully removable. The frame cover shall be installed with the hinges to the side facing approaching traffic.

3. **Aggregate for French Drain shall be per Article 1004 of the Standard Specifications.**

4. 10 feet of extra cable shall be coiled in each handhole.

5. All metallic components of the handhole shall be grounded and bonded in accordance with the Illinois Tollway Supplemental Specifications Section 814, the National Electrical Code and the National Electrical Safety Code.

6. The handhole cover shall be lettered. **Electrical** lettering shall be 2" flat face Gothic and be flush with the slip resistant surface.

**Heavy-Duty Handhole and Buried Wiring Details**

**Picture:**

- **Plan:**
  - Gray iron frame and ductile iron plate cover.
  - 3'-4" x 3'-4" finished grade.
  - Cable hooks:
    - 2" Schedule 80 drain pipe to side slope or storm sewer.

- **Elevation:**
  - SS-.040 rigid conduit.
  - 2" Schedule 80 drain pipe to side slope or storm sewer.
  - French drain:
    - 4'x4'x1' French drain.

- **Slope Installation:**
  - 2" x 2'-9" 5" three sides.
  - 1'-0" x 2'-6" 3'-9".

- **Trenching for Conduit in Non-Paved Areas:**
  - 20'-0" with 10'-0" or 11'-0" shoulders.
  - 14'-0" with 10'-0" or 11'-0" shoulders.

---

**Drawings:**

- **Plan:**
  - Buried wiring details.
  - East Jordan EJ 8216.
  - Neenah R-6662-PS.

**Specifications:**

- Excavated material.
  - Backfill trench with sand.
  - 20'-0" with 10'-0" or 11'-0" shoulders.
  - 14'-0" with 10'-0" or 11'-0" shoulders.

**Notes:**

- Seed or sodded per Standard Specifications.

**Date:**

- 2-07-2012
- 3-31-2017
NOTES:
1. Meter housing shall be mounted to back wall of control cabinet. Provide a gate in row fence to allow utility access to read the meter.
2. Cables from meter housing shall pass through back wall of control cabinet.
3. Contractor must coordinate with pedestal base supplier and furnish the necessary anchor rod.
4. Provide a 2½” conduit hub, 2½” nipple and 2½” to 3” conduit reducer fitting.
5. All equipment shall be grounded and bonded in accordance with the National Electrical Code and the National Electrical Safety Code.

**UTILITY SERVICE POLE**

- Subject to utility company approval

**UTILITY PAD MOUNTED TRANSFORMER**

- Furnished by utility company

- Footing, conduit and transformer grounding by contractor in accordance with utility requirements

- Subject to utility company approval

**SERVICE PEDESTAL WITH METER DETAIL**

- 3” dia. Schedule 40 PVC conduit from pole to pad mounted transformer. Size of conductors per plans.
- 36” radius Schedule 40 PVC conduit elbow.
- 3” dia. Schedule 40 PVC conduit to utility service pole or pad mounted transformer. Size of conductors per plans.
- 36” radius Schedule 40 PVC conduit elbow.

**ELECTRICAL EQUIPMENT MOUNTING PANEL MOUNTED TO THE BACK OF CABINET**

- 3” dia. stainless steel rigid conduit.
- 2½” Schedule 40 PVC conduit for ground wire.
- Provide a 2½” conduit hub, 2½” nipple and 2½” to 3” conduit reducer fitting.

**NOTES**

1. Provide a 2½” conduit hub, 2½” nipple and 2½” to 3” conduit reducer fitting.
2. All equipment shall be grounded and bonded in accordance with the National Electrical Code and the National Electrical Safety Code.
ITEM DESCRIPTION

1. CIRCUIT BREAKER, 200 AMPERE, 2-POLE, 600 VOLT RATED
2. Surge Protection Device
3. POWER DISTRIBUTION/TERMAL BLOCK, WITH INGRESS PROTECTION RATING IP20.
4. CIRCUIT BREAKER, 50 AMPERE, 1-POLE, 600 VOLT RATED
5. CIRCUIT BREAKER, 20 AMPERE OR AS REQUIRED BY CONTRACT PLANS, 1-POLE, 600 VOLT RATED

NOTES:
1. Electric service conductors from meter housing.
2. Electrical service conductors to lighting control console. Size as indicated on the plans.
3. Surge protection device conductors size shall be according to manufacturer's recommendation.
4. Electric conductors shown with minimum sizes. Larger sizes shall be used as required or as shown on the plans.
5. Cables shall be minimum #4 AWG or as required for circuit breaker.

SURGE PROTECTION DEVICE

CIRCUIT BREAKER, 200 AMPERE, 2-POLE, 600 VOLT RATED

EQUIPMENT LAYOUT & WIRING DIAGRAM - ROADWAY LIGHTING

EQUIPMENT LAYOUT & WIRING DIAGRAM - ROADWAY ITS

NOTE 1

NOTE 3

NOTE 2

NOTE 5
INTERIOR EQUIPMENT LAYOUT

SECTION B-B

CONTROL CONSOLE DETAILS
(EXTERIOR INSTALLATION)

NOTES:
1. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
2. 0'-0" MAXIMUM HEIGHT ABOVE GRADE.
3. NOT USED.
4. 6" PVC CONDUIT IN CONCRETE. SEE FOUNDATION DETAILS (STANDARD H7).
5. SCREENED LOUVERS ON SIDES OF CABINET.
6. TO SERVICE PEDESTAL AS INDICATED ON PLANS.
7. NOT USED.
8. CONTINUOUS STAINLESS STEEL PIANO HINGES.
9. 3-WAY LATCH VAULT TYPE HANDLE WITH MASTER KEYED CHICAGO CYLINDER LOCK CATALOG NO. 60.
10. SCREENED LOUVERS ON SIDES OF CABINET.
11. 10 GAUGE GALVANIZED STEEL EQUIPMENT MOUNTING PANEL (PAINTED WHITE).
12. REMOVABLE NO. 10 GAUGE STAINLESS STEEL PLATE. PLATE AS REQUIRED FOR CONDUIT ENTRY.
13. 5'-0" STAINLESS STEEL CHANNEL IS REQUIRED, FRONT AND BACK. EXTERNAL CHANNEL 3" BEYOND ENCLOSURE (CONTINUOUSLY HELD CHANNEL TO ENCLOSURE).
14. TOP SLOPED 3" TO REAR FOR DRAINAGE.
15. FOR WIRING DIAGRAM SEE SHEET 2 OF THIS SERIES.
16. ALL EQUIPMENT WITHIN LIGHTING CONTROLLER SHALL BE SEPARATED A MINIMUM OF THREE (3) INCHES FROM EACH OTHER.

ITEM DESCRIPTION:

1. NOT USED.
2. SECONDARY SURGE ARRESTERS, 2 POLE, 650 VOLT.
3. MAIN PANELBOARD IN A NEMA 3R ENCLOSURE, 480/240 VOLT, 1 PHASE, 3 POLE, 2 SECTION, 200 AMP, 2 POLE, MAIN CIRCUIT BREAKER.
4. LIGHTING CONTACTOR, ELECTRICALLY HELD, 480 VOLT, 200 AMP, 2 POLE, 120 VOLT CONTROL, WITH 250 VOLT, 15 AMP CONTROL LINE ROD, IN A NEMA 3 ENCLOSURE.
5. SECONDARY BREAKER, 15 AMP TRIP, 120 VOLT, SINGLE POLE, 65,000 AMPERES, SYMBOLICALLY INTERPRETING CAPACITY IN A NEMA 3 ENCLOSURE.
6. SERVICE SAFETY SWITCH, 200 AMP, 600 VOLT, NON-FUSED, NEMA 4X STAINLESS STEEL ENCLOSURE.
7. step DOWN TRANSFORMER, 1500 VA, 480 VOLT PRIMARY, 120 VOLT SECONDARY, SINGLE PHASE, 60 HERTZ, DRY TYPE, NEMA 3R ENCLOSURE.
8. LAMP HOLDER 660W, 600V, MOUNTED ON A NEMA 1 ENCLOSURE (WITH ITEM 7), W/LED LAMP.
9. drain OFF-AUTO SELECTOR SWITCH WITH LEGEND PLATE. MOUNTED IN THE COVER OF ITEM 17.
10. 3/4" DIA. x 10'-0" LONG GROUND ROD DRIVEN EXTERNAL TO THE FOUNDATION WITHIN COVER WELL.
11. 3-POLE, 15 AMP FUSE, IN A NEMA 1 ENCLOSURE. MOUNTED AT 120-277 VAC.
12. 200 WATT, 120 VOLT CABINET HEATER WITH INTEGRAL THERMOSTAT.
13. LIFTING EYES (2) ADDED TO PANELBOARD ENCLOSURE.
14. PHOTO ELECTRIC CONTROL SWITCH WITH RECEIVER.
15. 3-WAY LATCH VAULT TYPE HANDLE WITH MASTER KEYED CHICAGO CYLINDER LOCK CATALOG NO. 60.
16. CONTROL CONSOLE DETAILS.
17. STAINLESS STEEL ENCLOSURE WITH CHIP SHIELD AND STAINLESS STEEL HARDWARE. ENCLOSURE SHALL CONFORM TO NEMA 3R STANDARDS WITH STEEL-GALVANIZED CATHODE DOORS. ALL SEAMS CONTINUOUSLY HELD OR USING CONTINUOUSLY HELD CATHODE DOORS.
18. Leaded glass, 10 GAUGE STAINLESS STEEL PLATE. PLATE AS REQUIRED FOR CONDUIT ENTRY.
19. CONTINUOUS STAINLESS STEEL PIANO HINGES.
20. CONTINUOUS HINGED DOORS MEETING IN THE CENTER, OVERLAPPED AND GASKETED, WITH NO CENTERPOST. AN OIL TIGHT KEY BODY, REMOVABLE STEEL (PAINTED WHITE) PANEL INSIDE THE BACK AND A FACTORY INSTALLED DRIP SHIELD. THE ENCLOSURE SHALL HAVE CONTINUOUS HINGED DOORS MEETING IN THE CENTER, OVERLAPPED AND GASKETED, WITH NO CENTERPOST.
21. THE ENCLOSURE SHALL HAVE CONTINUOUS HINGED DOORS MEETING IN THE CENTER, OVERLAPPED AND GASKETED.
22. INTERNAL CONTROL NOOKS SHALL BE 4X AND STAINLESS STEEL ENCLOSURE MOUNTED Enclosure Shall Have A Junction Box Cover Without Knockouts. Item 5 is Mounted in the Cover.
23. INTERIOR CONDUIT AND FITTINGS SHALL BE 3/4" MINIMUM.
24. 5'-0" MINIMUM HEIGHT ABOVE GRADE.
25. 1'-6" MINIMUM FOR CONDUIT OPENING (11"x 41")
26. INTERNAL CONTROL WIRING SHALL BE #12 AWG, STRANDED, XLP INSULATED NEC TYPE RHH/RHW-2 RATED 600 VOLT, WITH SUITABLE COLOR CODING TO BE APPROVED BY THE ENGINEER BEFORE CONSTRUCTION.
27. 200 AMP, 120 VOLT CABINET HEATER WITH INTERNAL THERMOSTAT.
28. Service SAFETY SWITCH, 200 AMP, 600 VOLT, NON-FUSED, NEMA 4X STAINLESS STEEL ENCLOSURE.
29. INTERNAL CONTROL NOKS SHALL BE 4X AND STAINLESS STEEL ENCLOSURE MOUNTED Enclosure Shall Have A Junction Box Cover Without Knockouts. Item 5 is Mounted in the Cover.
30. INTERIOR CONDUIT AND FITTINGS SHALL BE 3/4" MINIMUM.
31. 8"x8" HEAT EXTRACT WITH 3-3" NIPPLES.
32. Dei Outlet.
NOTES:
1. All equipment shall be grounded and bonded in accordance with the National Electrical Code and the National Electrical Safety Code.
2. To service pedestal 480/240V, 1 phase, 3 wire, grounded. See Standard H5.
3. Item numbers refer to equipment list on Sheet 1 of this series.
4. Provide circuit breakers per schedule on the contract plans. Interior only.
5. For exterior equipment layout see Sheet 1 of this series.

CONTROL CONSOLE WIRING DIAGRAM

CONSOLE MOUNTED

NOTE 2

CONTROL CONSOLE DETAILS
(EXTERIOR INSTALLATION)
### Interior Equipment Layout

**1.** Meter Housing - Milbank U8436-D.

**2.** Step Down Transformer, 1500 VA, 480 V Primary, 120 V Secondary, Single Phase, 60 Hertz, Dry Type, NEMA 3R Enclosure.

**3.** Internal Control Wiring shall be #12 AWG, Stranded, Insulated NEC Type THWN/THHN Rated 600 Volt, with suitable color coding to be approved by the Engineer before Construction.

**4.** 2" Stainless Steel Conduit from Service Safety Switch to Lighting Controller Handway.

**5.** Service Safety Switch 200 Amp, 600 Volt, Non-Fused, NEMA 4X Stainless Steel Enclosure.

**6.** NEMA Type I, 8" x 8" x 4" Junction Box & Cover without Knockouts, ITEM 9 is mounted in the cover.

**7.** Internal Conduit and Fittings shall be ¾" Nominal.

**8.** 2" Stainless Steel Conduit to Lighting Controller Handway, refer to site plan for location.

---

### Service Entrance Detail

**1.** Meter Housing, Milbank USA36-0.

**2.** Secondary Surge Arresters, 2 Pole, 600 Volt.

**3.** Main Panelboard in a Nema 1 enclosure, 600/240 Volt, 1 Phase, 2 Section, 200 Amp, 2 Pole Main Circuit Breaker (Min. Amp), Symmetrical Interrupting Capacity with Circuit Breakers per Schedule on Plans, Door Hinges on Right Side.

**4.** Lighting Contactors, Electrically Held, 480 Volt, 200 Amp, 2 Pole, 120 Volt Control, with 250 Volt, 15 Amp Control Line Fuse in a NEMA 3 Enclosure.

**5.** Secondary Breaker, 15 Ampere Trip, 120 Volt, Single Pole, 60,000 Ampere Symmetrical Interrupting Capacity in a NEMA 1 Surface Mounted Enclosure.

**6.** Step Down Transformer, 1500 VA, 480 Volt Primary, 120 Volt Secondary, Single Phase, 60 Hertz, Dry Type, NEMA 3R Enclosure.

**7.** ½" X ¾" C-Channel Unistrut for All Equipment Standoff

**8.** ½" Equipment Mounting Panel (4' X 7' H)

**9.** Hand-Off-Auto Selector Switch with Legend Plate, Mounted in the Cover of Item 17.

**10.** Routed to Building Ground System, 10' Long Ground Rod within Ground Well.

**11.** Ground BUS Mounted in Panelboard Enclosure.

**12.** Photo Electric Control Switch mounted on South Exterior Side of Building (View Unobstructed).

**13.** 8" x 8" Handway with 3-3" nipples.

**14.** Internal Control Wiring shall be ¾" and, Standard, Insulated NEC Type THWN/THHN Rated 600 Volt, with suitable color coding to be approved by the Engineer before Construction.

**15.** 2" Stainless Steel Conduit from Service Safety Switch to Lighting Controller Handway.

**16.** Service Safety Switch 200 Amp, 600 Volt, Non-Fused, NEMA 4X Stainless Steel Enclosure.

**17.** NEMA Type I, 8" x 8" x 4" Junction Box & Cover without Knockouts, Item 9 is mounted in the Cover.

**18.** Internal Conduit and Fittings shall be ¾" Nominal.

**19.** 2" Stainless Steel Conduit to Lighting Controller Handway, refer to site plan for location.

**20.** GFCI Outlet.

---

### Notes

1. Provide Power Utility Co. Meter Housing as indicated on plans.
2. 5-6' maximum height above grade.
3. Stainless Steel conduit to utility service as indicated on plans.
4. ¾" PVC conduit.
5. Exothermic weld No. 2 bare thinned copper ground cable to ground rod 12"-24" below grade.
6. To power utility company, service as indicated on plans.
7. Conduit and cable between meter fitting and disconnect switch, conduit and cable shall be the same as the service.
8. Label all equipment as "Roadway Lighting" + device and building # if applicable.
9. For Wiring Diagram see sheet 2 of this series.
10. All equipment shall be grounded and bonded in accordance with the National Electrical Code and the National Electrical Safety Code.

---

### Interior Equipment Layout

**Item**

1. Meter Housing - Milbank USA36-D.


3. Main Panelboard in a NEMA 1 enclosure, 600/240 Volt, 1 Phase, 2 Section, 200 Amp, 2 Pole Main Circuit Breaker (Min. Amp), Symmetrical Interrupting Capacity with Circuit Breakers per Schedule on Plans, Door Hinges on Right Side.

4. Lighting Contactors, Electrically Held, 480 Volt, 200 Amp, 2 Pole, 120 Volt Control, with 250 Volt, 15 Amp Control Line Fuse in a NEMA 3 Enclosure.

5. Secondary Breaker, 15 Ampere Trip, 120 Volt, Single Pole, 60,000 Ampere Symmetrical Interrupting Capacity in a NEMA 1 Surface Mounted Enclosure.

6. Step Down Transformer, 1500 VA, 480 Volt Primary, 120 Volt Secondary, Single Phase, 60 Hertz, Dry Type, NEMA 3R Enclosure.

7. ½" X ¾" C-Channel Unistrut for All Equipment Standoff

8. ½" Equipment Mounting Panel (4' X 7' H)

9. Hand-Off-Auto Selector Switch with Legend Plate, Mounted in the Cover of Item 17.

10. Routed to Building Ground System, 10' Long Ground Rod within Ground Well.


12. Photo Electric Control Switch mounted on South Exterior Side of Building (View Unobstructed).

13. 8" x 8" Handway with 3-3" nipples.

14. Internal Control Wiring shall be ¾" and, Standard, Insulated NEC Type THWN/THHN Rated 600 Volt, with suitable color coding to be approved by the Engineer before Construction.

15. 2" Stainless Steel Conduit from Service Safety Switch to Lighting Controller Handway.

16. Service Safety Switch 200 Amp, 600 Volt, Non-Fused, NEMA 4X Stainless Steel Enclosure.

17. NEMA Type I, 8" x 8" x 4" Junction Box & Cover without Knockouts, Item 9 is mounted in the Cover.

18. Internal Conduit and Fittings shall be ¾" Nominal.

19. 2" Stainless Steel Conduit to Lighting Controller Handway, refer to site plan for location.

20. GFCI Outlet.
CONTROL CONSOLE DETAILS
(INTERIOR INSTALLATION)

NOTES:
1. To utility service, 480/240V, 1 phase, 3 wire, grounded. When a meter housing is required feed from pad-mounted utility transformer within Illinois Tollway right-of-way.
2. To service pedestal, 480/240V, 1 phase, 3 wire, grounded. See Standard H5.
3. Item numbers refer to equipment list on Sheet 1 of this series.
4. Provide circuit breakers per schedule on the contract plans minimum of 15.
5. For interior equipment layout see Sheet 1 of this series.
6. All equipment shall be grounded andbonded in accordance with the National Electrical Code and the National Electrical Safety Code.
7. Conduit and cable between meter fitting and disconnect switch routed between control console and concrete foundation. When a meter housing is required, conduit and cable shall be the same as the service.

CONTROL CONSOLE WIRING DIAGRAM

EXTERIOR MOUNTED

LIGHTING CONTROLLER (WITHIN BUILDING)

GROUNDED TERMINAL

GROUND REMOVAL

EXTERIOR TO BUILDING

NOTE 1

NOTE 7

EXTerior TO BUILDING
**ELEVATION**

**SECTION A-A**

**MEDIAN PIER JUNCTION BOX MOUNTING PLATE DETAIL**

**UNDERPASS LIGHTING**

(MEDIAN PIER MOUNTED LUMINAIRE & FEEDER INSTALLATION)

---

**NOTE:**

FOR NOTES SEE SHEET 1 OF THIS SERIES.
CONDUIT CLAMP DETAIL

LUMINAIRE HANGER ASSEMBLY DETAIL

UNDERPASS LIGHTING (BRIDGE DECK SUSPENDED LUMINAIRE & MISCELLANEOUS DETAILS)

NOTE:
FOR NOTES SEE SHEET 1 OF THIS SERIES.

STANDARD HS-01
BRIDGE MOUNTED SIGN LIGHTING
(BRIDGE ABUTMENT MOUNTED FEEDER INSTALLATION)

FAR SIDE ABUTMENT END ELEVATION

NEAR SIDE ABUTMENT END ELEVATION

PLAN

SECTION A-A

LEGEND:

1. 3" DIA. STAINLESS STEEL JUNCTION BOX, PROVIDE SUFFICIENT 30 AMP, 600 VOLT TERMINAL BLOCKS TO SUPPORT THE TWO NO. 10 WIRES FOR EACH LUMINAIRE.
2. SIGN LIGHTING SERVICE CIRCUIT BREAKER (30 AMP), POLARIZED IN NEMA TYPE 2 Enclosure, OR THE TYPE 12 POLE MOUNTING FEET OR APPROVED EQUAL, PROVIDE SURGE PROTECTION IN ACCORDANCE WITH ARTICLE 680-52 OF THE STANDARD SPECIFICATIONS.
3. FLASHING BEACON CONTROLLER.

TYPICAL SIGN CONTROL PANEL DETAIL
(SEE FIGURE 2 OF THE STANDARD SPECIFICATIONS).
TYPICAL FRONT ELEVATION WITH FLASHING BEACON

NOTES:
1. A GROUND WIRE NO. 12 AWG WILL BE RUN FROM THE GROUNDING BUSHING TO THE GROUNDING BUSHING IN THE JUNCTION BOX.
2. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
3. CONDUITS, CONDUIT FITTINGS, CLAMPS, AND APPURTENANCES ATTACHED TO ALUMINUM STRUCTURAL SUPPORTS SHALL BE PVC COATED ALUMINUM. PVC COATED GALVANIZED STEEL CONDUITS, CONDUIT FITTINGS, CLAMPS, AND APPURTENANCES SHALL BE UTILIZED WHERE ATTACHED TO STEEL STRUCTURAL SUPPORTS OR WHERE ATTACHED TO STEEL APPURTENANCES. ALUMINUM FITTINGS SHALL BE UTILIZED WHERE ATTACHED TO ALUMINUM APPURTENANCES.
4. ALL STEEL TO BE HOT DIPPED GALVANIZED AFTER WELDING PER STANDARD H14. INSTALLATION OF CONDUIT IN FIXTURE SUPPORT CHANNEL, SEE STRUCTURAL DRAWINGS FOR DETAILS OF SIGN SUPPORTS AND FIXTURE SUPPORT CHANNELS.
5. FIXTURE SUPPORT CHANNELS.
6. FOR SIGN LUMINAIRE INSTALLATION AND WIRING AND FOR INSTALLATION OF CONDUIT IN FIXTURE SUPPORT CHANNEL SEE STANDARD H4.
7. ALL STEEL TO BE COATED WITH AN APPROVED THREAD LUBRICANT. OTHERWISE HEREIN. THREADED JOINTS BETWEEN DISSIMILAR METALS SHALL BE COATED WITH AN APPROVED THREAD LUBRICANT.
8. PROVIDE 1/8" FLASHING BEACON ONLY WHERE INDICATED ON PLANS. FLASHING BEACON TO BE ATTACHED TO SUPPORT WITH STAINLESS STEEL SCREWS AND NEOPRENE SPACERS. DRILLED HOLES TO BE SEALED WATERPROOF.

ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATION SECTION 733.

1. A GROUND WIRE NO. 12 AWG WILL BE RUN FROM THE GROUNDING BUSHING TO THE GROUNDING BUSHING IN THE JUNCTION BOX.
2. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
3. CONDUITS, CONDUIT FITTINGS, CLAMPS, AND APPURTENANCES ATTACHED TO ALUMINUM STRUCTURAL SUPPORTS SHALL BE PVC COATED ALUMINUM. PVC COATED GALVANIZED STEEL CONDUITS, CONDUIT FITTINGS, CLAMPS, AND APPURTENANCES SHALL BE UTILIZED WHERE ATTACHED TO STEEL STRUCTURAL SUPPORTS OR WHERE ATTACHED TO STEEL APPURTENANCES. ALUMINUM FITTINGS SHALL BE UTILIZED WHERE ATTACHED TO ALUMINUM APPURTENANCES.
4. ALL STEEL TO BE HOT DIPPED GALVANIZED AFTER WELDING PER STANDARD H14. INSTALLATION OF CONDUIT IN FIXTURE SUPPORT CHANNEL, SEE STRUCTURAL DRAWINGS FOR DETAILS OF SIGN SUPPORTS AND FIXTURE SUPPORT CHANNELS.
5. FIXTURE SUPPORT CHANNELS.
6. FOR SIGN LUMINAIRE INSTALLATION AND WIRING AND FOR INSTALLATION OF CONDUIT IN FIXTURE SUPPORT CHANNEL SEE STANDARD H4.
7. ALL STEEL TO BE COATED WITH AN APPROVED THREAD LUBRICANT. OTHERWISE HEREIN. THREADED JOINTS BETWEEN DISSIMILAR METALS SHALL BE COATED WITH AN APPROVED THREAD LUBRICANT.
8. PROVIDE 1/8" FLASHING BEACON ONLY WHERE INDICATED ON PLANS. FLASHING BEACON TO BE ATTACHED TO SUPPORT WITH STAINLESS STEEL SCREWS AND NEOPRENE SPACERS. DRILLED HOLES TO BE SEALED WATERPROOF.
SIGN LUMINAIRE INSTALLATION

SECTION A-A
(CONTROL EQUIPMENT NOT SHOWN FOR CLARITY)

TYPICAL SIDE ELEVATION
(LUMINAIRES NOT SHOWN FOR CLARITY)

NOTES:
SEE SHEET 1 OF THIS SERIES FOR NOTES.

(CONTROL EQUIPMENT NOT SHOWN FOR CLARITY)

TYPICAL SIGN CONTROL PANEL DETAIL

FOR TYPICAL WIRING DIAGRAM SEE STANDARD H4

LEGEND:
1. 18"x18"x8" STAINLESS STEEL JUNCTION BOX. PROVIDE SUFFICIENT 30 AMPERE 480 VOLT TERMINAL BLOCKS TO SHEET 480 VOLT WIRING FROM SIGN SERVICE CIRCUIT BREAKER TO TWO NO. 10 WIRES FOR EACH LUMINAIRE.
2. SIGN LIGHTING SERVICE - CIRCUIT BREAKER AND AMPERE PANEL IN WALL TYPE 4X4 ENCLOSURE. SIZE OF PANEL WITH MOUNTING FEET OR APPROVED EQUAL. PROVIDE SURGE PROTECTION DEVICE IN ACCORDANCE WITH ARTICLE 100.62 OF THE STANDARD SPECIFICATIONS.
3. FLASHING BEACON CONTROLLED.

STANDARD H12-04
1. SEE STRUCTURAL DRAWINGS FOR DETAILS OF SIGN SUPPORTS AND FIXTURE SUPPORT CHANNELS.

2. CONDUIT FITTINGS, CLAMPS, AND APPURTENANCES ATTACHED TO ALUMINUM STRUCTURAL SUPPORTS SHALL BE PVC COATED ALUMINUM. PVC COATED GALVANIZED STEEL CONDUITS, CONDUIT FITTINGS, CLAMPS, AND APPURTENANCES SHALL BE UTILIZED WHERE ATTACHED TO STEEL STRUCTURAL SUPPORTS OR WHERE ATTACHED TO CONCRETE STRUCTURES. LESS NOTED OTHERWISE, METAL, NICKEL PLATED Joints BETWEEN DISIMILAR METALS SHALL BE COATED WITH AN APPROVED THREAD LUBRICANT.

3. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.

4. METALS SHALL BE COATED WITH AN APPROVED THREAD LUBRICANT. OTHERWISE HEREIN. THREADED JOINTS BETWEEN DISIMILAR METALS SHALL BE PVC COATED ALUMINUM. PVC COATED GALVANIZED STEEL CONDUITS, CONDUIT FITTINGS, CLAMPS, AND APPURTENANCES ATTACHED TO ALUMINUM STRUCTURAL SUPPORTS SHALL BE PVC COATED ALUMINUM. PVC COATED GALVANIZED STEEL CONDUITS, CONDUIT FITTINGS, CLAMPS, AND APPURTENANCES SHALL BE UTILIZED WHERE ATTACHED TO STEEL STRUCTURAL SUPPORTS OR WHERE ATTACHED TO CONCRETE STRUCTURES. LESS NOTED OTHERWISE, METAL, NICKEL PLATED Joints BETWEEN DISIMILAR METALS SHALL BE COATED WITH AN APPROVED THREAD LUBRICANT.

5. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
LIGHT STANDARD - MAST ARM  
(TWIN MAST ARM SHOWN, TRUSS  
TYPE TWIN MAST ARM SIMILAR) 
N.T.S.

NOTES:
1. POLE CAP TO BE REMOVED AND LUMINAIRE LID TO BE OPENED FOR PLACEMENT OF THE CABLE ASSEMBLY AND PUT BACK IN PLACE. NEW CAP SCREWS SHALL BE USED.
2. THE BREAKING STRENGTH OF THE ASSEMBLED CABLE SHALL BE 1,700 POUNDS MINIMUM. ALLOW FOR 9" TO 12" SLACK IN THE CABLE.
3. ALUMINUM TAG WITH POLE IDENTIFICATION NUMBERS AS PER SPECIAL PROVISIONS.

DETAIL A

BOTTOM VIEW

- CABLE TO BE ROUTED UNDER EXISTING PLATE AND ENCOMPASSING AT LEAST 2 BOLTS
- EXISTING PLATE REPAIRED TO LUMINAIRE HOUSING

N.T.S.
Mast Arm Length as specified on plans

Cable assembly

- Maste Arm
- Aluminum alloy 6063-T6
- Tapered elliptical

Details:

- Stainless Steel cable clips (type)
- 0.125" Stainless Steel aircraft cable
- See note 2
- Aluminum tag (type)
- See note 3
- 4"X2"X0.312" Stainless Steel plate (type) with 1/4" hole, see note 4

Notes:

1. Pole cap to be removed and Luminaire lid to be opened for placement of the cable assembly and put back in place. New cap screws shall be used.
2. The breaking strength of the assembled cable shall be 1,700 pounds minimum, allow for maximum 6" slack in the cable.
3. Aluminum tag with pole identification numbers as per special provisions.
4. All plate edges shall be smooth.
NOTES:

1. FOR DETAILS OF FUSE HOLDER, POLE BASE, WIRING AND CONDUCTOR SPLICE SEE STANDARD H6.

2. ALL REINFORCEMENT BARS SHALL BE EPS PVC.

3. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.

4. POLE SHALL BE MOUNTED AND WIRED PER DETAIL FOR BARRIER WALL MOUNTED UNITS ON LIGHT STANDARD DETAILS (STANDARD H2).

DETAILS (STANDARD H2)

"BARRIER WALL MOUNTED UNITS" ON LIGHT STANDARD POLE SHALL BE MOUNTED AND WIRED PER DETAIL FOR 4.

AND THE NATIONAL ELECTRICAL CODE.

ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN 3.

ALL REINFORCEMENT BARS SHALL BE EPS COATED.

1. WIRING AND CONDUCTOR SPLICE SEE STANDARD H2.

FOR DETAILS OF FUSE HOLDER, POLE BASE 1.

3'-0" (TYP.) FINISHED GRADE AS INDICATED ON PLANS

6" CLR. CONDUIT FOR GROUND ROD

1" DIA. HOT DIPPED GALVANIZED ANCHOR BOLT (4 REQ'D PER FOUNDATION)

15" BOLT CIRCLE EVENLY SPACED 8 #6(E) REBARS (TYP.)

6" DIA. SCHEDULE 40 PVC CONDUIT 24" DIA. #4 SPIRAL W/ 6" PITCH (#4 TIES @ 12" c/c)

1" DIA. NOT DIPPED GALVANIZED ANCHOR BOLT (TYP.)

1/2" DIA. SCHEDULE 40 PVC CONDUIT FOR GROUND ROD 1/2" DIA. SCHEDULE 40 CONDUIT FOR GROUND ROD 3 ADDITIONAL LOOPS (TOP & BOTTOM)

REVISIONS DATE SHEET 1 OF 1

PARKING LOT LIGHT FOUNDATION DETAILS

STANDARD H8-00

APPROVED: 3-1-2019

DATE: 3-1-2019

CHIEF ENGINEERING OFFICER

1" DIA. HOT DIPPED GALVANIZED ANCHOR BOLT 14 IN CHARGE PER FOUNDATION

1" DIA. HOT DIPPED GALVANIZED ANCHOR BOLT 14 IN CHARGE PER FOUNDATION

1/2" DIA. SCHEDULE 40 PVC CONDUIT 1/2" DIA. SCHEDULE 40 CONDUIT 1/2" DIA. SCHEDULE 40 PVC CONDUIT

MINIMUM TWO (2) CONNECTED (THREADED)

3/8" DIA. X 10'-0" GROUND RODS IN 1/2" DIA. SCHEDULE 40 PVC CONDUIT TOP OF GROUND ROD MINIMUM 1 INCH BELOW TOP OF ANCHOR BOLTS

ELEVATION PLAN ANCHOR BOLT DETAIL PVC CONDUIT 6" DIA. SCHEDULE 40 FOUNDATION ~ OF POLE AND 30" DIAMETER PVC CONDUIT 6" DIA. SCHEDULE 40 4" MINIMUM 2'-9" BELOW TOP OF ANCHOR BOLTS (TOP OF GROUND ROD MINIMUM 1 INCH)

3'-0" 6" CLR. CONCRETE FOUNDATION 10'-0" GROUND RODS IN MINIMUM TWO (2) CONNECTED (THREADED) 3" CLR.