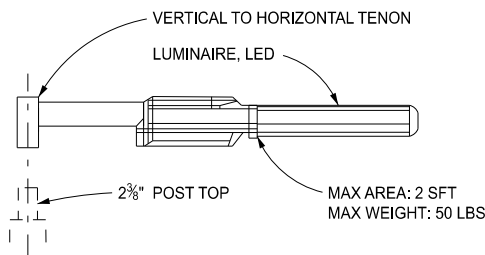


LIGHT STANDARD DETAIL (WITH ARM)

LIGHT STANDARD DETAIL (WITH TENON)



LUMINAIRE DETAIL

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT



DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

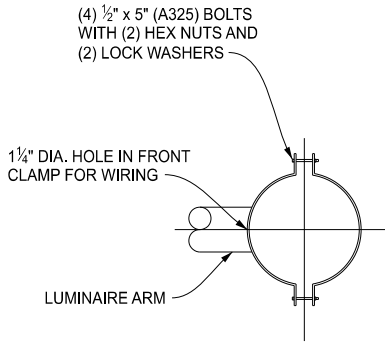
STANDARD PLAN FOR
LIGHT STANDARD DETAILS

(SPECIAL DETAIL)
FHWA APPROVAL

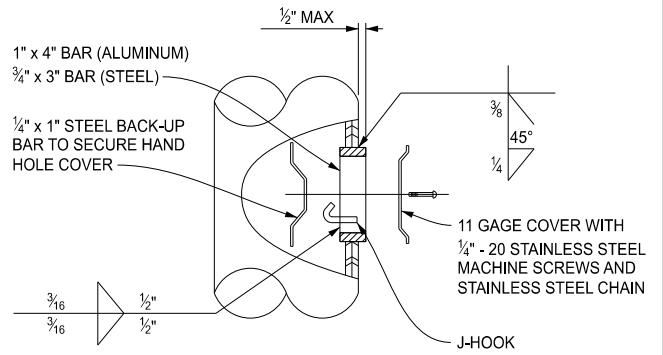
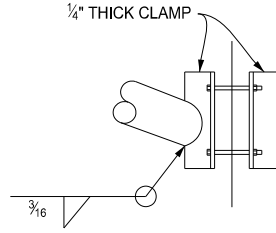
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LUMINAIRE CLAMP DETAILS



4" x 6" HAND HOLE DETAIL

NOTES:

ALL MATERIALS AND WORKMANSHIP MUST BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

EACH BRACKET ARM MUST BE SUPPLIED WITH ITS OWN POLE CONNECTION WITH STAINLESS STEEL HARDWARE. HARWARE MUST INCLUDE LOCK WASHERS, MEETING ANSI B18.21.1.

BOLT CIRCLE DIMENSION MUST BE EXACT. ANCHOR BOLTS MUST BE SET BY A TEMPLATE AND CENTERED ON THE FOUNDATION.

IF FOUNDATION IS WITHIN 30 FEET OF HANDHOLE, CONDUIT MAY BE RUN DIRECTLY TO HANDHOLE.

HANDHOLE TO FACE AWAY FROM TRAFFIC, EXCEPT IT MUST FACE ROADWAY WHEN MOUNTED ON BRIDGE OR MEDIAN WALL. USE STAINLESS STEEL HEX HEAD MACHINE SCREWS. THE HANDHOLES MUST BE PLACED SO THEY DO NOT INTERSECT THE LONGITUDINAL SEAM WELD ON THE POLE.

NUT COVERS ARE NOT ALLOWED.

WHEN A FRANGIBLE TRANSFORMER BASE IS CALLED FOR ON THE PLANS, NO LEVELING NUT IS TO BE USED. FRANGIBLE TRANSFORMER BASES SHALL BE MOUNTED FLUSH WITH TOP OF FOUNDATION.

LIGHT STANDARDS MOUNTED ON FRANGIBLE TRANSFORMER BASES MUST HAVE THE SAME DIMENSIONS AS OTHER BASE TYPES, EXCEPT SHAFT LENGTH.

THE FOUNDATION LENGTHS PROVIDED ARE BASED ON TWO SOIL TYPES: LOOSE COHESIONLESS SOILS WITH A MINIMUM BLOW COUNT OF 5 BLOWS/FT, AND MEDIUM STIFF COHESIVE SOILS WITH A MINIMUM UNDRAINED SHEAR STRENGTH OF 750 PSF. THE CONTRACTOR SHALL VERIFY THE SOIL STRENGTH DURING DRILLING FOR THE SHAFT FOUNDATIONS. SHOULD VERY LOOSE COHESIONLESS SOILS OR SOFT TO VERY SOFT COHESIVE SOILS WITH UNDRAINED SHEAR STRENGTH LESS THAN 750 PSF BE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

THIS STRUCTURE IS DESIGNED FOR THE SPECIFIED LUMINAIRE ONLY. DEVIATIONS FROM THIS STANDARD REQUIRE ADDITIONAL ANALYSIS.

THIS STRUCTURE IS DESIGNED FOR A HEIGHT ABOVE GROUND EQUAL TO THE STRUCTURE'S MOUNTING HEIGHT. STRUCTURES PLACED AT A HIGHER ELEVATION REQUIRE A UNIQUE DESIGN.

FOUNDATIONS SHALL NOT BE BURIED AND SHALL BE REMOVED IF NO LONGER IN USE.


THE DESIGN OF THIS STRUCTURE IS BASED ON THE CATEGORY 1 FATIGUE REQUIREMENTS FOUND IN AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 1ST EDITION, WITH INTERIM REVISIONS THROUGH 2022.

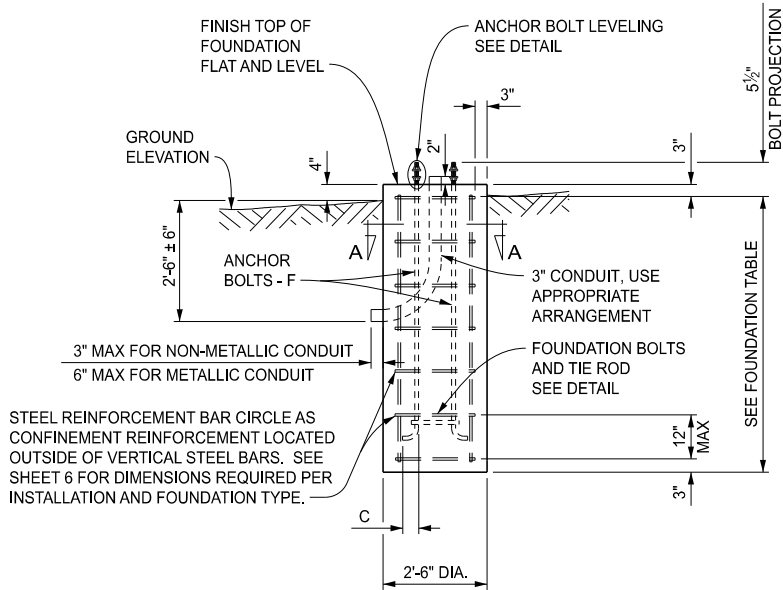
SHAFT LENGTHS MOUNTED ON TRANSFORMER BASES MUST BE ALTERED TO COMPENSATE FOR THE HEIGHT OF THE TRANSFORMER BASE. THE BOLT CIRCLE ON TOP OF THE TRANSFORMER BASE MUST BE THE SAME AS THE BOLT CIRCLE OF THE LIGHT STANDARD ANCHOR BASE.

THE ENTIRE BOTTOM OF THE FRANGIBLE TRANSFORMER BASE MUST BE SEATED ON THE FOUNDATION. THE DIAMETER OF THE FOUNDATION MAY BE ALTERED TO MEET THIS REQUIREMENT.

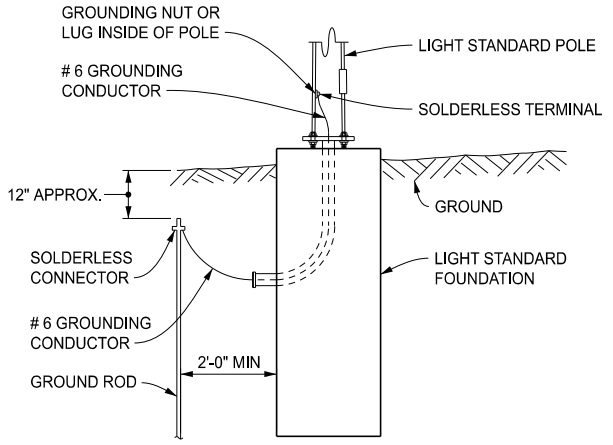
ALL HARDWARE COMPONENTS (INCLUDING FLAT AND LOCK WASHERS) MUST BE INSTALLED AS SHOWN IN THE DETAILS ON THIS SHEET.

FRANGIBLE TRANSFORMER BASES SHALL MATCH DARK BRONZE LUMINAIRE ASSEMBLY COLOR.

| | | | | | |
|--|--|-------------------------|--|----------------|-----------------|
|  DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE | STANDARD PLAN FOR LIGHT STANDARD DETAILS | | | R-130-A | SHEET 2 OF 6 |
| | (SPECIAL DETAIL) FHWA APPROVAL | 01/04/2024 PLAN DATE | | | |

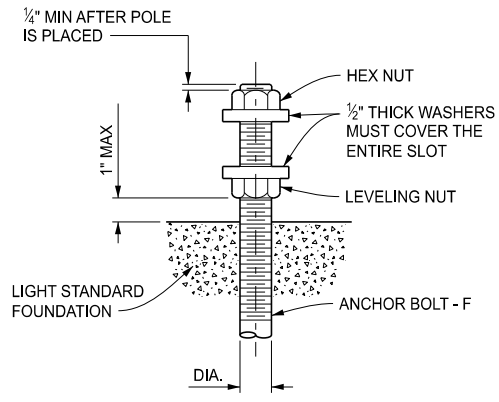


LIGHT STANDARD FOUNDATION DETAIL



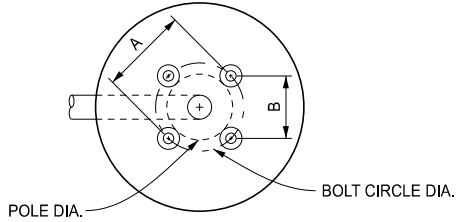
LIGHT STANDARD GROUNDING DETAIL

NOTE:
IF CONDUIT EXTENDS TO HAND HOLE, DRIVE GROUND ROD IN OR NEAR HANDHOLE.

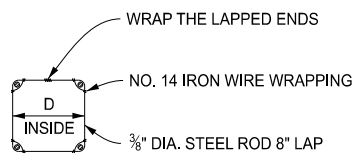


ANCHOR BOLT LEVELING DETAIL

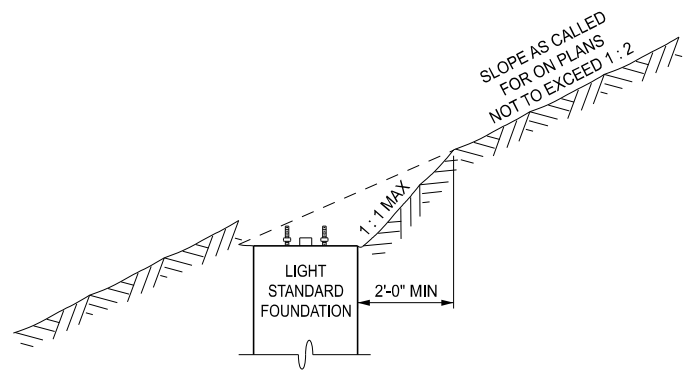
THIS DETAIL DOES NOT APPLY WHEN USING FRANGIBLE TRANSFORMER BASE. SEE FRANGIBLE TRANSFORMER BASE DETAIL ON SHEET 4.



TOP OF FOUNDATION DETAIL



ANCHOR BOLTS AND TIE ROD



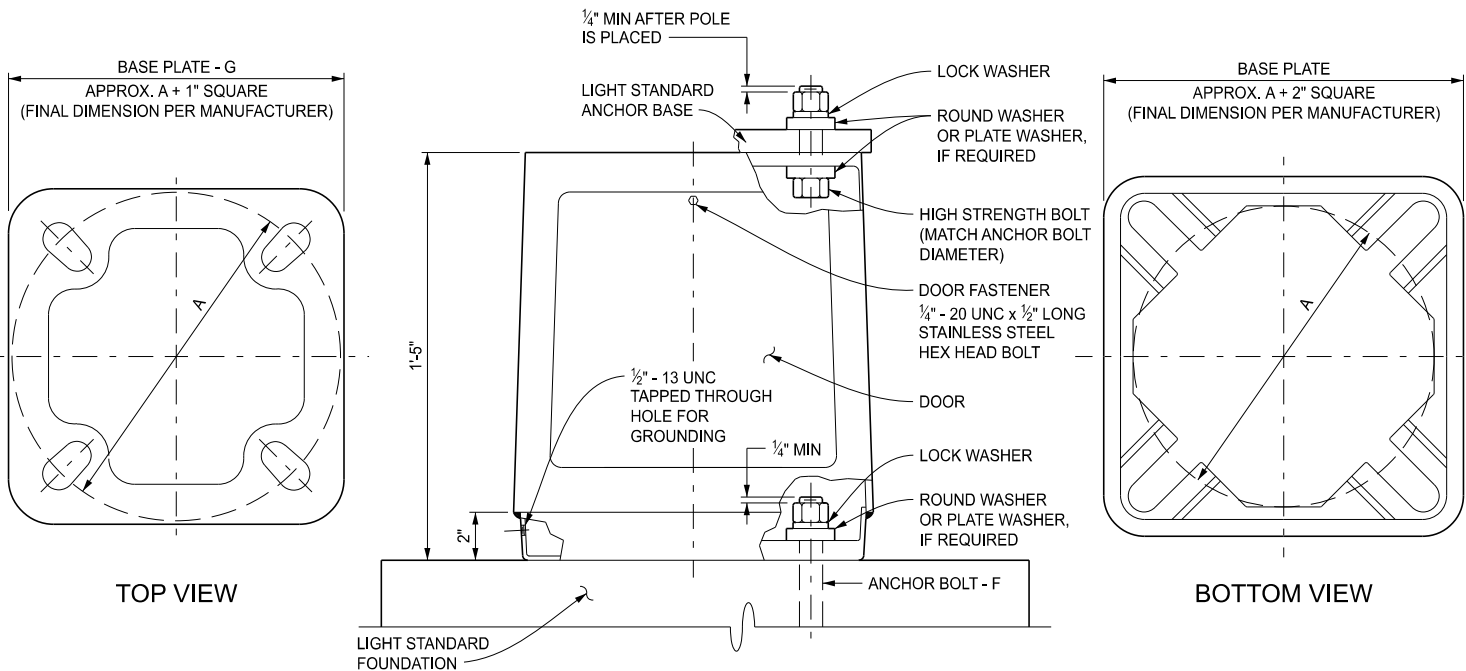
SLOPE DETAIL AT FOUNDATION

ON FILL OR CUT SLOPE

NOTE:
DO NOT COVER HANDHOLES. PLACE PERPENDICULAR TO SLOPE AT SAME ELEVATION AS FOUNDATION.

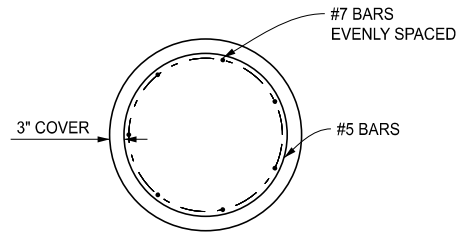
DO NOT PLACE SOIL ABOVE TOP OF FOUNDATION.

| | | | | |
|---|--|-------------------------|----------------|-----------------|
| DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE | STANDARD PLAN FOR LIGHT STANDARD DETAILS | | R-130-A | SHEET 3 OF 6 |
| | (SPECIAL DETAIL) FHWA APPROVAL | 01/04/2024 PLAN DATE | | |

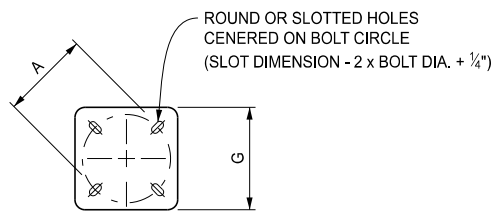


ELEVATION

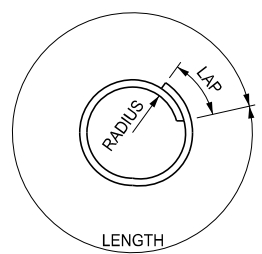
FRANGIBLE TRANSFORMER BASE FOR POLES WITH BOLT CIRCLE DIAMETER - A



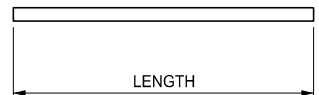
SECTION A-A
ANCHOR RODS NOT SHOWN FOR CLARITY



ANCHOR BASE DETAIL



CONFINEMENT REINFORCEMENT



VERTICAL REINFORCEMENT

REINFORCEMENT DETAILS

| | | | | | |
|---|---|-------------------------|--|---------|-----------------|
| <p>DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE</p> | STANDARD PLAN FOR LIGHT STANDARD DETAILS | | | R-130-A | SHEET 4 OF 6 |
| | (SPECIAL DETAIL) FHWA APPROVAL | 01/04/2024 PLAN DATE | | | |

BASE AND POLE DATA TABLE

| LIGHT STANDARD FOR | A | B | C | D | E | STEEL POLES GAGE (MIN) | ** F | ALUM. POLES GAGE (MIN) | POLE DIAMETER AT BASE | G |
|--|------------------------|-------------------------|-----|--------------------------|-------------------|------------------------|---------------|------------------------|----------------------------|------------------------------|
| 20 FT NOMINAL MOUNTING HEIGHT (WITHOUT TRANSFORMER BASE) | 11" | 7¾" | | | 2" | | 1" Ø x 3'-4" | 0.188" | | 12.2" |
| 20 FT NOMINAL MOUNTING HEIGHT (WITH TRANSFORMER BASE) | * 11" | 7¾" | | | 2" | | 1" Ø x 3'-4" | 0.188" | | 12.2" |
| 30 FT MOUNTING HEIGHT WITH 4 OR 6 FT SINGLE OR DOUBLE BRACKET ARM | 1'-3" (A) 1'-0" (S) | 10⅝" (A) 8½" (S) | 5⅝" | 11⅞" (A) 9¾" (S) | 2" | 7 | 1¼" Ø x 3'-4" | 0.188" | 9" ±½" | 15.38" (A) *** 13.26" (S) |
| 30 FT MOUNTING HEIGHT WITH 8, 10 OR 12 FT SINGLE OR DOUBLE BRACKET ARM | 1'-3" (A) 1'-0" (S) | 10⅝" (A) 8½" (S) | 5⅝" | 11⅞" (A) 9¾" (S) | 2" | 7 | 1¼" Ø x 5'-0" | 0.188" | 9" ±½" | 15.38" (A) *** 13.26" (S) |
| 30 FT MOUNTING HEIGHT WITH 15 FT SINGLE OR DOUBLE BRACKET ARM | 1'-3" (A) 1'-0" (S) | 10⅝" (A) 8½" (S) | 6¾" | 1'-0⅞" (A) 10" (S) | 2" | 7 | 1½" Ø x 5'-0" | 0.25" | 9" ±½" | 15.73" (A) *** 13.61" (S) |
| 30 FT MOUNTING HEIGHT WITH 17 FT SINGLE OR DOUBLE BRACKET ARM | 1'-3" (A) 1'-0" (S) | 10⅝" (A) 8½" (S) | 6¾" | 1'-0⅞" (A) 10" (S) | 2" | 7 | 1½" Ø x 5'-0" | 0.25" | 9" ±½" | 15.73" (A) *** 13.61" (S) |
| 40 FT MOUNTING HEIGHT WITH 4, 6, 8, 10, 12, 15 OR 17 FT SINGLE OR DOUBLE BRACKET ARM | 1'-4" (A) 1'-3" (S) | 11⅜" (A) 10⅝" (S) | 7⅞" | 1'-1⅞" (A) 1'-0⅞" (S) | 2" | 7 | 1¾" Ø x 5'-0" | 0.313" | 10" ±½" | 16.79" (A) *** 16.09" (S) |
| 45 FT MOUNTING HEIGHT WITH 4, 6, 8, 10, 12, 15 OR 17 FT SINGLE OR DOUBLE BRACKET ARM | 1'-5" (A) 1'-6" (S) | 1'-0" (A) 1'-0¾" (S) | 7⅞" | 1'-1¾" (A) 1'-2½" (S) | 2" (A) 2⅜" (S) | 7 | 1¾" Ø x 5'-0" | 0.375" | 11" ±½" (A) 10" ±½" (S) | 17.5" (A) *** 18.21" (S) |

* THE 11" BOLT CIRCLE SHALL APPLY FOR BOTH THE POLE TO TRANSFORMER BASE AND FOR THE TRANSFORMER BASE TO FOUNDATION.

** LENGTH GIVEN IS LENGTH PRIOR TO BENDING.

*** FINAL BASEPLATE WIDTHS FOR ALUMINUM STRUCTURES ARE PER MANUFACTURER

(A) = DIMENSION CORRESPONDS TO ALUMINUM

(S) = DIMENSION CORRESPONDS TO STEEL

FOUNDATION DATA TABLE

| | SINGLE ARM MAXIMUM LUMINAIRE STRUCTURE SIZE | 30 FT MOUNTING HEIGHT, 6 FT ARM | 30 FT MOUNTING HEIGHT, 17 FT ARM | 45 FT MOUNTING HEIGHT, 17 FT ARM |
|--------------|---|---------------------------------|----------------------------------|----------------------------------|
| | | L (FT) | L (FT) | L (FT) |
| GROUND SLOPE | HORIZONTAL | 8.5 | 9 | 10 |
| | SLOPED | 16.5 | 17.5 | 18.5 |

| | DOUBLE ARM MAXIMUM LUMINAIRE STRUCTURE SIZE | 30 FT MOUNTING HEIGHT, 6 FT ARM | 30 FT MOUNTING HEIGHT, 17 FT ARM | 45 FT MOUNTING HEIGHT, 17 FT ARM |
|----------------|---|---------------------------------|----------------------------------|----------------------------------|
| | | L (FT) | L (FT) | L (FT) |
| GROUND SLOPE * | HORIZONTAL | 9 | 10 | 11 |

L = EMBEDDED LENGTH OF THE SHAFT FOUNDATION

* SLOPED GROUND SLOPE CASE NOT TO BE USED FOR DOUBLE ARM LUMINAIRE STRUCTURE.

BRACKET ARM TABLE

| | BRACKET LENGTH, L | 6'-0" | 12'-0" | 15'-0" | 17'-0" |
|----------|--------------------|----------|----------|----------|----------|
| STEEL | TOP MEMBER O.D. | 2" DIA. | 2½" DIA. | 2½" DIA. | 3¼" DIA. |
| | BOTTOM MEMBER O.D. | 1½" DIA. | 1½" DIA. | 2" DIA. | 2" DIA. |
| ALUMINUM | TOP MEMBER O.D. | 2" DIA. | 3" DIA. | 3" DIA. | 3" DIA. |
| | BOTTOM MEMBER O.D. | 1½" DIA. | 2" DIA. | 2¼" DIA. | 2¼" DIA. |



DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR LIGHT STANDARD DETAILS

(SPECIAL DETAIL)
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REINFORCEMENT DATA TABLE

| MAXIMUM LUMINAIRE STRUCTURE SIZE | FOUNDATION DIAMETER (IN) | VERTICAL REINFORCEMENT | | | | CONFINEMENT REINFORCEMENT | | | |
|----------------------------------|--------------------------|------------------------|----------------|---------------------|--------|---------------------------|----------|-------------|------------|
| | | BAR SIZE | NUMBER OF BARS | BAR LENGTH | | BAR RADIUS | BAR SIZE | BAR SPACING | BAR LENGTH |
| | | | | HORIZONTAL | SLOPED | | | | |
| 30 FT MOUNTING HEIGHT, 6 FT ARM | 30 | 7 | 12 | 8'-0" (SINGLE ARM) | 16'-0" | 12" | 5 | 12" (MAX) | 6'-4" |
| 8'-6" (DOUBLE ARM) | | | | | | | | | |
| 30 FT MOUNTING HEIGHT, 17 FT ARM | | | | 8'-6" (SINGLE ARM) | 17'-0" | | | | |
| 45 FT MOUNTING HEIGHT, 17 FT ARM | | | | 9'-6" (SINGLE ARM) | 18'-0" | | | | |
| | | | | 10'-6" (DOUBLE ARM) | | | | | |

PROVIDE A 2'-8" LAP FOR #5 BAR CIRCLES.

MATERIALS TABLE (ANCHOR BASE)

| MATERIAL | SPECIFICATION | DIMENSIONS | QUANTITY (PER FOUNDATION) |
|---|---------------|---|---------------------------|
| ANCHOR BOLTS | MDOT 908.14 | DETERMINED BY LIGHT STANDARD CHART | 4 |
| ANCHOR NUTS | MDOT 908.14 | DETERMINED BY ANCHOR BOLT DIAMETER | 8 |
| FLAT WASHERS **** (1 1/4" DIA. ANCHOR BOLT) | MDOT 908.14 | 2 3/4" O.D. x 1 5/16" I.D. x 1/2" THICK | 8 (IF REQUIRED ****) |
| FLAT WASHERS **** (1 1/2" DIA. ANCHOR BOLT) | MDOT 908.14 | 2 3/4" O.D. x 1 5/16" I.D. x 1/2" THICK | 8 (IF REQUIRED ****) |
| FLAT WASHERS **** (1 3/4" DIA. ANCHOR BOLT) | MDOT 908.14 | 4" O.D. x 1 7/8" I.D. x 1/2" THICK | 8 (IF REQUIRED ****) |
| PLATE WASHERS **** (1 1/4" DIA. ANCHOR BOLT) | ASTM A1018 | 1 5/16" I.D. x 1/2" THICK | 8 (IF REQUIRED ****) |
| PLATE WASHERS **** (1 1/2" DIA. ANCHOR BOLT) | ASTM A1018 | 1 5/16" I.D. x 1/2" THICK | 8 (IF REQUIRED ****) |
| PLATE WASHERS **** (1 3/4" DIA. ANCHOR BOLT) | ASTM A1018 | 1 7/8" I.D. x 1/2" THICK | 8 (IF REQUIRED ****) |

MATERIALS TABLE (FRANGIBLE BASE)

| MATERIAL | SPECIFICATION | DIMENSIONS | QUANTITY (PER FOUNDATION) |
|---|--|--|---------------------------|
| ANCHOR BOLTS | MDOT 908.14 | DETERMINED BY LIGHT STANDARD CHART | 4 |
| ANCHOR NUTS | MDOT 908.14 | DETERMINED BY ANCHOR BOLT DIAMETER | 4 |
| FLAT WASHERS **** (1 1/4" DIA. ANCHOR BOLT) | MDOT 908.14 | 2 3/4" O.D. x 1 5/16" I.D. x 1/2" THICK | 12 OR 14 (****) |
| FLAT WASHERS **** (1 1/2" DIA. ANCHOR BOLT) | MDOT 908.14 | 2 3/4" O.D. x 1 5/16" I.D. x 1/2" THICK | 12 OR 14 (****) |
| FLAT WASHERS **** (1 3/4" DIA. ANCHOR BOLT) | MDOT 908.14 | 4" O.D. x 1 7/8" I.D. x 1/2" THICK | 12 OR 14 (****) |
| LOCK WASHERS | ANSI B18.21.1 | 1/4" THICK | 8 |
| HIGH STRENGTH BOLTS | MDOT 906.07 | LENGTH DETERMINED BY THE CONTRACTOR DIAMETER TO BE SAME AS ANCHOR BOLT | 4 |
| CONNECTING NUTS | MDOT 906.07 | DETERMINED BY HIGH STRENGTH BOLT DIAMETER | 4 |
| PLATE WASHERS **** (1 1/4" DIA. ANCHOR BOLT) | ASTM A1018 | 1 5/16" I.D. x 1/2" THICK | 8 (IF REQUIRED) |
| PLATE WASHERS **** (1 1/2" DIA. ANCHOR BOLT) | ASTM A1018 | 1 5/16" I.D. x 1/2" THICK | 8 (IF REQUIRED) |
| PLATE WASHERS **** (1 3/4" DIA. ANCHOR BOLT) | ASTM A1018 | 1 7/8" I.D. x 1/2" THICK | 8 (IF REQUIRED) |
| FRANGIBLE TRANSFORMER BASE | SELECT FROM THE MDOT QUALIFIED PRODUCTS LIST | ACCESS DOOR OPENING: 8 1/2" x 9" x 11" | 1 |

**** IF LIGHT STANDARDS BASE PLATE HAS SLOTTED HOLES, PLATE WASHERS ARE REQUIRED IN LIEU OF CIRCULAR WASHERS AND MUST COVER ENTIRE SLOT.

ALL ANCHOR BOLTS, NUTS, WASHERS AND PLATE WASHERS MUST BE HOT DIP GALVANIZED ACCORDING TO AASHTO M232.



STANDARD PLAN FOR
LIGHT STANDARD DETAILS

(SPECIAL DETAIL)
FHWA APPROVAL

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